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# Head and Neck Cancer Kills – An Enigma for Prevention and Cure

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Head & Neck Cancer possess one of the major threats to public health in the developed nations and increasingly in the developing nations like India. Head & neck cancer represents one of the most common causes of mortality and morbidity today with more than 10 million new cases and more than 6 million deaths worldwide each year.<sup>1</sup> It is estimated that by 2020 there will be every year 15 million new head and neck cancer cases causing 10 million cancer deaths.<sup>2</sup> It is also estimated that around 43% of the present cancer deaths are due to illicit tobacco use, alcohol consumption, inactive lifestyles and infection. Low-income and low socio-economic status groups are generally more exposed to unavoidable risk factors such as environmental carcinogens, alcohol, tobacco use and infectious agents. These groups also have a very less access to the public health services and health education that would empower or prevent them to make wrong decisions, to protect themselves and improve their own health. The population-attributable risks of smoking and alcohol consumption have been estimated to 98.01 million male smokers and 12.1 million female smokers in India (2012).<sup>3</sup> The evidence that smokeless tobacco causes head & neck cancer was confirmed recently by the International Agency for Research on Cancer and also studies have shown that illicit heavy intake of alcoholic beverages is associated with nutrient deficiency which causes independently the process of oral carcinogenesis. Head & Neck cancer is only preventable through risk factors intervention.

The WHO Global Oral Health Program is committed for service to country's capacity for building head & neck cancer prevention, inter-country exchange of important information with epidemiology and experiences from integrated approaches in prevention and health promotion and the development of global surveillance systems for head and neck cancer and their risk factors. It has also established a global surveillance system of head and neck cavity cancer in order to assess risk factors and to help the planning of effective national intervention programme. The overall goal of cancer prevention and control is to

decrease the incidence of morbidity and mortality of cancer and to improve the quality of health care and life of cancer patients and their families both physically and psychologically. A well-conceived national cancer control/prevention program is the most effective equipment to bridge the gap between practice and knowledge and achieve this goal. Integrated into existing health systems and related services, these programmes impart equitable and systematic implementation of cancer control strategies for prevention, early detection, treatment and palliative care.<sup>4</sup> A national cancer control programme can help policy-makers and programme managers make the most efficient use of available resources to benefit the whole population by taking a balanced approach to evidence based interventions. When appropriate steps are taken, prevention usually offers the most cost effective long-term strategy for cancer control. They are also beneficial as they can also indirectly contribute to preventing other chronic diseases that share the same risk factors.

World Health Assembly (WHA) in 2007 passed a resolution on oral health care for the first time in 25 years which also considers head & neck cancer prevention. Treatment aims to cure disease, prevent the disease, prolong life and improve the quality of life. The most treatment is linked to early detection cancer programmes and follows evidence-based protocol for care. The formulation of guidelines and their adaptation to various resource settings and Implementation of these guidelines can prevent the misuse of resources by ensuring that treatment is provided only to those patients whose cancers are at a stage where they would benefit from treatment. Most of the advanced stage cancer patients require palliative care.

Palliative care involves not only involves relief from pain but also physical and psychosocial support to patients and their families throughout the course of the disease. It improves the quality of health care and life of patients and their families regardless of the possibilities of cure or treatment. These services can be provided simply and inexpensively

and may involve pain control but these palliative services are often limited, even in high-resources areas, because of lack of sufficient motivation, information, political will, and education of the general public, health care professionals and patients. Surveillance and research in these area are crucial and of utmost importance for planning effective and efficient cancer control programmes, monitoring and evaluating their efficacies.<sup>5,6</sup> A comprehensive surveillance system provides data on the frequency, magnitude of the cancer burden and brings out various risk factors, and on the effect of prevention, detection, treatment and palliative care. Cancer registries are part of the surveillance system. Hospital based registries provide information regarding diagnosis, staging distribution, treatment methods and survival whereas population based registries provide information on incidence cases. Cancer Research contributes to determining causes of cancer and identifying and evaluating strategies for prevention, treatment and control.<sup>7</sup> Hence research planning and priority setting are important elements of a cancer control programme.

**The resolution WHA60 A16 URGES Member states:**

*To take steps to ensure that prevention of oral cancer is an integral part of national cancer-control programmes and to involve oral-health professionals or primary health care personnel with relevant training in oral health in early detection, diagnosis and treatment.*

To draw the world's attention on effective care and control of head & neck cancer, the International federation of head and neck oncologist, U.S. have signed a petition this year to propose 27th July as Head & Neck Cancer Day. Its control requires a multi-sectoral response from health care professionals, Government, Non-Government Organizations, civil society and industry. Please log on to <http://www.ahns2014.org/petition> to sign the petition and join for a cause.

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# Out-Look of Undergraduate Dental Students on Dental Implants in Bhopal, Central India

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## Abstract

**Introduction:** Through the enhancement and innovation in dentistry, dental implants provide the top most dental care by providing comfortable fixed teeth to the people. The information which is available to the patients regarding the implant procedure and its success is often fragmentary. It is the liability of dentist or concerned authority to educate or spread cognizance amongst people on dental implants being a contemporary dental treatment modality. It is imperative to know the approachability of undergraduate dental students on dental implants initiated as the felt need of the study.

**Materials & Method:** A cross-sectional survey was conducted amid dental students of Bhopal district. Survey was inclusive of entire undergraduate students of various dental colleges. Over-all 2400 students comprise target population, 25% (600 students) of the intended population were selected by simple random sampling method and thus 600 questioners were distributed to the students. Out of 600 questionnaires which were distributed only 550 questionnaires were returned amongst which 480 students had filled the complete questionnaire. And thus, 480 questionnaires were analysed.

**Result:** Out of 480 students who were interviewed, 426 (88.75%) were aware of the implant procedure. A statistical difference existed between levels of education and the awareness about implants out of 426 (88.75%) students were aware about the implant procedure 28 (6.6%) was I year students, 71(16.7%) were II year students, 151(35.4%) were III year students and 176(41.3%) were final year students.

**Conclusion:** The level of knowledge and experience amplified with the academic years, clearly demonstrated improvement in familiarity about fixed prosthesis, educators need to place greater emphasis on dental implant education in dental colleges.

**Keywords:** Dental implants, Dental implant education, Knowledge, Treatment awareness, Undergraduate dental students

## INTRODUCTION

Dental implantology is recklessly becoming a branch of learning in the field of dentistry. It has been recorded as the most noteworthy advancement in dentistry within the last 5 decades. The interest in aesthetically flawless teeth and also a nearly natural substitute of teeth such as an implant supported over denture, has grown over the years.<sup>1</sup> Dental implant is an synthetic tooth root placed in the jaws to hold a replacement tooth or bridge. They are a supreme option for people with good general and oral health who have lost their dentition due to various dental

problems like periodontal disease, dental caries, an injury or for any other reason. So, for the management of these edentulous patient dental implants are used as a treatment option which improves the quality of life, denture retention, its stability and functional efficiency.<sup>2-4</sup>

There is an increased number of loaded implants continuously from 170,000 in 1999 to 380,000 in 2002 according to implant surgeons and dentist. It is predictable that there is another increase in the coming years to as many as 500,000 implants per year.<sup>1</sup> Advantage of transplant technologies create more possibilities in implication areas

as well as prosthetic rehabilitation.<sup>1</sup> After a surveillance period of at least 5 years, collective implant success rate in patients with partially edentulous arches were between 96.6% and 98.5% and the growing implant supported crown achievement rate was 93.7%.<sup>7</sup> Since implant treatment is an optional procedure,<sup>10</sup> absolute information on implant treatment and substitute therapies must be provided to guide the patient in the selection of the most appropriate opportunity.<sup>11</sup> The information which is accessible to the patients regarding the implant procedure and its achievement is often fragmentary and this crisis is more compounded in developing nations where dentist and the concerned authorities are not doing enough to instruct and swell knowledge amongst people about dental implants being a dental treatment modality.<sup>12</sup> It is imperative to know whether undergraduate dental students are aware of dental implants as a treatment option and whether the information that they have is close to reality or not. Awareness amongst the dental students concerning the dental implant can help in eliminating any negative reflection of the procedure that may have been caused due to lack of adequate communication since they will be the future dentist, it would be their prime responsibility to spread awareness about this new advancement amongst the common man. Thus, a study was conducted which aimed to determine the awareness about dental implants amongst the students of People's College of Dental Science and Research Centre, Bhopal.

## MATERIAL & METHODOLOGY

A cross sectional study was carried out from 15<sup>th</sup> January 2013 to 15<sup>th</sup> February 2013, amongst the undergraduate students from first to final year of Bhopal district. Overall 2400 students comprised the target population, 25% (600 students) of the intended population were selected by simple random sampling method and thus 600 questioners were distributed to the students. The information was collected using a self explanatory questionnaire which was grouped under

- A. Gender: Male, Female
- B. Education levels: First to final year undergraduate students.
- C. Mean Age: 18 to 25 years.

Out of 600 questionnaires which were distributed only 550 questionnaires were returned amongst which 480 students had filled the complete questionnaire. And thus, 480 questionnaires were analysed.

Ethical approval was obtained from the ethical committee of People's college of dental sciences and research centre at the beginning of the study. A written permission was

taken from the head of the other institutes to conduct the study in their college. The participants were informed about the procedure and were assured of the confidentiality of the collected data.

### Inclusion Criteria

Only the first year to final year dental students of Bhopal district were included in the study.

Age group: Only 18 to 25 years of age group students were participated in the study.

### Exclusion Criteria

Dental Post graduate students and interns were excluded in the study.

### Questionnaire

The questionnaire was finalized after conducting a pilot test in 20 students to check the reliability and validity of questionnaire. The questionnaire included 8 special closed ended questions about implants to gauge the student's awareness, perceptions of oral hygiene considerations, durability and cost of an implant supported over denture.<sup>1</sup> The questionnaires were distributed to the students, visiting their respective colleges of Bhopal. Sufficient time was given to them to fill the questionnaire and the answered questionnaire was collected at their subsequent classes. The nature and purpose of the assessment was explained to the subjects.

### Data Analysis

The data was analyzed using SPSS (statistical package for social sciences) version 17. The association of the responses to the questionnaire was seen with gender and the education levels using chi-square test and P value < 0.05 was considered statistically significant.

## RESULT

Out of 480 students who were interviewed only 426 (88.75%) were aware of the implant procedure from which 220(51.6%) were males and 206(48.4%) were females, while remaining 54 students had no knowledge about the implant procedure. Thus, a statistically significant difference was found among the boys and girls in term of mean level of knowledge and attitude towards dental implants.

A statistical difference existed between levels of education and the awareness about implants which was concluded as the results showed that out of 426 students who were aware about the implant procedure 28 (6.6%) were I year students, 71(16.7%) were II year students, 151(35.4%) were III year students and 176(41.3%) were final year

students. Hence, a statistically significant difference was found among the years of study, in term of mean level of knowledge and their attitude towards dental implants. Final year students had more knowledge about dental implants.

### Results According to Analysis of the Questionnaire

Among those students who were aware of dental implants from their dentist i.e 159 (33.12%), the number of males were 77(48.4%) and females were 82 (51.6%), while 240 (50%) who had awareness about it from other sources of information like the books, magazines and internet included 126 (52.5%) males and 114(47.5%) females (Table 1).

Out of 159 students who had knowledge about dental implants from their dentist, 16 (10.1%) were I year students, 17 (10.7%) were II year students, 61 (38.4%) were III year students and 65 (40.9%) were final year students. While the students who were aware about it from other sources included 53(22.1%) of I year students, 11(4.6%) of II year students, 82 (34.2%) of III year students and 94 (39.2%) of final year students (Table 2).

Amongst the 480 students who were questioned, 265(55.2%) students had knowledge about the implant placement procedure out of which 137(51.7%) were males and 128 (48.3%) were females (Table 1) which included 39(14.7%) of I year students, 20(7.5%) of II year students,

**Table 1: Distributions of the response of participants according to the gender**

	Gender		Total	Chi-square P-value
	Male n (%)	Female n (%)		
Are you aware of the implant therapy as an alternative for missing teeth?				
Yes	220 (51.6)	206 (48.4)	426 (100)	0.775
No	29 (53.7)	25 (46.3)	54 (100)	
Total	249 (51.9)	231 (48.1)	480 (100)	
If yes, then where did you get to know about it?				
If no, then	29 (53.7)	25 (46.3)	54 (100)	0.53
From your dentist	77 (48.4)	82 (51.6)	159 (100)	
Books/magazines/internet	126 (52.5)	114 (47.5)	240 (100)	
Others	17 (63)	10 (37)	27 (100)	
Total	249 (51.9)	231 (48.1)	480 (100)	
Do you have the knowledge of the implant placement procedure?				
Yes	137 (51.7)	128(48.3)	265 (100)	0.93
No	112 (52.1)	103 (47.9)	215 (100)	
Total	249 (51.9)	231 (48.1)	480 (100)	
What do you estimate as the functional life of an implant (years)?				
<10 years	38 (55.1)	31 (44.9)	69 (100)	0.074
10-20 years	119 (56.7)	91 (43.3)	210 (100)	
No idea	92 (45.8)	109 (54.2)	201(100)	
Total	249 (51.9)	231 (48.1)	480 (100)	
Up to which amount are you prepared to pay as an additional payment for implant?				
Rs.5000	47 (58)	34 (42)	81 (100)	0.106
Rs.7000	31 (41.9)	43 (58.1)	74 (100)	
Rs.15000	94 (56.3)	73 (43.7)	167 (100)	
No idea	77 (48.7)	81 (51.3)	158 (100)	
Total	249 (51.9)	231 (48.1)	480 (100)	
What do you anticipate as oral hygiene for the care of implants compare with natural teeth?				
More	103 (48.8)	108 (51.2)	211 (100)	0.084
Similar	82 (58.6)	58 (41.4)	140 (100)	
Less	7 (77.8)	2 (22.2)	9 (100)	
No idea	57 (47.5)	63 (52.5)	120 (100)	
Total	249 (51.9)	231 (48.1)	480 (100)	
Are you willing to undergo an implant procedure if it is needed as a treatment option?				
Yes	117 (46.2)	136 (53.8)	253 (100)	0.006*
No	55 (66.3)	28 (33.7)	83 (100)	
May be/ not sure	77 (53.5)	67 (46.5)	144 (100)	
Total	249 (51.9)	231 (48.1)	480 (100)	
If no, then what is the reason?				
Willing to undergo procedure.	117 (46.2)	136 (53.8)	253 (100)	0.005*
Very costly	25 (78.1)	7 (21.9)	32 (100)	
Surgical procedure	23 (53.5)	20 (46.5)	43 (100)	
Not to clear about the procedure	84 (55.3)	68 (44.7)	152 (100)	
Total	249 (51.9)	231 (48.1)	480 (100)	

\*=P value is statistical significant

**Table 2: Distributions of the response of the participants according to the hierarchy of dental students**

	I N (%)	II N(%)	III N(%)	IV N(%)	Total	P-value
Are you aware of the implant therapy as an alternative for missing teeth?						
Yes	28 (6.6)	71 (16.7)	151 (35.4)	176 (41.3)	426 (100)	0.00*
No	10 (18.5)	28 (51.9)	16 (29.6)	0 (0)	54 (100)	
Total	81 (16.9)	56 (11.7)	167 (34.8)	176 (36.7)	480 (100)	
If yes, then where did you get to know about it?						
If no, then	10 (18.5)	28 (51.9)	16 (29.6)	0 (0)	54 (100)	0.00*
From your dentist	16 (10.1)	17 (10.7)	61 (38.4)	65 (40.9)	159 (100)	
Books/magazines/internet	53 (22.1)	11 (4.6)	82 (34.2)	94 (39.2)	240 (100)	
Others	2 (7.4)	0 (0)	8 (29.6)	17 (63)	27 (100)	
Total	81 (16.9)	56 (11.7)	167 (34.8)	176 (36.7)	480 (100)	
Do you have the knowledge of the implant placement procedure?						
Yes	39 (14.7)	20 (7.5)	86 (32.5)	120 (45.3)	265 (100)	0.00*
No	42 (19.5)	36 (16.7)	81 (37.7)	56 (26)	215 (100)	
Total	81 (16.9)	56 (11.7)	167 (34.8)	176 (36.7)	480 (100)	
What do you estimate as the functional life of an implant (years)?						
<10 years	4 (5.8)	4 (5.8)	7 (10.1)	54 (78.3)	69 (100)	0.00*
10-20 years	43 (20.5)	9 (4.3)	65 (31)	93 (44.3)	210 (100)	
No idea	34 (16.9)	43 (21.4)	95 (47.3)	29 (14.4)	201 (100)	
Total	81 (16.9)	56 (11.7)	167 (34.8)	176 (36.7)	480 (100)	
Up to which amount are you prepared to pay as an additional payment for implant?						
Rs. 5000	23 (28.4)	11 (13.6)	25 (30.9)	22 (27.2)	81 (100)	0.00*
Rs. 7000	8 (10.8)	5 (6.8)	23 (31.1)	38 (51.4)	74 (100)	
Rs. 15000	17 (10.2)	7 (4.2)	61 (36.5)	82 (49.1)	167 (100)	
No idea	33 (20.9)	33 (20.9)	58 (36.7)	34 (21.5)	158 (100)	
Total	81 (16.9)	56 (11.7)	167 (34.8)	176 (36.7)	480 (100)	
*What do you anticipate as oral hygiene for the care of implants compare with natural teeth?						
More	44 (20.9)	13 (6.2)	66 (31.3)	88 (41.7)	211 (100)	0.00*
Similar	17 (12.1)	8 (5.7)	58 (41.4)	57 (40.7)	140 (100)	
Less	0 (0)	0 (0)	2 (22.2)	7 (77.8)	9 (100)	
No idea	20 (16.7)	35 (29.2)	41 (34.2)	24 (20)	120 (100)	
Total	81 (16.9)	56 (11.7)	167 (34.8)	176 (36.7)	480 (100)	
*Are you willing to undergo an implant procedure if it is needed as a treatment option?						
Yes	33 (13)	16 (6.3)	102 (40.3)	102 (40)	253 (100)	0.00*
No	8 (9.6)	20 (24.1)	23 (27.7)	32 (38.6)	83 (100)	
May be/not sure	40 (27.8)	20 (13.9)	42 (29.2)	42 (29.2)	144 (100)	
Total	81 (16.9)	56 (11.7)	167 (34.8)	176 (36.7)	480 (100)	
*If no, then what is the reason?						
Willing to undergo procedure	33 (13)	16 (6.3)	102 (40.3)	102 (40.3)	253 (100)	0.00*
Very costly	0 (0)	8 (25)	5 (15.6)	19 (59.4)	32 (100)	
Surgical procedure	3 (7)	3 (7)	15 (34.9)	22 (51.2)	43 (100)	
Not to clear about the procedure	45 (29.6)	29 (19.1)	45 (29.6)	33 (21.7)	152 (100)	
Total	81 (16.9)	56 (11.7)	167 (34.8)	176 (36.7)	480 (100)	

\* = P value is statistical significant

86(32.5%) of III year students and 120 (45.3%) of final year students (Table 2). While 215 (44.8%) students had no knowledge about implant placement procedure.

With regards to the durability of implants, 210 (43.75%) students expected them to last between 10-20 years out of which 119 (56.7%) were males and 91(43.3%) were females (Table 1). Only 69 (14.8%) students estimated the durability to be less than 10 years. 201(41.8%) students had no idea about the durability of implants.

Amongst students who answered that the durability of implants last between 10-20 years, 43 (20.5%) were I year

students, 9 (4.3%) were II year students, 65 (31%) were III year students and 93 (44.3%) were final year students (Table 2).

The readiness of students to bear the cost of an implant treatment was not uniform, 167 (34.8%) students were prepared to make an additional payment of up to Rs.15000 out of which 94 (56.3%) were males and 73(43.7%) were females (Table 1) in which 17 (10.2%) were I year students, 7(4.2%) were II year students, 61(36.5%) were III year students and 82(49.1%) were final year students (Table 2) but 74 (15.5%) students agreed only up to Rs.7000 out of which 31(41.9%)

were males and 43 (58.1%) were females (Table 1) out of which 8(10.8%) were I year students, 5 (6.8%) were II year students, 23 (31.1%) were III year students and 38 (51.4%) were final year students (Table 2) and 81 (16.8%) students were ready to pay up to Rs. 5000 out of which 47(58%) were males and 34 (42%) were females in which 23(28.4%) were I year students, 11(13.6%) were II year students, 25 (30.9%) were III year students and 22(27.2%) were final year students and 158 students had no idea about the additional payment for implants out of which 77 (48.7%) were males and 81(51.3%) were females (Table 1) in which 33(20.9%) were I year students, 33(20.9%) were II year students, 58 (36.7%) were III year students and 34 (21.5%) were final year students (Table 2).

Concerning oral hygiene in the care of implants, out of 480 students 211(44%) students questioned expected an implant- supported over denture to require more care than natural teeth out of which 103(48.8%) were males and 108 (51.2%) were females (Table 1) in which 44(20.9%) were I year students, 13 (6.2%) were II year students, 66 (31.3%) were III year students and 88(41.7%) were final year students (Table 2) while 140 (29.1%) students estimated the care to be similar to natural teeth in which 82 (58.6%) were males and 58 (41.4%) were females (Table 1) in which 17 (12.1%) were I year students, 8(5.7%) were II year students, 58 (41.4%) were III year and final year students both (Table 2). Only 9 (1.8%) students expected that less care would be needed out of which 7 (77.8%) were males and 2 (22.2%) were females (Table 1) in which I and II year students were 0 %, 2(22.2%) were III year students and 7 (77.8%) were final year students (Table 2), 120 (25%) students had no knowledge about the oral hygiene care of implants compared with natural teeth out of which 57 (47.5%) were males and 63 (52.5%) were females in which 20 (16.7%) were I year students, 35 (29.2%) were II year students, 41 (34.2%) were III year students and 24(20%) were final year students.

Among students who had knowledge, were further questioned about dental implants as a treatment option if needed. Out of them- 253 (52.7%) students were willing to use the dental implants as a treatment, 117 (46.2%) were males and 136 (53.8%) were females (Table 1) in which 33 (13%) were I year students, 16 (6.3%) were II year students, 102 (40%) were III year and final year students (Table 2). 83 (17.2%) students were not willing to use them out of which 8(23.5) were males and 26(76.5%) were females (Table 1) in which 3(8.8%) were I year students, 20 (24.1%) were II year students, 23 (27.7%) were III year students and 32(38.6%) were final year students (Table 2) and 144 (30%) students who were not so sure about implants as a treatment option included 77 (53.5%) of males and 67 (46.5%) of females in

which 40(27.8%) were I year students, 20 (13.9%) were II year students, 42 (29.2%) were III year students and final year students (Table 2).

Amongst the students who did not consider implants as a treatment option, 32 (38.5%) students cited high cost as the main reason for the refusal, while 43(51.8%) students stated that it was a surgical procedure while out of 480 students 152 (31.6%) students were not clear about the procedure.

## DISCUSSION

Dental implants appear to be an efficacious substitute for lost teeth. Through more or less specialist, often ambivalent, reporting by various media, this procedure is increasingly becoming focus of patient's interest.<sup>13</sup> A survey was accomplished midst the undergraduate students of Bhopal district concerning the awareness about implants as a treatment modality and their inclination to endure this treatment if needed.

A simple questionnaire was made and filled by undergraduate dental students of Bhopal district. Among the 480 students that were questioned, 88.75% students had heard about the dental implants as a treatment modality. Most of them who were aware of implants were final year students (41.3%). A statistical variance occurred between the levels of education and the awareness about implants, with greater awareness in students of final years. In the study steered by Choudhary R<sup>14</sup> in (23.24%) urban Indian population were perceptive of oral implants. In a study in Jaipur by Kaurani P<sup>12</sup> 38% were insightful of dental implants.<sup>12</sup> In the present study, the study was accomplished among dental students so the perception rate is additional which is quiet obvious, knowledge among dental students as compare to general populations is enhanced.

Our study shows that 50% students learnt about dental implants from their print and electronic media which is in distinction to that reported by earlier researchers. Kaurani P et al.<sup>12</sup> reported dentist to be the focal source of information.<sup>12</sup> In the study conducted by J. Rustemeyer et al<sup>1</sup> reported that the contribution of internet, books and magazines was very low. It was recorded by Zimmer<sup>15</sup> in 1992 that only 17% of the people were cited dentist as a source of information. In our study in only 32.12% of cases dentists were first source for their awareness, linking upper study dentists have the most effective role in awareness about dental implants. In the existing study, this clearly indicates the lack of efforts by dentists and the governing bodies regarding taking necessary steps for creating consciousness amongst the people. It appears that media plays a substantial role in educating students about dental implants. The important

role of internet and print reflects increased access to internet source and its role will undoubtedly proliferated intensely.

Tapper et al also showed 54% of patient believed expected mean durability of implant is 10-20 years and 21% less than 10 years.<sup>16</sup> in the study done by J Rustemeyer et al<sup>1</sup> only 3% of the patients expected durability of less than 10 years.<sup>1</sup> Present study also show that 43.75% students believed expected mean durability is 10-20 years in which 44.3% of students were from final year this means first year students had not adequate information about dental implants and only 14.37 % estimated the durability of implant to be less than 10 years. Final year students are more attentive of it as dental implant is included in their curriculum and thus the result were statistical substantial.

The cost of implant is a major argument against implant therapy. J. Rustemeyer et al<sup>1</sup> showed that 23% of patients were primed to make an additional payment of up to 2000 Euro. In the present study 34.79 % of students were prepared to pay Rs. 15000 as an additional payment for implants in which 50% of students are from final years indicating that they are more aware about importance of dental implants procedure and its cost as dental implants have significant advantages over conventional removable dentures and 33% of students had no idea about the expenses of implants. Thus the result shows statistical significant differences amongst the level of education.

Many patients are unaware of the complexity of planning, realization and aftercare of an implant-supported over denture, but the fallacy that implants are less care intensive than natural tooth was not widespread among the patients.<sup>1</sup> In present study only 2% of students expected a lower need for care of implants compare with natural teeth. 44% of the students expected higher level of care because they consider that dental implants do not have the biological zone that a natural tooth has which keeps bacteria out so dental implants need more care as compare to natural tooth. Results analogous to findings in this study were reported by J. Rustemeyer et al.<sup>1</sup> from their survey only 7% of the patients expected that less care would be needed, 31% expected that implant require more care than natural teeth, 58% estimated the care to be similar. Another study done by Tepper et al<sup>16</sup> were reported from a survey of 1000 patients that only 4% believed an implant supported set to be less care intensive than natural teeth, 46% expected higher level of care and 44% a comparable level of care.

The study done by Satpathy A et al<sup>17</sup> reported that 39.29% felt dental implants needed less care in comparison to natural teeth and 37.49% felt they are cleaned just like natural teeth, 23.24% did feel that they require more care than the natural teeth.

Amongst 480 students, 52.7% students are willing to undergo implant procedure while only 17% of students were not willing to undergo the procedure in which 38.5% found this treatment option to be costly and 52% was not willing due to fear of surgical procedure and 31% of students are not sure whether they going for treatment procedure or not as they are not clear about the procedure. Dental implants are so costly because they are treated like major surgery and require the presence of a full surgical team. The study done by Pragati K<sup>12</sup> reported different results in their study only 29% of the people were willing to use dental implants as a treatment and 56% people were not willing to undergo the procedure because 61.6% found this treatment option to be costly and 19.6% stated that it was a surgical procedure and 18.7% were not clear about the procedure. High cost to be a major deterrent to dental implants. A study by Palmqvist et al<sup>18</sup> demonstrated that patients could be restricted more by financial condition than by the process of implant therapy itself. The value of money in dental healthcare is also highly influenced by social traditions, such as what patients are used to receiving without payment or for subsidized prices depending on their health system. As compare to previous studies present study shows that the higher number of students avoid implant procedure due to fear of surgery because this study was done on younger group of inhabitants who usually avoid surgical procedure while other previous studies was done on elder group population. This information indicates that dental surgeons need to allay the fear in patients regarding the dental implants treatment by explaining surgical procedure carefully and comprehensively.

## CONCLUSION

It was concluded that the knowledge about dental implants in the syllabus of dental students was not sufficient to increase the level of knowledge about dental implants. It is possible that some students may always feel more information is required since in a modern curriculum all the facts for every condition cannot be covered. However, Level of knowledge and experience increased with the academic year, clearly demonstrated improvement, educators need to place greater emphasis on dental implant education in dental colleges. This study revealed a need for a more structured teaching program, with increased emphasis on knowledge of diagnostic and therapeutic options with dental implant therapy is, therefore, mandatory for dental students.

## PUBLIC HEALTH SIGNIFICANCE

It is the prime concern of dentists to convey optimistic oral health knowledge and behaviour to the the public So

apart from the post graduate dental surgeons in the dental institutions, the undergraduate students also have thorough knowledge about dental implants and this is done through clinic work and organised discussions to these students in the field of dental implantology to increase their knowledge and skill. So that the Knowledge of dental implants as a option for the alternative of missing teeth among the public can also be undertaken by these students as a health workers. The patients and indeed the public who have interacted to these undergraduate students have easy access through formal or informal interactions. Therefore, their knowledge of the different treatment options available in the hospitals can go a long way to imparting positively to patients' instruction and selection of treatments.

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# Teenage Pregnancy - Its Impact on Maternal and Fetal Outcome

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## Abstract

**Background:** Teenage pregnancy rates varies vastly between different countries and different regions within a country. Such pregnancies are seen mostly amongst the poorer and less educated sections of the society. In developed countries majority of teenage pregnancies occur to unmarried girls unlike developing countries including India where teenage pregnancies occur to married girls and are associated with early marriages.

**Aim & Objectives:** This study aimed to find the incidence and to evaluate the maternal and fetal outcome of teenage pregnancies.

**Material & Methods:** A Hospital based clinical prospective study of all teenage pregnant females admitted to a tertiary care centre. Required details were collected on a proforma by taking history and following up the patients from admission to delivery. MS Excel was used for statistical purpose.

**Results:** Teenage pregnancy comprised 5.10% of the total Obstetric admissions. In this study 53.12% teenage pregnancies were associated with complications. The major maternal complications were Preterm labour 27.45%, Hypertensive Disorders of Pregnancy 20.17%, Premature Rupture of Membranes 18.21%, Abortion 14.57%, Anemia (8.12%). Low Birth Weight 16.86%, preterm births 16% and stillbirths 5% were major adverse fetal outcomes.

**Conclusion:** Teenage pregnancy is still a common occurrence. It has adverse impact on the health of teenage mothers leading to various adverse maternal and fetal outcome.

**Keywords:** Teenage pregnancy, Clinical prospective study, Maternal and fetal outcome

## INTRODUCTION

World Health Organization<sup>1</sup> defines Teenage Pregnancy as “any pregnancy from a girl who is 10-19 years of age”, the age being defined as her age at the time the baby is born.<sup>2</sup> Often the terms “Teenage pregnancy” and “Adolescent pregnancy” are used as synonyms.

According to UNICEF, worldwide every 5<sup>th</sup> child is born to teenage mother.<sup>3</sup> Worldwide 13 million births each year occur to girls younger than 19 years. The incidence of teenage pregnancies varies dramatically between the different countries. Approximately 90% of the teenage births occur in developing countries.<sup>4</sup> Nevertheless, there is also a significant variation in teenage pregnancy and birth rates between developed countries, although the teenage pregnancy and birth rate of developed countries are significantly lower than that of developing countries.<sup>3</sup>

Teenage pregnancy is an important public health problem in both developed and developing country, as it is a ‘high-risk’ or ‘at-risk’ pregnancy due to its association with various adverse maternal and fetal outcomes which results in increased mortality and morbidity of the mother and the child.

Early childbearing is associated with various health risks for both mother and child. Teenage mothers are more likely to experience pregnancy related complications which often lead to maternal death.

Teenage pregnancies are considered problematic because complications from pregnancy and childbirth are the leading causes of death in teenage girls aging between 15 and 19 years in developing countries. It is estimated that 70,000 female teenagers die each year because they are pregnant before they are physically mature enough for

successful motherhood.<sup>5</sup> Therefore, teenage pregnancies and births are considered as risky.

Adverse Maternal outcomes of teenage pregnancy includes Preterm labour, anemia, Hypertensive Disorders of Pregnancy (HDP), Urinary Tract Infection, abortion, Sexually Transmitted Diseases, HIV, malaria, obstetric fistulas, puerperial sepsis, mental illness and high rate of Cesaerean Sections for cephalopelvic disproportion and fetal distress. Adverse fetal outcomes include preterm births, Low Birth Weight infants, Still Births, birth asphyxia, Respiratory Distress Syndrome and birth trauma or injury.

Hence, the present study aims to find out the incidence and to evaluate the various complications associated with teenage pregnancy.

## MATERIALS AND METHODS

This is a one year clinical prospective study carried out in the Department of Obstetrics and Gynecology, at a tertiary care centre of Madhya Pradesh, India. Institute ethical committee approval was taken. All pregnant females admitted to the Hospital in the age group of 13-19 years during the study period were included and all pregnant females equal to or more than 20 years admitted to the Hospital during the same period were excluded from the study. The required details were collected by history taking and following up the patients from admission to delivery. MS Excel was used for statistical purpose.

## RESULT AND OBSERVATION

In the present study there were 672 teenage mothers admitted during the study period amongst the total obstetric admissions of 13189, giving an incidence of 5.10% of teenage pregnancy (Figure 1).

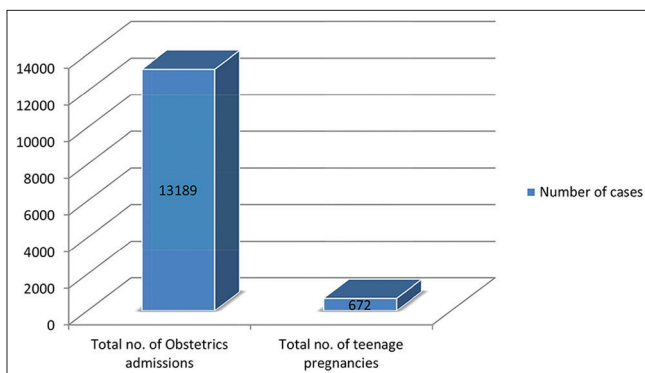


Figure 1: Number of Teenage Pregnancies during study period

Out of the 672 teenage pregnancies, 357 were associated with complications (53.12%) and the remaining 315 were without any complication (46.88%). Out of 357 teenage pregnancies which were associated with complications, 241 were associated with single complication (67.5%), whereas 116 were associated with multiple complications (32.5%), indicating that teenage pregnancies are high risk pregnancies (Table 1).

Table 1: Distribution according to presence of complication

Complication	Number of mothers	Percentage
Without complication	315	46.88%
With complications	357	53.12%
Total	672	100%

Amongst the 61 teenagers admitted during the first trimester, abortion (52) was the most common complication seen accounting for 85.24% of first trimester complication, out of which 48 were spontaneous and 4 were induced abortions (Table 2).

Table 2: First trimester complications in teenage mothers

First trimester complication	Number	Percentage
Abortion	52	85.24%
Ectopic pregnancy	4	6.56%
Hyperemesis gravidarum	3	4.92%
Vesicular mole	2	3.28%
Total	61	100%

The most common complication associated with teenage pregnancy during third trimester was Preterm Labour (98). Amongst 72 mothers who had Hypertensive Disorders, 34 had Gestational Hypertension, 22 had Preclampsia and 16 had eclampsia. 29 pregnant teenagers were found to be anemic, of which 2 had mild, 12 had moderate and 15 had severe anemia (Table 3).

Table 3: Other complications in teenage pregnancy

Complication	Number	Percentage
Preterm labour	98	27.45%
Hypertensive disorders	72	20.17%
PROM	65	18.21%
Malpresentation	35	9.80%
Foetal distress	33	9.24%
IUGR	30	8.40%
Anemia	29	8.12%
IUFD	27	7.56%
Antepartum hemorrhage	12	3.36%
Medical disorders	10	2.80%
Oligohydromnios	08	2.24%
Multiple pregnancy	02	0.56%

Out of the 611 teenage mothers who delivered, majority (540) had normal vaginal delivery (Table 4).

**Table 4: Table showing mode of delivery**

Mode of delivery	Number	Percentage
Vaginal delivery	540	88.38%
Cesarean delivery	71	11.62%
Total delivered mothers	611	100%

Out of the 71 teenage mothers delivered by Cesarean Section, six mothers had more than one indication for Cesarean Section. Majority of Cesarean Section were due to Fetal Distress. It was followed by Malpresentation (14) of which 12 was for Breech presentation and one each for face and brow presentation. The other indications for C- Section in teenage mothers were Contracted Pelvis, Previous C-Section, CPD and Obstructed Labour (Table 5).

**Table 5: Indication for Cesarean Section**

Indication	Number	Percentage
Fetal distress	36	50.70%
Malpresentation	14	19.72%
Contracted pelvis	08	11.27%
Previous caesarean	07	9.86%
CPD	05	7.04%
Obstructed labour	04	5.63%
Persistent occipito posterior	01	1.40%
Cervical dystocia	01	1.40%
DTA	01	1.40%

In the present study there were two maternal deaths out of 672 teenager mothers. Both were due to indirect causes of maternal mortality. One was a case of Rheumatic Heart Disease who died due to Atrial fibrillation and another was a case of Hepatitis who died due to hepatic encephalopathy (Table 6).

**Table 6: Maternal deaths in teenage pregnancy**

Total no. of teenage mothers	Maternal death
672	02

Majority of the babies (465) born out of such pregnancies were healthy babies. The most common adverse fetal outcome noted in the study was Low Birth Weight babies (103 babies). Amongst 30 babies who needed NICU admissions, 18 were Low Birth Weight babies. There were 30 Still born babies, out of which 26 were SB Fresh and 4 were SB Macerated (Table 7).

**Table 7: Fetal outcome of teenage pregnancy**

Foetal outcome	Number	Percentage
Alive and healthy	465	76.10%
Low birth weight	103	16.86%
Nicu admissions	30	4.91%
Still birth	30	4.91%

## DISCUSSION (TABLE 8)

In the present study, 5.10% of the study population were teenage pregnancies. Comparison with incidences of other Indian studies<sup>6-9</sup> and incidences of other Developing and Developed countries<sup>10</sup> are shown in Table 8.

**Table 8: Table showing comparison with other studies**

Sr. No	Heading	Present study (in %)	Other studies (in %)
1.	Incidence	5.10	3-10 (Indian studies-Ambekar <i>et al.</i> <sup>6</sup> , Dubashi SS <sup>7</sup> , Bhalerao <i>et al.</i> <sup>8</sup> , Mahavarkar <i>et al.</i> <sup>9</sup> ) 21-35 (developing countries <sup>10</sup> -Nepal, Nigeria, Bangladesh) <5 (developed countries <sup>10</sup> -UK, USA, Japan, Switzerland)
2.	Maternal complications		
	Preterm labor	27.45	10.56 (Dubashi SS <sup>7</sup> ) 16.0 (Bhalerao <i>et al.</i> <sup>8</sup> ) 48.0 (Mahajan S <sup>12</sup> ) 10.6 (Sarkar <i>et al.</i> <sup>14</sup> ) 13.05 (Padte <i>et al.</i> <sup>15</sup> ) 14.2 (Sharma <i>et al.</i> <sup>13</sup> )
	HDP	20.17	>25 (Rahman <i>et al.</i> <sup>17</sup> , Bhalerao <i>et al.</i> <sup>8</sup> , Saxena <i>et al.</i> <sup>16</sup> )
	Anemia	8.12	8-10 (developing countries-Sharma <i>et al.</i> <sup>11</sup> , Bhalerao <i>et al.</i> <sup>8</sup> , Dubashi SS <sup>7</sup> )
	Abortion	14.57	30-60 (developed countries- USA) 6.0 (Bhalerao <i>et al.</i> <sup>8</sup> )
3.	Delivery outcome		
	Caesarean section	11.62	26.0 (Dubashi SS <sup>7</sup> ) 34 (Mukhopadhyay P <sup>18</sup> )
4.	Fetal outcome		
	IUGR	8.4	5.5 (Saxena <i>et al.</i> <sup>16</sup> )
	LBW	16.86	33-39 (Saxena <i>et al.</i> <sup>16</sup> , Mukhopadhyay P <sup>18</sup> , Ambekar <i>et al.</i> <sup>6</sup> )
	Stillbirth	4.91	4-5 (Bhalerao <i>et al.</i> <sup>8</sup> , Saxena <i>et al.</i> <sup>16</sup> , Mukhopadhyay P <i>et al.</i> <sup>18</sup> )

Among the patients admitted to the Hospital during the third trimester for delivery, the most common complications observed were Preterm Labour (27.45%) followed by Hypertensive Disorder (20.17%), Premature Rupture of Membranes (18.21%), malpresentation (9.8%),

Foetal Distress (9.24%), IUGR (8.4%), Anemia (8.12%) and IUFD (7.56%) successively.

Various studies conducted in different regions of the world revealed preterm labour to be the most common complication as reported to be 10.56% by Dubashi SS,<sup>7</sup> 13.2% by Sharma et al<sup>11</sup> and 48% by Mahajan S.<sup>12</sup> The present study revealed it to be 27.45%.

The second most common complication was observed to be Hypertensive Disorders as reported 14.2% by Sharma et al<sup>13</sup>, 10.6% by Sarkar et al<sup>14</sup> and more than 13.05% by Padte et al.<sup>15</sup> In contrast the present study showed a higher incidence (20.17%).

As pregnant teenagers often receive inadequate antenatal care, their anemia during labour and the postpartum period usually get worse. In developing countries more than 25% of teenage mothers were found to be anemic as revealed in studies conducted by Saxena et al,<sup>16</sup> Bhalariao et al<sup>8</sup> and Rahman MM et al.<sup>17</sup> In contrast to it our study found a lower incidence (8.12%).

In most developed countries (including the USA) 30–60% of adolescent pregnancies end in abortion.<sup>2</sup> While in developing countries including India abortion rate was found to be between 8-10% among teenage mothers. The present study agrees with other studies.

Saxena et al<sup>16</sup> reported an incidence of IUGR to be 5.5% in teenage mothers which is lower than the present study (8.4%).

### Cesarean Section

Incidence of C-Section in the present study was 11.62%. Majority of Cesarean Sections were due to Fetal Distress. It was followed by Malpresentation (19.72%), Contracted Pelvis, Previous C-Section, CPD and Obstructed Labour.

The incidence of CS among teenage mothers were reported 6% by Bhalariao et al,<sup>8</sup> 34% by Mukhopadhyay P<sup>18</sup> and 26% by Dubashi SS.<sup>7</sup> These studies too report Fetal distress, CPD and Contracted Pelvis to be leading causes for Cesarean Section amongst Teenage mothers.

### Maternal Mortality

The two maternal deaths in our study were due to indirect causes of maternal mortality. One was a case of Rheumatic Heart Disease who died due to Atrial fibrillation. The second was a case of Hepatitis-B who died due to hepatic encephalopathy.

In India and other developing countries maternal mortality among teenage mothers were higher because of unsafe abortion.

In developed countries maternal mortality rates are so low that age-specific rates are not easily available.

In Nigeria, Harrison et al<sup>19</sup> reported increased rates of maternal mortality in young pregnant girls <15 years of age (maternal mortality 27/1000 compared to 4/1000 in women 20–24 years).

In Ethiopia, Kwast et al<sup>20</sup> reported a maternal mortality rate of 12.7/1000 in mothers 15–19 years of age, 50% of them due to unsafe abortion, compared to 3.6/1000 in mothers aged 25-29 years.

### Fetal Outcome

In the present study 103 (16.86%) were Low Birth Weight Babies, 30 (4.91%) needed NICU admission and 30 (4.91%) were stillbirths.

Other Indian studies found the incidence of LBW babies between 33 and 39%<sup>6</sup> and the incidence of Stillbirth around 4-5%.<sup>8,16</sup>

In the Pacific Islands, study undertaken by Swati Mahajan<sup>12</sup> reported an incidence of LBW to be 19%.

Though the adverse fetal outcome in developed countries are very low, yet it is higher in babies born to teenage mothers as compared to babies born to mothers in their twenties.

## CONCLUSION

The present study aimed to evaluate the outcomes and complications of teenage pregnancy. It was also concluded from the present study that Preterm labour, Hypertensive Disorders of Pregnancy, Premature Rupture of Membrane, abortion, anemia, malpresentations, IUGR, IUFD were major maternal complications; Low Birth Weight and Still Births were major adverse fetal outcomes.

Teenage pregnancy today, still represent one of the most important public health problems. There is no doubt that the obstetrical problems can be managed by modern medicine and so the risk of Teenage pregnancy can be diminished.

The health care provider should consider Teenage pregnancy as a 'high risk' pregnancy and should educate the pregnant teenagers to have more number of antenatal visits so that the signs and symptoms of various complications of teenage pregnancy could be recognized at the earliest. Attention should be given to the use of various screening and diagnostic tests and to the interventions needed if any complication does occur during the course of pregnancy

or labour. Proper monitoring of the progress of labour is important to prevent prolonged labour.

Education of the female child can play a significant role in delaying marriage and hence delaying childbearing, thus protecting the young girl from being exposed to the various complications of teenage pregnancy.

There is a need to promote the use of Contraceptives amongst the married teenagers and ensuring the availability of contraceptives at a wider scale. Access to contraceptives is the cornerstone in preventing teenage pregnancies while access to abortion services is crucial for managing them.

Good antenatal and intranatal services, good neonatal services, contraceptive services and abortion services, all together can minimize the various risks associated with teenage pregnancies to a large extent. With all these measures, we can hope for a world-wide decline in the trend of teenage pregnancy rates and complications in the years to come.

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# Awareness of Oral Cancer in Rural Bangalore Population: A Questionnaire Based Study

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## Abstract

**Introduction:** To estimate the awareness of oral cancer in rural Bangalore population we have conducted a questionnaire based survey at community camp.

**Material and method:** The questionnaire was prepared and distributed to the patients attending the dental camp. The questions were designed to determine the level of knowledge about oral cancer, its risk factors and signs.

**Result:** Total of 446 patients had responded to the questionnaire. Out of 446 responders 54 patients (12.10%) know about oral cancer or heard of oral cancer. Sixty five patients (14.57%) had correctly answered the question for causes of oral cancer. Thirty seven patients (8.29%) know about some signs of oral cancer. Eighty six patients (19.28%) think that oral cancer is preventable by avoiding consumption of tobacco, pan, gutkha, smoking etc. and 147 patients (31.61%) know whom to consult regarding queries of oral cancer.

**Conclusion:** The present study revealed several aspects of public uncertainty and ignorance with regard to the causation of oral cancer which need to be emphasised in future public education programmes, particularly using mass media.

**Keywords:** Oral Cancer, India, Awareness

## INTRODUCTION

It was estimated that Cancer prevalence in developing country like India is of around 2.5 million, with moreover 8 lakhs new cases and 5.5 lakhs deaths occurring each year due to this disease.<sup>1</sup> Oral cancers are more common than leukemia, melanoma, cancers of the liver, brain, thyroid, kidney, stomach, ovary or cervix.<sup>2</sup> The five-year survival rate for all oral cancers is only 54 percent. Majority of oral cancers arise from longstanding premalignant lesions. Lack of awareness about oral cancer and its risk factors are primary reason for delayed presentation. An estimate according to National Cancer Control Programme shows that the total cancer burden in India for all sites will increase from 7 lakhs new cases per year to 14 lakhs by 2026.

Oral cancer occurs on all sites in the oral cavity: tongue, lips, floor of the mouth, soft palate, tonsils, salivary glands and oropharynx. Risk factors for oral cancers include use

of tobacco products and alcohol, exposure to the sun (lip cancer), dietary factors and exposure to carcinogens in the workplace. tobacco use is responsible for 90 percent of these cancers;<sup>3</sup> and heavy smokers who are older than 40 years of age and use alcohol are at the highest risk. Epidemiologic findings highlight the disproportionate incidence, mortality and morbidity associated with oral and pharyngeal cancers in Indian population.

To estimate the awareness of oral cancer in rural Bangalore population we have conducted a questionnaire based survey at community camp conducted by KLEs' Institute of Dental Sciences, Bangalore.

## MATERIAL AND METHOD

The questionnaire was prepared and distributed to the patients attending the dental camp.

The questions in questionnaire were as follows.

1. Do you know about oral cancer?
2. What causes oral cancer?
3. What are the signs of oral cancer?
4. Can you prevent oral cancer?
5. Whom do you ask for suggestion, indications, conformation and treatment of oral cancer?

These questions were designed to determine the level of knowledge about oral cancer, its risk factors and signs. Total of 446 patients had responded to the questionnaire. The data was tabulated and results were drawn.

## RESULTS

Out of 446 responders 54 patients (12.10%) know about oral cancer or heard of oral cancer. Sixty five patients (14.57%) had correctly answered the question for causes of oral cancer by giving answers like tobacco, pan, gutkha, smoking etc. Thirty seven patients (8.29%) know about some signs of oral cancer. Most of them had answer wound in the mouth but none of them know about premalignant lesions. Eighty six patients (19.28%) think that oral cancer is preventable by avoiding consumption of tobacco, pan, gutkha, smoking etc. And 147 patients (31.61%) know whom to consult regarding queries of oral cancer and given answer like doctor or dentist.

Oral cancer awareness in rural population	Number	%
Knowledge about oral cancer	54	12.10
Knowledge about causes oral cancer	65	14.57
Knowledge about signs of oral cancer	37	8.29
Knowledge about prevention of oral cancer	86	19.28
Knowledge about consultation for oral cancer	147	31.61

## DISCUSSION

It was given that 85% of head and neck cancers are readily visible, oral cancer screenings are an inexpensive, safe and non-invasive method of detection.<sup>4</sup> Oral cancer screenings also may provide an excellent opportunity for raising public awareness and providing patient education and counselling regarding behavioural risk factors and how to reduce them. Since people older than 40 years of age who use alcohol and tobacco are at the highest risk of developing oral cancers, in which screening this high-risk cohort is of paramount public health importance.

According to National Cancer Registry Programme 1981-2001

- 97.8 (Bangalore) to 121.9 (Delhi) cancer cases per 1,00,000 population – urban males (age adjusted incidence rate)
- 92.2 (Bhopal) to 135.3 (Delhi) cancer cases per 1,00,000 population – urban females (age adjusted incidence rate)
- 46.2 (Barshi) cancer cases per 1,00,000 population – rural males (age adjusted incidence rate)
- 57.7 (Barshi) cancer cases per 1,00,000 population – rural females (age adjusted incidence rate)
- 1 in 15 men and 1 in 12 women in the urban areas could develop cancer in their lifetime
- Age adjusted incidence rate of oesophageal cancer in women of Bangalore is one of the highest (8.3 per 1,00,000) in the world.
- Cancer of tongue in males at Bhopal (8.8 per 1,00,000) is highest in all continents
- 75-80% patients are in advance stage of the disease at the time of first attendance to the doctor.

This data shows the highest prevalence of oral cancer in India. There is a clear need to inform and educate the public in matters relating to the known risk factors.

Several questionnaire-based surveys of UK dentists have shown consistently that few dentists routinely inquire about the smoking and drinking habits of their patients and even when they enquire they rarely include such information in patient's clinic records.<sup>5-8</sup> Sensible drinking, cessation of tobacco and inclusion of fresh fruits and vegetables in the diet are the cornerstones of cancer prevention. Dentists are in a strong position to motivate their clients on tobacco cessation and alcohol moderation. Cancer fatalism often plays a pivotal role in people either not accepting professional advice on avenues for prevention or arriving too late for therapy. Cancer fatalism needs prompt identification<sup>9,10</sup> and there is a duty of healthcare providers to offer information on how early therapy saves lives. Forty-three per cent of the public surveyed was of the opinion that whether an individual develops cancer is a matter of chance. Education of the public, most importantly youth population, may help to bring out change in the common attitude that cancer affliction is a matter of chance.

There is now sufficient scientific evidence to conclude that cancer of the mouth and pharynx is largely related to life style.<sup>11</sup> In our study 19.28% of people think that cancer is preventable This positive approach needs to be harnessed by providing the basic factual information about oral cancer, thereafter allowing people to make their choices which are more likely to be healthier ones. The earlier detection of oral cancer by opportunistic screening should afford patients with greater survival rate and more certainly less radical treatment. Although there is a great deal of professional educational material about oral cancer, we lack suitable material for public use.

Media presentations through magazine and newspaper articles, while reaching only certain sections of the

population, will at least target some of those people not seeking regular medical/dental care. A further recourse is through television, where AIDS and drug messages seem to have found their goal.

## CONCLUSION

The present study revealed several aspects of public uncertainty and ignorance with regard to the causation of oral cancer which need to be emphasised in future public education programmes, particularly using mass media.

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# Why Dentistry? A Cross-Sectional Study of Budding Dentists in Andhra Pradesh

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## Abstract

**Background:** The changing nature of the dental workforce and the need to retain the services of future members has made it important to understand why current dental students have chosen dentistry as their carrier. It greatly contributes to discussions concerning dental education, practice and future workforce planning. This study aimed, first to investigate factors that lead to choice of dentistry as a profession among first year dental students in a South Indian State and, secondly to evaluate gender differences in motives for pursuing a career in dentistry.

**Methods and Material:** A cross-sectional study was performed using a self-administered questionnaire to all first year dental students studying at three randomly selected dental institutions (n=240).

**Statistical analysis used:** Descriptive statistics and Mann Whitney-U Test

**Results:** A total of 203 duly filled questionnaires were included in the study. Female (74%) exceeded male students (26%). Only few respondents (24%) had placed dentistry as their first career choice. Desire to work in health care (84%), unable to enter medicine (79%) and independence of work (72%) were the top three influential factors. This study revealed significant differences between males and females with respect to desire to work in health care motive.

**Conclusions:** The results of this study highlighted some important influential factors in the choice of dentistry as a professional career.

**Keywords:** Dental education, Dental students, Reason, Dentistry

## INTRODUCTION

Humanity is made up of infinity of different individuals. Each one of us travels for motives exclusively our own. If we want to know what makes the world go round, what makes people tick and do what they do, recognizing this fact about motive is essential. Once we cross this bridge we can better understand what will be happening in the future and it will be possible to plan for its betterment.

In India we are facing a gross geographic mal-distribution of dental practitioners. Very few dentists are ready to practice in rural areas where country's most population (74%) resides. As seen around the world "feminization of profession" has also been observed in India but on a wider scale. Many

studies<sup>1-3</sup> and literature reviews<sup>4-6</sup> suggested that females have different motives and career practice pattern than their male counterparts. Whether in India this will play any significant role in future manpower characteristics is yet to be understood. In present situation it is utmost important to understand why people are motivated towards this profession and subsequently understanding their career perspective. Investigating the motives of health students contributes to a better understanding of how they direct their studies; plan their career; to guide them; and to determine the role they play in society. In a broader sense, such investigations may be helpful for planning and evaluating processes in undergraduate health education and health care services, as these issues may influence institutional curriculum, teaching process and profiles of the future professionals.<sup>7</sup>

Several studies have been done on career choice and professional perspective of dental students worldwide. In general, results indicated that career choices are usually motivated by vocational and professional reasons. Some studies<sup>8-10</sup> has also suggested that students seem to relate to an image of dentistry as a vehicle for the achievement of personal goals. In India few studies have been done under this regard and students motivations for choosing dentistry are not clearly defined. The present survey aimed to investigate factors that lead to choice of dentistry as a profession among first year dental students in a South Indian state. The objective was to identify the major underlying factors or clusters of motives around which dental students decision-making is organized and to evaluate gender differences in influences and motives.

## MATERIALS AND METHODS

Andhra Pradesh is one of the 28 states of India, situated on the country's southeastern coast. It is the fourth largest state by area and ranks 5<sup>th</sup> in number of dental undergraduate seats. It has 24 dental institutions of which 3 are government and 21 are private. Through stratified cluster sampling, one government and two private dental institutions were selected. All first year students studying in these three institutions were considered for the study (n=240). Institutional review board approved the research protocol for the study. The heads of all the three dental institutions provided signed permission for conducting survey in their respective institutions. Informed consent was obtained from all the participants.

A 15-item questionnaire was adapted from previous studies<sup>11-13</sup> and modified considering Indian context in mind. The questionnaire was pre-tested on a sample of dental students (n=20). Modifications were made to remove areas of ambiguity in the final questionnaire. The students were informed about the nature of the study and confidentiality was assured. The study was done during the period of September-November in the year 2012.

The survey instrument consisted of 15-item self-administered questionnaire. The first section sought to determine students' socio-demographic background such as age, gender, place of residence, parent occupation, institution name and type. The next section of questionnaire consisted of economic, professional, vocational factors and personal reasons to choose dentistry as career. Those respondents for whom dentistry was not the first career choice, two additional questions were asked regarding their opinion about academic performance and future dental practice pattern. Closed questions were utilized permitting students to scale responses such as

whether dentistry is their first career choice, from "strongly agree" (Score-1) to "strongly disagree" (Score-5) on a 5-point Likert scale across all 15 items. The respondents were asked to identify level of influence of various factors on their career choice.

Data collected were analysed using SPSS v.20. Both descriptive and inferential statistics were sought. Mann-Whitney U test was applied to obtain factor differences in individual motive items. The level of significance was set at  $p < 0.05$ .

## RESULTS

Of the 214 questionnaire distributed to the first year dental students, 203 duly completed were included in the analysis, giving an overall response rate of 94.8%. Table 1 describes the socio-demographic characteristics of the respondents. The age of respondents ranged from 17–23 years, with a mean of  $18.19 \pm 0.84$ . A male/female proportion of 1/2.8 was found in the pool of participating students. The majority of the respondents were residing in urban areas (75.4%).

The top three major influences around which the students' career decision-making were organised are desire to work in health care (84.3%), unable to enter medicine (79.3%) and independence of work (72.4%). Only 24.1% of the students had chosen dentistry as their first career choice, but most of them (66.5%) agreed that choosing dentistry was their own decision with negligible peer pressure (8.9%) and family pressure (23.1%). Many students agreed that they had chosen dentistry due to economic reasons such as high income (32.5%) and job security (49.3%). Most of the students gave higher score for professional reasons such as independence of work (72.4%) and flexible working hours (63%). They also gave higher score for vocational reasons like desire to work in health care (84.3%) and practical-artistic skills (53.7%).

**Table 1: Socio-demographic characteristics of the study subjects (n=203)**

Socio-demographic characteristics	N	%
Sex		
Male	53	26.1%
Female	150	73.9%
Age		
17	37	18.2%
18	102	50.2%
≥19	64	31.6%
Residence		
Rural	50	24.6%
Urban	153	75.4%
College type		
Government	33	16.3%
Private	170	83.7%

Most of the students disagreed that they had joined dentistry due to personal reasons such as for obtaining a doctors' degree (68.5%) or for improving their marriage profile (84.2%). Majority of the students among those who had not chosen dentistry as their first career choice disagreed that there will be any effect on their academic performance or on their dental practice as this profession was not their first career choice. Figure 1 describes students' responses to all 15-items of the questionnaire.

Gender differences with respect to individual motive items were checked. There was significant difference between gender and desire to work in health care motive ( $p = 0.04$ ). Females gave significantly higher score for desire to work in health care motive. There were no significant differences between males and females with respect to other motives. Table 2 illustrates item frequency breakdown of students' response on 5-point scale with respect to desire to work in health care motive.

## DISCUSSION

Some students enter dentistry by interest. Some people don't understand why they were pushed or pulled in a particular direction. Some make decision as they don't have better choices and some take path of least resistance like a career path advocated by their parents or elder siblings. Understanding students' motives gives us an opportunity to shape their minds, which becomes important to protect and develop this powerful resource.

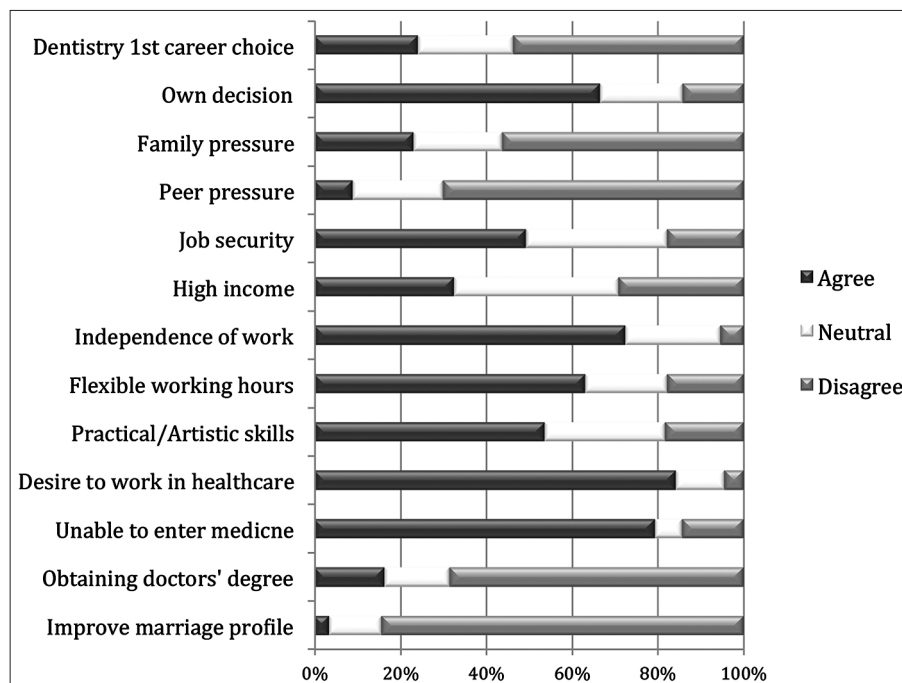
The present study was conducted with the aim to investigate factors that lead to choice of dentistry as a profession. Study subjects comprised of only first year dental students, as their responses can be considered more accurate and less influenced by various positive and negative experiences that a student might encounter in higher academic years. A primary survey tool, 15-item questionnaire was created that was able to take a variety of the motives from previous studies into account.

Wide range of influences for selection of dentistry as a career was noticed in the present study. Choice of profession is a multifactorial decision, in which several diverse factors come into play. Most individuals do not hold to one crucial justification but consider various factors in alternatives and decision-making process. Thus all the factors should be analysed together. In the present

**Table 2: Item frequency breakdown of response on 5-point scale with respect to desire to work in health care motive**

Gender	Desire to work in health care				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Male					
<i>n</i>	18	27	3	3	2
%	34.0%	50.9%	5.7%	5.7%	3.8%
Female					
<i>n</i>	80	46	20	1	3
%	53.3%	30.7%	13.3%	0.7%	2.0%

Differences in proportions are statistically significant ( $p=0.04$ )



**Figure 1: Responses of study population on 15-item questionnaire**

study most students were motivated by professional and vocational reasons as also determined by other previous studies.<sup>7,8,11</sup> Most important motive in the present study was “desire to work in health care” which in accordance to studies done in UK,<sup>11</sup> Jordan,<sup>14</sup> Iran<sup>15</sup> & India.<sup>16</sup>

Few students had chosen dentistry as their first career choice and majority of them had chosen this profession as an alternative to medicine. The desire to get into a profession, honourable, prestigious and lucrative like medicine was among the top major reasons identified by the study subjects. Similar results were found by various studies.<sup>8,16,17</sup>

Results showed that females gave higher score for desire to work in health care motive. The reason for this can be explained as helping nature of females. Similar results were also found by various studies.<sup>11,13,18,19</sup> There is a growing body of evidence that such motives are more commonly found in females. Some studies<sup>12,14</sup> have suggested that males are more inclined towards economic reasons but no significant gender differences were found in the present study.

The gender ratio found in the present study and other studies<sup>16,20</sup> done in the country suggest that “feminization of dentistry” continues in India too. This trend is also reported in United States,<sup>18</sup> United Kingdom,<sup>21</sup> Australia & New Zealand,<sup>13</sup> France,<sup>22</sup> Denmark,<sup>19</sup> and Peru.<sup>23</sup> The proportion of female dental students in India had gradually increased during the past decade, from negligible 20-30% to alarming 70-80%. Admission committees and workforce planners should regard this as a crucial issue as previous research has indicated that women follow a different career pattern than their male counterparts.<sup>1-6</sup> This fact should not be ignored that the proposed contribution of females to the workforce differs and their long-term participation can be more limited in volume and nature due to family-childcare responsibilities.

Most of the students in present study belonged to urban areas; it becomes obvious that these students will prefer to practice in the same area, further worsening the urban-rural misdistribution of dentists in India. Admission committees and workforce planners can regard this issue by controlling the number of urban aspirants and magnetizing more rural applicants.

## CONCLUSION

The results of this study highlighted some important influential factors in the choice of dentistry as a professional career. Desire to work in health care, unable to enter the field of medicine, and independence of work were among the top rated influential factors.

Qualitative and quantitative approaches at national level are required to explore and understand students' motives for choosing or not choosing dentistry as career. Longitudinal research into the workforce expectations and subsequent understanding of career decisions and pathways is necessary. A reduction in overall applicants in dentistry has been noticed since past years, this calls up to recognize students' expectations and motives and building strategies to keep momentum in drive to attract suitable aspirants.

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# A Clinical Investigation to Test the Efficacy of Oil Pulling in Reducing Dentin Hypersensitivity, as Compared to a Desensitizing Tooth Paste

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## Abstract

**Introduction:** Oil pulling has been used extensively as traditional Indian folk remedy to prevent sensitivity, tooth decay, oral malodor, bleeding gums, dryness of throat and cracked lips. A clinical investigation of the effectiveness of oil pulling in reducing dentinal hypersensitivity has not been reported so far.

**Aim and Objectives:** The aim of this pilot investigation was to evaluate the efficacy of oil therapy in reduction of dentin hypersensitivity, as compared to desensitizing dentifrices.

**Materials and Methods:** A total of 30 subjects (17 males and 13 females; aged 18-40 years) attending the dental school OPD, with dentinal hypersensitivity were randomly selected, using a random number table. They were divided into three groups: Group-1 - Cold-pressed sunflower oil, Group-2 - Desensitizing paste and Group-3 - Placebo. Sensitivity scores for controlled air stimulus and tactile method at baseline and 8 weeks post-experiment were recorded.

**Results:** All groups showed reduction in sensitivity scores at baseline and 8<sup>th</sup> week. The cold pressed sunflower oil was found to be significantly better compared to other groups at the end of 8<sup>th</sup> week.

**Conclusions:** Oil pulling was significantly more effective in reducing dentinal hypersensitivity as compared to a desensitizing dentifrice.

**Keywords:** Dentin sensitivity, Hypersensitivity, Oil pulling

## INTRODUCTION

Ayurveda is one of the most ancient and holistic medical systems of the world. Its roots are in *Atharvaveda*, the oldest recorded compendium of wisdom on the Earth (6000 B.C.). *Charka samhita* and *Susruta samhita* (1500-1000 B.C.) of Ayurveda provides comprehensive preventive, promotive and curative aspects of health. Traditional medicine is sum total of knowledge, skill and practices based on theories, beliefs and experiences indigenous to different cultures that are used to maintain health. It is practiced in other parts of world as complementary and alternative medicine.<sup>1</sup>

### Ayurveda and Oral Health

Even though dentistry was not a specialized branch of Ayurveda, it was included in the *Shalakya tantra* (system of surgery). Dental health (*dantha swasthya*) is held to be very individualistic. Ideal treatment according to Ayurveda, is one which cures the disease without causing any side effects. There are approximately 1,250 Indian medicinal plants that are used in formulating beneficial measures.

### Oil Pulling

Oil pulling has been used extensively as a traditional Indian folk remedy for many years. It is mentioned in Ayurvedic text where it is called *Kavala graha* and *Gandusha* the only difference

between them being the dosage and procedure. In *Gandusha*, the oral cavity is filled completely with medicated liquid or oil, until there is lacrimation and nasal discharge. While, in *Kavala graha* the mouth is three-fourth filled with medicated fluid and which is swished in the mouth for specific time.

Oil pulling is claimed to cure 30 systemic diseases ranging from migraine to diabetes to asthma. This therapy is preventative as well as curative. It provides strength in jaws and voice, development of the face and maximum taste of food. One does not suffer from dryness of throat, lip cracking and teeth become firmly rooted.<sup>1-3</sup>

However, there is no reported clinical investigation on efficacy of oil therapy in reducing hypersensitivity.

## AIM & OBJECTIVES

The aim of this pilot investigation was to evaluate the efficacy of oil therapy in reducing dentin hypersensitivity, as compared to a desensitizing agent.

## MATERIAL AND METHOD

After ethical approval, subjects from the dental school OPD, with dentinal hypersensitivity were randomly selected, using a random number table. A total of 30 patients were included in the study and were divided into three groups, each containing 10 patients: Group 1 - Cold-pressed sunflower oil, Group 2 - Desensitizing paste and Group 3 - Placebo. Sensitivity scores for controlled air stimulus and tactile method at baseline and at 8<sup>th</sup> week post-experiment were recorded.

### Inclusion Criteria

1. Subjects in the age group of 18-40 years
2. Patients with two or more sensitive teeth.
3. In good general health

### Exclusion Criteria

1. History of antibiotic use in the past 3-4 weeks.
2. Fractured restoration
3. Gingival inflammation
4. Allergy to drugs
5. Pregnant or lactating females<sup>4</sup>

### Diagnostic Tools

1. Dental explorer
2. Air jet<sup>4-6</sup>

### Sensitivity Assesement

A Visual Analogue Scale is a line of 10 cm in length, the extremes of line representing the limits of pain a patient

might experience from an external stimulus (0 = no pain; 10 = severe pain)( Figure 1). Patients were asked to place a mark on the line which indicates the intensity of their current level of sensitivity or discomfort following application of test stimuli.<sup>7</sup>

Scoring of tooth sensitivity was done by first using tactile method in which the dentin surface was scratched with a sharp probe. Ten minutes after the tactile stimulation the subject's response to cold air sensitivity was assessed using a dental air syringe which was applied 1 cm away from and perpendicular to the tooth surface. The adjacent teeth were isolated during testing using cotton rolls.<sup>8</sup>

The subjects were divided into three groups - Group 1 was given 600 ml of cold pressed sunflower oil. They took a tablespoon (10 ml) of sunflower oil on empty stomach. It then had to be sipped, sucked and swished for 20-25 minutes till oil lost its viscosity and turned milky white in colour and then was spit out, and the mouth was rinsed with water. The oil should not be swallowed as it contains bacteria and toxins. In group 2 subjects rubbed the prescribed desensitizing dentrifice over the tooth surface and left it undisturbed for 120 seconds after which theybrushed their teeth. In group 3 patients rinsed their mouth with saline.

## STATISTICAL ANALYSIS

Mean VAS scores and mean+SD were calculated from raw VAS scores from all the subjects. Mean VAS scores were compared among groups at different time points (baseline and 8 weeks) using paired t-test. P < 0.05 was taken significant when detected. Data was statistically analysed using a software programme (SPSS statistical package Version 7.0, SPSS, Chicago, IL, USA).

## RESULTS

Mean VAS scores for air stimulus and tactile for all three groups at baseline and 8<sup>th</sup> week are shown in Table I, II and III. Table I shows highly significant results in dentin hypersensitivity reduction for both air and tactile stimulation. In table II tactile stimulus gave

Figure 1: Visual Analogue Scale

highly significant results at 8<sup>th</sup> week as compared to air stimulus. Table III shows insignificant results to air and tactile stimulus.

## DISCUSSION

The increase of longevity of dentition through periodontal therapy and plaque control procedures may increase the incidence of Dentin hypersensitivity - An enigma being frequently encountered yet poorly understood.<sup>9</sup> The complex, subjective nature of pain, makes its assessment challenging. Despite of a century old research, the clinical management of dentin hypersensitivity is highly empirical.<sup>11,12</sup>

The mechanism by which oil pulling therapy causes plaque reduction can be emulsification and saponification.<sup>13</sup> Recent research has found that the bacterial adhesion evolves on the basis of proteinaceous layer, acquired pellicle being the first step of bioadhesion on solid surfaces exposed to the oral fluids. The initial formation process is determined by ionic interactions between

enamel surface and certain salivary protein like statherin, histatin and proline-rich proteins and thermodynamically driven forces such as a vander Waals forces and hydrophobic interactions. Lipophilic components of edible oils modulate this process of bioadhesion to the oral hard tissues as well as composition and ultrastructure of the initial oral biofilm or pellicle. A lipid- enriched pellicle might be more resistant in case of acid exposure and could therefore reduce the erosive mineral loss. Thereby reducing dentin hypersensitivity. Furthermore, anti-inflammatory effects on soft tissues was seen too.<sup>15</sup> Sunflower oil has the following advantages over the standard over- the-counter toothpastes as it is readily available in the household. It has no staining no lingering after taste no allergic reactions. It is 5-6 times more cost-effective.<sup>13,16</sup>

A few studies have been conducted regarding the role of oil pulling therapy in oral health maintenance. A study conducted shown that the antibacterial activity of sesame oil. Sesamin and sesamol isolated from sesame oil did not have any antibacterial effect against oral microorganisms like *Streptococcus mutans*, *S. mitis* and

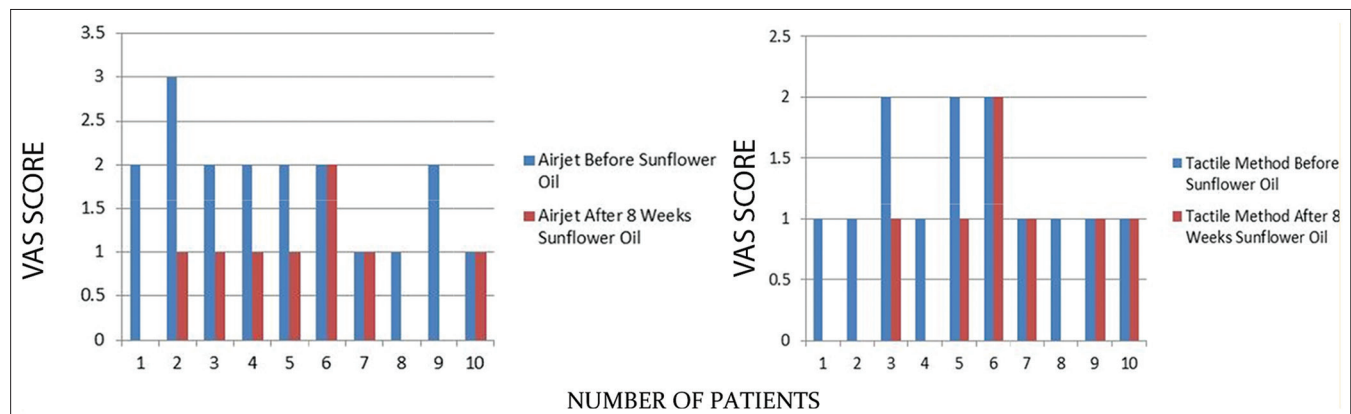


Table I-Sensitivity scores to air and tactile stimulus for group 1 ( cold pressed sunflower oil) at baseline and after 8 weeks

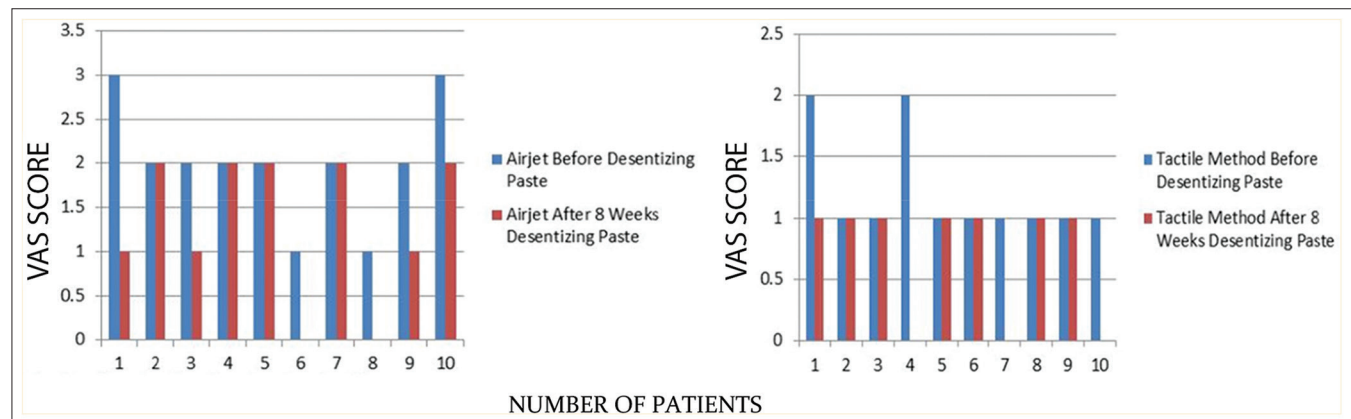


Table II-Sensitivity scores to air and tactile stimulus for group 2 (desensitizing paste) at baseline and after 8 weeks

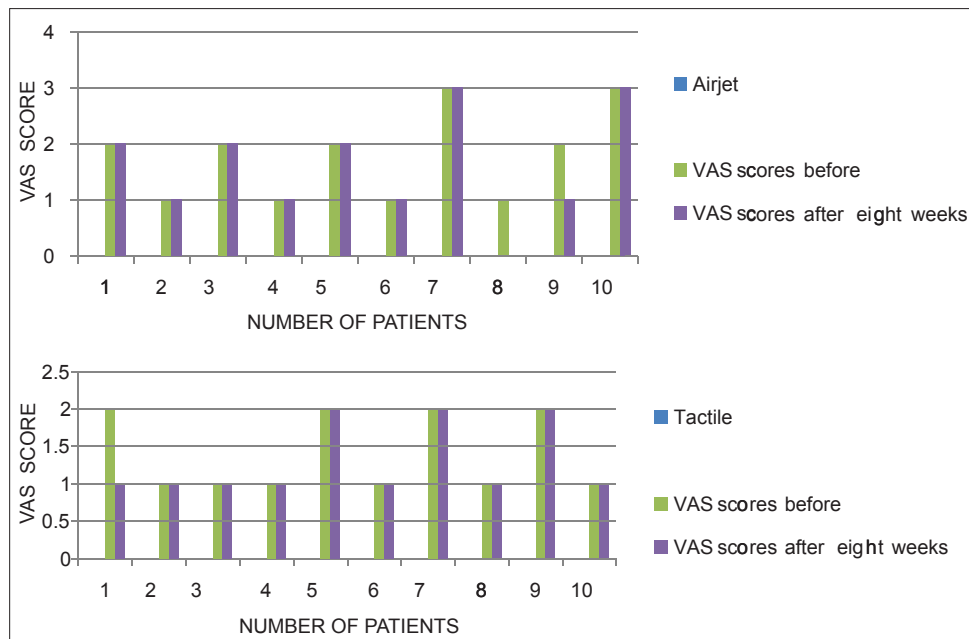


Table III-Sensitivity scores to air and tactile stimulus for group 3 (placebo) at baseline and after 8 weeks

*S. viridans*. Emulsification of sesame oil occurs during oil-pulling therapy.<sup>17</sup>

A study conducted for evaluation of the effect of oil pulling with sesame oil on the count of *Streptococcus mutans* in plaque and saliva showed a reduction in the *S. mutans* count in both the samples.<sup>18</sup>

The limitations of the present study include a small sample size and usage of convenient assessment tools. Within these limitations, we observed encouraging results for oil pulling based desensitising.

## CONCLUSION

Reduction in VAS scores was seen in both cold pressed sunflower oil and desensitizing dentrifice groups. However, statistically significant reduction in the mean VAS score was observed in oil pulling group.

The myth that the effect of oil-pulling therapy on oral health is just a placebo effect may not be believed any more. Extensive studies with larger samples, varying time periods, and long follow-up times need to be carried out to establish the efficacy of oil pulling therapy in reduction of dentin hypersensitivity.

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# Clinico-Mycological Study of Dermatophytosis in a Tertiary Care Hospital

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## Abstract

**Introduction:** Dermatophytosis is colonization by a dermatophytic fungus of the keratinized tissues like hair, nails and *stratum corneum* of the skin. Dermatophytosis is producing a dermal inflammatory response with intense itching and also of cosmetic importance. So the present study was concerned with isolation, identification and clinicomycological study of dermatophytes.

**Materials and Methods:** The study was conducted over a period of 2 years. Clinically suspected 250 cases of dermatophytosis were taken into consideration for study. Isolation and identification was done by various tests like macroscopic, microscopic and biochemical tests.

**Results:** The present study was done on 250 clinically diagnosed cases of dermatophytosis. Tinea corporis found to be the commonest clinical type with 119 cases (47.6%) followed by Tinea cruris 60(24%). Out of 250 clinically diagnosed dermatophytoses, males were more in number 168(67.20%) compared to female 82(32.8%). Out of 250 cases of dermatophytosis, 138 cases (55.2%) were positive in direct microscopic examination (KOH) and total of 106 cases (42.4%) were positive in culture. Out of total 250 clinical isolates 106 cases (42.4%) were culture positive. *Trichophyton rubrum* were the commonest isolates 69(65.09%).

**Conclusion:** This study highlighted that tinea corporis is the commonest clinical type. In *Trichophyton* species, *T. rubrum* and *T. mentagrophyte* are the most common aetiological agents and males are more frequently affected. Though various species of dermatophytes produce clinically different characteristic lesions, but a single species may produce various types of lesions depending upon site of infection.

**Keywords:** Dermatophytosis, Dermatophytes, Tinea, Trichophyton

## INTRODUCTION

Dermatophytosis refers to superficial fungal infection of keratinised tissues caused by dermatophytes. Although common, the precise size of the problem defies measurement. The present study was undertaken to assess the clinicoepidemiological profile of dermatophytic infection, to identify the species of fungi and to compare the clinical diagnosis with KOH smear positivity and culture positivity. Dermatophytosis is a colonization by a dermatophytic fungus of the keratinized tissues the nails, the hair and the stratum corneum of the skin.<sup>1,2</sup> The degree of immunosuppression and the number of immunosuppressed patients are increasing at an unprecedented pace, the management of dermatophytoses would be a definite challenge to mankind in the years to come.<sup>3</sup>

Studies on dermatophytoses in India have received increased attention in recent years because 1/5 the of the world's population suffers from mycosis.<sup>4</sup>

Fungal infection of the skin and its appendages are more prevalent in India, due to favourable climatic conditions like temperature, humidity. In India which is a tropical country, the cause of dermatophytoses is adversely influenced by economic factors like poverty, poor hygiene and social conditions like overcrowding. Nature of dermatophytoses may change with passage of time, living population, evolution of preventive measures and hygienic conditions in society.<sup>5</sup>

Dermatophytoses are generally called tineas, tinea is a Latin word for "ring worm". The second part of the name of the dermatophytosis identifies the part of the body infected.<sup>6</sup>

The dermatophytes are hyaline septate molds. These are divided into three main anamorphic genera depending on their morphological characteristics-Trichophyton, Microsporum, Epidermophyton. Based on their ecological characteristic, dermatophytes are divided into geophilic, zoophilic and anthropophilic species.<sup>7</sup>

Dermatophytosis produces a dermal inflammatory response with intense itching and also of cosmetic importance.<sup>8</sup>

So the present study was concerned with isolation, identification and clinicomycological study of dermatophytes.

## MATERIALS AND METHODS

The current study was conducted for the period of two years in the Department of Microbiology, Kasturba Medical College, Mangalore.

Clinically suspected 250 cases of dermatophytosis attending the Out Patient Department of Kasturba Medical college hospital, Wenlock hospital and Lady Goschen Hospital were studied.

After taking detailed case history, clinical examination was conducted. The patient was made to sit in the good source of light and proper clinical examination of lesion was done. It included number of lesions, types, presence of inflammatory margin, etc.

### Collection and Transport of Specimens

Proper sterilization and Aseptic condition was maintained to minimize contamination. Sufficient clinical material for direct microscopic examination and culture was collected. The following equipments were used for collection and transport of specimens: sterile nail clippers, scissors, forceps for epilation of hairs, sterile scalpel blades and curettes, sterile gauze squares, 70% alcohol for disinfection, sterile water for cleaning of painful areas and clean paper envelopes were taken to transport the clinical specimens. Black photographic paper was carried for collecting and better visualizing scrapings.<sup>9</sup>

10% KOH solution was used for skin, hair and for nail scrapings required a stronger alkali solution 20% KOH. All preparations were examined under low power and confirmed under high power.

Two sets of medium were used, Sabourauds dextrose agar (modified) and Sabourauds dextrose agar with cycloheximide and chloramphenicol were incorporated to avoid contamination with saprophytic fungi and bacteria. The clinical material were inoculated into one each of the

above two media. The inoculated agar slants were incubated in room temperature and at 37°C in incubator and observed daily for growth. If no growth was noticed by four weeks culture was considered negative and discarded.

### Macroscopic Examination of Colonies

Rate of growth, Colony characteristics was noted.

### Teases Mount Technique

A tease mount was made as soon as sufficient growth was evident on isolation medium. A small portion of the mycelium was avulsed with an inoculating wire and transferred on to a drop of Lactophenol cotton blue (LPCB) on microscopic slide. Then it was teased apart with dissecting needle. A cover slip was placed over the preparation and excess stain if any, was removed with blotting paper. The preparation was examined microscopically first under low power, then under high power objective.

### Slide Culture Technique

The fungus was sub cultured on an agar block held between slide and cover slip. This enables the arrangement a mycelium and spore to be observed undisturbed at various stages of growth.

### Urea Hydrolysis

The ability to hydrolyze urea provides additional data that can be used to aid in the differentiation of *T. rubrum* (urease negative) from *T. mentagrophytes* (typically urease positive).

### Growth on Polished Rice Grains

Unlike most dermatophytes, *M. Audouinii* grows poorly on rice grains and produces a brownish discoloration of the rice.

### In-vitro Hair Perforation Test

*T. mentagrophytes* has the ability to penetrate the hair shaft but not *T. rubrum*.

### Dermatophyte Test Medium (DTM)

DTM was used to isolate dermatophyte from a contaminated or mixed growth with other fungus and bacteria. DTM selectively inhibits bacteria and other contaminant fungi while encouraging the growth of dermatophytes. Dermatophytes produce an alkaline reaction through oxidative deamination. While most others which were capable of growing on DTM produce acid reaction.

## RESULTS

The present study for isolation, identification and clinicomycological study of dermatophytes was done on 250 clinically diagnosed cases of dermatophytosis. Out

of 250 samples isolated 215(86%) were skin scraping, 24(9.6%) were nail clipping and 11(4.4%) were hairs stubs.

Out of 250 clinically diagnosed dermatophytoses, males were more in number 168(67.20%) compared to female 82(32.8%). Highest incidence was seen in the age group 21-30 yrs with 88(35.2%) cases, followed by 31-40 yrs 71(28.4%) cases. Male to female ratio was 2.048:1 (Table 1).

Tinea corporis found to be the commonest clinical type with 119 cases (47.6%) followed by Tinea cruris 60(24%), Tinea unguium 24(9.6%), Tinea pedis 15(6%), Tinea capitis 11(4.4%), Tinea manuum 10(4%), Tinea faciei 8(3.2%), Tinea barbae 3(1.2%) (Table 2).

Out of 250 cases of dermatophytosis, 138 cases (55.2%) were positive in direct microscopic examination (KOH) and total of 106 cases (42.4%) were positive in culture. 102 cases (40.80%) were positive in direct examination (KOH) as well as culture. In 4 cases (1.6%) direct examination was negative but they were culture positive. 108 cases (43.2%) were negative in both direct examination and culture.

Sensitivity was 73.9%, Specificity was 96.4%, Positive predictive value was 96.2%, Negative predictive value was 75% (Table 3).

Out of total 250 clinical isolates 106 cases (42.4%) were culture positive. Trichophyton rubrum were the commonest isolates 69(65.09%) other isolates were Trichophyton mentagrophytes 19(17.92%), Trichophyton violaceum 4(3.78%), Epidermophyton floccosum 9 (8.49%), Microsporum audouinii 59(4.72%) (Table 4).

In 55 isolates of Tinea corporis Trichophyton rubrum isolated in 34 cases (61.82%) were the commonest isolate. Other isolates were T. mentagrophyte 12(21.82%), Trichophyton violaceum in 2(3.63%), E. floccosum 5(9.69%), Microsporum audouinii 2(3.64%).

In 35 isolates of Tinea cruris, T. rubrum were in 26 cases (74.28%) T. mentagrophyte 4(11.43%), E. floccosum 4(11.43%) Microsporum audouinii, 1 (2.85%).

In 3 isolates of T. unguium 3 isolate (60%) were T. rubrum, 2 isolates (40%) were T. mentagrophytes.

In 5 isolates from T. capitis T. rubrum was in 1 case (20%). T. violaceum 2 cases (40%), Microsporum audouinii 2 cases (40%).

T. manuum in 2 isolates, 1(50%) isolates was T. rubrum, T. mentagrophyte 1(50%). In T. faciei, T. barbae all isolates were T. rubrum (100%) (Table 5).

**Table 1: Dermatophytosis in relation to age and sex**

Age	Male	Female	Total
0-10	11 (4.4%)	9 (3.6%)	20 (8%)
11-20	31 (12.4%)	5 (2%)	36 (14.4%)
21-30	60 (24%)	28 (11.2%)	88 (35.2%)
31-40	44 (17.6%)	27 (10.8%)	71 (28.4%)
41-50	12 (4.8%)	7 (2.8%)	19 (7.6%)
51-60	8 (3.2%)	5 (2%)	13 (5.2%)
61-70	2 (0.8%)	1 (0.4%)	3 (1.2%)
	168 (67.20%)	82 (32.80%)	250

**Table 2: Clinical types of dermatophytosis**

Clinical types	Numbers of isolates	Percentage
Tinea corporis	119	47.6%
Tinea cruris	60	24%
Tinea unguium	24	9.6%
Tinea pedis	15	6%
Tinea capitis	11	4.4%
Tinea manuum	10	4%
Tinea faciei	8	3.2%
Tinea barbae	3	1.2%
Total	250	100%

**Table 3: Results obtained in the direct examination and culture**

	KOH positive (n%)	KOH negative (n%)	Total (n%)
Culture positive	102 (40.80%)	4 (1.6%)	106 (42.4%)
Culture negative	36 (14.4%)	108 (43.2%)	144 (57.6%)
	138 (55.2%)	112 (44.8%)	250 (100%)

**Table 4: Incidence of various species of dermatophytes in clinical isolates**

Species	No. of isolates	Percentage
Trichophyton rubrum	69	65.09%
Trichophyton mentagrophyte	19	17.92%
Trichophyton violaceum	4	3.78%
Epidermophyton floccosum	9	8.49%
Microsporum audouinii	5	4.72%
	106	100%

## DISCUSSION

Among the various fungal infections of human beings dermatophytes is a most common infection of the world.<sup>3</sup> Studies on dermatophytoses in India have received increased attention in recent years because 1/5 the of the world's population suffers from mycosis.<sup>4</sup>

### Age Incidence

In the present study the maximum incidence of dermatophytosis was in the age group 21-30 yrs (35.2%).

The present study was correlated with other studies which also reported predominance of cases in the age group of 21-30 year.

**Table 5: Dermatophytes in different clinical types**

	<b>Tinea corporis</b>	<b>Tinea cruris</b>	<b>Tinea unguium</b>	<b>Tinea pedis</b>	<b>Tinea capitis</b>	<b>Tinea manuum</b>	<b>Tinea facie</b>	<b>Tinea barbae</b>	<b>Total</b>
Trichophyton rubrum	34 (61.82%)	26 (74.88%)	3 (60%)	2 (100%)	1 (20%)	1 (50%)	2 (100%)	1 (100%)	69
Trichophyton mentagrophyte	12 (21.82%)	4 (11.43%)	2 (40%)			1 (50%)			19
Trichophyton violaceum	2 (3.63%)				2 (40%)				4
Epidermophyton floccosum	5 (9.69%)	4 (11.43%)							9
Microsporum audouinii	2 (3.64%)	1 (2.85%)			2 (40%)				5
Total	55	35	5	2	5	2	2		1

$\chi^2=44.227$ ,  $P=0.0264$

Nita Patwar Dhan, Rashmika Dave et al in 1999 also reported maximum number of cases of dermatophytoses belonged to the age group 21-30 yrs.<sup>4</sup>

N Sumana, V. Rajagopal in 2002 reported most of the cases were from age group 11-20 yr and 21-30 yr (51.4%).<sup>10</sup>

V Sumana, A Singaracharya in 2004 reported that the incidence of disease was more in the age group of 21-30 (52%).<sup>11</sup>

SS Sen, ES Rasul in 2006 in their study on dermatophytosis in Assam reported the infection was found to be the commonest in adults aged 21-30 years (44%).<sup>12</sup>

The higher incidence of dermatophyte in young age may be due to increased physical activity increased opportunity for exposure and hormonal pattern.

### Incidence According to Sex

In the present study dermatophytic infection was more common in male (67.20%) and less common in female (32.8%). Male to female ratio was 2.04:1.

Other studies also supported the present study that incidence of dermatophyte is more prevalent in men.

KM Achary, RK Thakur et al in 1995 reported dermatophytic infection more in men (65%) and less in female (35%).<sup>13</sup>

Singh S, Beena PM in 2003 also reported in their studies dermatophytosis more common in male (61.15%) and less in female (38.84%). In their study also reported that male to female ratio was 1.57:1.<sup>14</sup>

SS Sen, ES Rasul in 2007 reported in their studies male to female ratio being 2.85:1.<sup>12</sup>

In the study done by Neetu Jain, Meenakshi Sharma, V.N. Saxena in 2008 Tinea, infection were more dominant in males (67.5%) than in female (32.5%).<sup>15</sup>

Male predominance of dermatophytosis was observed due to increased Out Door activities and increased opportunity for exposure to the fungi of men than women.

### Culture and Microscopy

In the present study 138 cases (55.2%) were positive in direct microscopic examination (KOH). 106 cases (42.4%) were culture positive. 108 cases (43.2%) showed neither culture positive nor KOH positive. The present study was supported by other studies.

Bindu V. et al in 2002 observed in their study that in direct microscopy positivity was 64% cases and culture positivity was 45.3% cases.<sup>20</sup>

S, Singh, P.M. Beena in 2003 also reported 60.38% cases positive by microscopy and 44.6% cases were culture positive. 53.38% cases did not showed evidence of fungus either on direct microscopy or on culture.<sup>19</sup>

SS Sen, ES Rasul in 2006 reported that 4.9% cases were positive for fungal elements by direct microscopical examination, culture was positive in 51% cases.<sup>12</sup>

### Dermatophyte Isolates

T. rubrum was the predominant isolate in the present study in 69 cases (65.09%). Other workers who reported. T. rubrum as predominant isolate in their studies, were Singh S et al in 2003 – 73.27%.<sup>19</sup> Mohanthy JC et al in 1998 – 68.34%.<sup>16</sup> Bindu V et al in 2002-66.2%.<sup>20</sup> Sumana V et al in 2004 – 60%.<sup>11</sup> Peerapur B V et al in 2004 – 43.7%.<sup>21</sup> Gupta BK et al in 1993 -42.42%.<sup>17</sup>

In the present study T. mentagrophytes was the second commonest isolate (17.92%). This correlated with the results of Bindu V et al in 2002– 25%.<sup>20</sup> and Peerapur BV et al in 2004-28.1%.<sup>21</sup> Mohanty JC in 1998 reported 17.10% T. mentagrophytes in his study.<sup>16</sup> Singh S, PM Beena in 2003 reported 17.24% T. mentagrophytes.<sup>19</sup>

E. floccosum was isolated in 8.49% of cases in the present study. Singh S et al in 2003 reported - 7.75%.<sup>19</sup> and Peerapur BV et al in 2004 – 7.8%.<sup>21</sup> and Gupta BK in 1993 – 15.15%.<sup>17</sup>

In the present study T. Violaceum was isolated in 3.78% cases, this study was correlated with the study of Singh S et al in 2003 (1.72%),<sup>19</sup> Peerapur BV et al in 2004 (4.7%).<sup>21</sup>

In the present study *Microsporum audouinii* was isolated in 4.72% cases Peerapur BV et al in 2004 in their study reported *M. audouinii* in 6.2% clinical cases.<sup>21</sup>

### Dermatophytes Isolated in Different Clinical Types

In the present study commonest isolate 69(65.09%) were *Trichophyton rubrum* from all clinical isolates. In *T.corporis* 34 isolates (61.82%), in *T. cruris* 26 isolates (74.28%). in *T. unguium* 3 isolates (60%) were *Trichophyton rubrum*. In *T.capitis* and *T. manuum* *T. faciei*, only *T. rubrum* was isolated.

Other studies also supported the present study.

In the study done by Nita patwardhan, Rasmika Dave in 1999 commonest isolate was *T.rubrum* being (28.12%) in all clinical cases. It was prevalent in *T. corporis* and *T.cruris*.<sup>4</sup>

In study done by Seema Bhaduria, Neetu Jain in 2001 *T.rubrum* was the main isolate in all clinical types 17/50 (34%).<sup>3</sup>

In the study done by G. Venkatesan, AJA Ranjit Singh et al in 2007. *T.rubrum* was the main causative agent in *T. corporis* (45.1%), *T. cruris* (22.6%). *T. pedis* (2.8%) onychomycosis 2(2.8%).<sup>2</sup>

### Clinical Types of Dermatophytosis

#### Tinea Corporis

In the present study *Tinea corporis* was the commonest clinical presentation encountered in 119/250 cases (47.6%) followed by *Tinea cruris* (24%), *Tinea unguium* (9.6%) *Tinea pedis* (6%), *Tinea capitis* (4.4%). *Tinea manuum* (4%) *Tinea faciei* (32%), *Tinea barbae* (1.2%). Other studies also reported *T.corporis* to be the most prevalent clinical type.

G. Venkatesan, A.J.A Ranjit Singh et al in 2007 also reported in their study that *tinea corporis* was most prevalent (64.8%).<sup>2</sup>

Nita Patwardhan et al in 1999 reported commonest clinical type *T. Corporis* in (24.5%) cases.<sup>4</sup>

Seema Bhaduria et al in 2001 found *T.Corporis* most common clinical types in 28/70 cases (60%).<sup>3</sup>

MN Sumana and V. Rajagopal in 2002 found *T.corporis* commonest in 73/150 cases (48.66%).<sup>10</sup>

V. Sumana et al in 2004 found *T.corporis* to be the most common clinical presentation about 60% cases.<sup>11</sup>

S.S. Sen, ES Rasul in 2006 observed *T. corporis* (4.8%) being the commonest in their study.<sup>12</sup>

### T.Cruris

*T.Cruris* was the second commonest in 24% cases in the present study.

Nita Patwardha et al in 1999 reported *T.cruris* in (22.2%) cases the second commonest.<sup>4</sup>

V. Suman et al in 2004 found *T. cruris* second in (40%) cases.<sup>11</sup>

SS Sen, ES Rasul in 2006 reported *tinea cruris* in (19%) cases the second commonest.<sup>12</sup>

G. Venkatesh et al in 2007 found *T.cruris* second predominant in 26.8%. cases.<sup>2</sup>

### T.Unguium

In the present study *Tinea, unguium* was in (9.6%) cases. B.K. Gupta et al in 1993 reported in (4.4%) cases,<sup>7</sup> and MM Huda et al in 1995 reported 6% incidence of *tinea unguium*.<sup>18</sup>

SS Sen, ES Rasul in 2006 also reported *tinea unguium* in (11%) cases in their study.<sup>12</sup>

### T.Capitis

In the present study *T.capitis* was reported in 4.4% cases.

Nita Patwardhan, Rashmika Dave in 1999 reported higher incidence of *T. capitis* in 12% cases,<sup>4</sup> MN sumana, V. Rajgopal 2002 also reported higher incidence of *T.capitis* in 18% cases.<sup>10</sup>

### T.Pedis

In the present study *Tinea pedis* was reported in 6% cases. B.K. Gupta in 1993 also reported (5.6%) cases<sup>17</sup> and M.M. Huda et al in 1995 reported in 7% cases incidence of *Tinea Pedis*.<sup>18</sup>

## CONCLUSION

This study highlighted that *tinea corporis* is the commonest clinical type. In *Trichophyton* species, *T.Rubrum* and *T. Mentagrophyte* are the most common aetiological agents and males are more frequently affected. Though various species of dermatophytes produce clinically characteristic lesions, but a single species may produce variety of lesions depending upon site of infection.

Dermatophytoses is a trivial disease but has lot of psychological effect and a costly disease in terms of treatment.

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# Life with Diabetic Foot Ulcer: A Cross Sectional Study

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## Abstract

**Introduction:** Diabetic foot ulcer is one of the important problems related to diabetes which affects the quality of life of the patients. The purpose of this study was to compare the quality of life of men and women with diabetic foot ulcer.

**Material and Methods:** This cross-sectional study aimed to study the quality of life of 72 men and 48 women with diabetic foot ulcer using convenience sampling method. The data gathering instrument was diabetic foot scale questionnaire which is used for evaluation of the quality of life of the patients with diabetic foot ulcer. The data were analyzed through descriptive and analytic statistic tests.

**Results:** Of 120 patients with diabetic foot ulcer participating in this study, 60% were men and 40% were women with the mean age of 54.23(±12) years. The scores obtained in quality of life domains showed that friendship ( $p=0.024$ ), following the treatment (0.013) and financial status ( $p=0.032$ ) had significant difference between men and women. A significant relationship was also found between age and quality of life in both genders ( $p=0.007$ ). Marriage showed a significant relationship with quality of life in men ( $p=0.014$ ) and women ( $p=0.002$ ). The correlation between quality of life and economic status was significant only in men ( $p=0.010$ ) and its association with employment status was only significant in women ( $p=0.001$ ). Education level and body mass index had no significant relationship with quality of life in any of the genders.

**Conclusion:** In most domains, the effect of diabetic foot ulcer on quality of life was more in women than men.

**Keywords:** Ulcer, Diabetes, Quality of life

## INTRODUCTION

Diabetes mellitus is one of the chronic and debilitating diseases with serious complications, and diabetic foot ulcer is seen in 15% of diabetics.<sup>1</sup> Diabetic foot ulcers are the wounds, which have a long term impact on the morbidity, mortality and quality of affected individuals.<sup>2,3</sup> Patients, who develop a diabetic foot ulcer are more prone of premature death, myocardial infarction and fatal stroke.<sup>4</sup> Diabetic foot ulcer rapidly deteriorates, and 15-20 percent need amputation of the affected limb.<sup>5</sup> It has been estimated that every 20 seconds a lower limb is amputated due to diabetic foot ulcer.<sup>6</sup> Mortality increases with level of amputation<sup>7</sup> and ranges from 50–68% in a period of five years, which is worse than as compared to other malignant conditions.<sup>8,9</sup> Considering the importance of the issue and little researches in this regard in the country, the

present study was designed to compare the quality of life of women and men with diabetic foot ulcers in order to plan effective medical care programs to improve the quality of life the patients.

## MATERIAL AND METHODS

In this cross-sectional study, 60 patients with diabetic foot ulcer hospitalized at Teerthanker Mahaveer Medical College, Moradabad, in a 3 months period were recruited using convenience sampling method. The patients had no audio-visual disorder to answer the questions asked. The questionnaire was used as the data gathering instrument which is used for evaluation of the quality of life in diabetic patients with foot ulcer. The questionnaire which was designed by Johnson in 1995 in England and its validity and reliability have been studied in several countries<sup>10</sup> contains

58 questions in 11 domains, including pleasure of life (5 items), physical health (6 items), daily activities (6 items), emotions (17 items), lack of ulcer care (2 items), family relationships (5 items), friendship (5 items), following the treatment (4 items), satisfaction (1 items), positive attitude (5 items), and financial status (2 items). For the analysis, descriptive and analytic statistical methods were used.

## RESULTS

The findings of the study on 60 patients with foot ulcer showed that the mean age was  $52.18 \pm 1.8$  and 60% of the patients were male. The mean scores of 11 domains of quality of life showed that the women had the highest and lowest scores. This indicates the vast level of changes in women (Leisure 5 items), (Physical health 6 items), (Daily activities 6 items), (Emotions 17 items), (Noncompliance 2 items) (Family 5 items), (Friends 5 items), (Treatment 4 items), (Satisfaction 1 items), (Positive attitude 5 items), and (Financial 2 items).

The relationship between quality of life and sex showed that the domains of friendships following the treatment and financial status had a significant relationship with sex; the mean score in women was less than men. It must be noted that the average quality of life of women was less than men in other domains except for pleasure of life, lack of ulcer care and family relationships; however, the difference was not statistically significant ( $p > .005$ ).

## DISCUSSION

Discussion with patients, made it possible to identify quality-of-life concepts specific to foot ulcers. The questionnaire developed in this manner was acceptable to patients, and showed content validity.<sup>10</sup>

In the study by Johnson, 1995<sup>10</sup> significant relationship was observed between age and quality of life in both sexes for all domains of quality of life except friendship and satisfaction. But in our study significant relationship was observed in all domains except one, which in our case was satisfaction. Valensi and colleagues showed that age is significantly correlated with the various domains of quality of life such as activities of daily living, physical health and dependence on others.<sup>11</sup>

According to Ribu *et al.* age has a significant relationship with quality of life which is due to physical, emotional and self-care limitations,<sup>12</sup> which also supports our study and also our study supported by (Oyibo *et al.*)<sup>13</sup> that age is one of the social factors affecting the quality of life of these patients. In other words, the younger patients have a more positive attitude towards for diabetic foot ulcer, on

the other hand old patients suffer chronic complications of the diabetes and achieve lower scores on quality of life.

Papadopoulos *et al.* also concluded that the married compared with the singles, have a better score which is due to the psychological support from the family.<sup>14</sup>

It seems that the patients with diabetic foot ulcers experience higher rate of decreased quality of life than diabetic patients without foot ulcer, which is due to the heavy costs of the disease imposed on the patient and his family. On the nutritional and economic front in our study men suffered more than women because the costs are mostly burdened on men than women, the quality of life of men is more affected, same findings and interpretations were also observed by Wexler.<sup>15</sup>

Ribu *et al.*<sup>12</sup> also noticed significant relationship between employment status and scoring of different domains. They also stated that higher domain scoring is due to the fact that they feel beneficial for the self, family and society.

No significant relationship between the quality of life and education was observed in any of the female and male sex groups in our study. The study by Kolawole and colleagues reached a similar conclusion,<sup>16</sup> on the other hand Darvishpoor Kakhki *et al.*<sup>17</sup> stated that education level and quality of life are of a significant relationship. They expressed that there is significant difference between the education level and physical performance. They also stated that the patients with a higher education level have better conditions for learning, self-care and follow more guidelines of concerned medical staff.

Briggs and colleagues found that Body Mass Index affects the quality of life resulting in reduced quality of life especially in the obese patients. Findings of Briggs and colleagues correlates well with our study also. The reason for this was the decrease in physical and social activities in the obese.<sup>18</sup> On the other hand Valensi and colleagues found no correlation between BMI and the quality of life.<sup>11</sup>

The reason for this conflict can be that the diabetic patients without foot ulcer do their efforts to prevent complications such as diabetic foot ulcers and try to keep their weight at an optimal level; however, when the foot ulcer is created, they suffer from a psychological hopelessness that make weight control of no importance for them and they tend to think more about their ulcer to be treated.

## CONCLUSION

The results show that quality of life in women is lower as compared to men and they are more affected by

diabetic foot ulcer. The data of this study provide useful information for medical and paramedical staff and diabetes management persons to consider the effect of diabetic foot ulcers on life of the patients and identify at risk individuals to set programs to help the patients modify their lifestyle so that quality of life may be improved.

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# Budding Dentist on the Road to Success or In a Blind Tunnel?

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## Abstract

**Background:** One of the known stresses amongst the dental students in India is the uncertainty of the career and fear of unemployment after graduation; this might result in declining student academic performance.

**Aims and Objectives:** The objectives of this exploratory study are to investigate the motives behind choosing dentistry as a career option and as well determine the awareness regarding the future prospects of Dentistry amongst the dental students of the Uttarakhand state.

**Materials and Methods:** A questionnaire comprising of open as well as close-ended questions were distributed amongst 500 dental students of Uttarakhand. The response to the questionnaire so obtained were analyzed.

**Results:** 54.90% opted for BDS because they could not secure a seat for MBBS. 69.60% feel stressed when they think of future. 56.12% want to go for a postgraduate degree. 39.95% want to go for government jobs. 29.16% see a more secure future in own practice. 90% agree that they lack awareness about future prospects and feel the need to introduce an orientation course in the curriculum.

**Conclusion:** The present scenario can improve by conduction of Orientation courses in all dental colleges to improve the awareness of students about the available career options, by establishment of counseling cells to combat stress amongst dental students, by creating more jobs in the government sector, and last but not the least, by increasing the number of post graduate seats in government dental colleges.

**Keywords:** Awareness, Dentists, Future, Prospects, Stress

## INTRODUCTION

Dentistry is no more the extraction of teeth only, but it is an emerging branch of medicine with the emphasis on conservation of tooth, replacement of teeth with life like appearance and dental implants. In ancient history of Indian medicine and ayurveda, dentistry was having its existence as a part and parcel of medicine for good health as “The oral cavity is mirror of good health of a person.” Today, dentistry is not only relieving patients from pain but also improving their smiles. The changing trends of dentistry is catering public figures and celebrities by aesthetic and profile enhancement.

Despite the pace at which dentistry is moving forward the biggest question remains, “Why is the new brigade of budding dentists in dilemma?”, I have been asked this

question several times, sometimes by my parents and relatives and sometimes by my friends who are in the in the same profession. In the United Kingdom and United States of America, dentists are amongst the 5% highest paid professionals<sup>1</sup> whereas in India dentists are struggling for earning a decent livelihood, baring a few.

Although, there is a high burden of oral diseases in the country but there are few job opportunities in India, this amounts to stress amongst the dental students. This stress of the future prospects and fear of unemployment might/ can result in poor academic performance of students.

Recognizing the importance of General Health in the process of economic and social development and improving the quality of life of our citizens, the Government of India

has resolved to launch the National Rural Health Mission and National Urban Health Mission programs to carry out necessary architectural correction in the basic health care delivery system. Similar programs to improve the availability and access to quality oral and dental health care will prove beneficial for people as well as the dental professionals.

With increasing awareness amongst the urban population and the stiff competition that graduates face in cities, there has been an increase in the number of aspirants for postgraduate courses. Since the number of seats in various postgraduate courses is very few in proportion to the large number of graduates each year, many of the new graduates immigrate to other countries to fulfill their aspiration.<sup>2</sup> Number of seats available for MDS is only around 3000 compared to 25,000 BDS students graduating every year.

When in the entire West, dentistry is regarded as a flourishing industry, why are budding Indian dentists in stress?

## AIMS AND OBJECTIVES

The following study was designed with the following Aims and Objectives:

- 1) To analyze the reasons for stress amongst new generation dentists.
- 2) To investigate why students choose dentistry.
- 3) To find out how aware a dental student is about his future prospects.

## MATERIALS AND METHODS

A cross sectional questionnaire based anonymous study was conducted amongst a study population of 500 undergraduate dental students from the first to fifth years enrolled in the Bachelor of Dental Surgery (BDS) program in Uttarakhand including students of two dental colleges namely Seema Dental College and Hospital, Rishikesh and Uttaranchal Dental and Medical Research Institute, Dehradun. The study was conducted in December 2012.

The data were analyzed using the Statistical Package for the Social Sciences statistical software (SPSS version 16.0). Since the present study is a computer aided survey sometimes also erroneously referred to as double blind trials, the software will not cause any type of bias between the researcher and the subject.

## RESULTS

A total of 500 questionnaires were distributed and 408 were obtained giving an overall response rate of 81.7%.

When we asked the students the reasons behind choosing dentistry as a career option, the response was as follows (Figure 1):

- 54.9% students owned up that they chose dentistry because they could not secure a seat for MBBS.
- 20.8% students said they simply wanted the title doctor before their names.
- Whereas, only 13.2% of the students said that dentistry is their career of interest.

Future prospects: matter of stress?

- 69.60% students said they feel stressed when they think of their future (Figure 2).
- Whereas, 92.2% of these students felt that this stress is interfering with their academic performance (Figure 3).

When we asked the students what they wanted to do after BDS (Figure 4):

- 56.12% students said they want to do MDS.
- 39.95% students said that they want to go for government jobs.
- Whereas, 29.2% students said they see a more secure future in private practice.
- 66.17% feel the need to migrate to other countries for better opportunities (Figure 5).
- Shockingly, 90.2% students admitted that they lack information about future prospects (Figure 6).

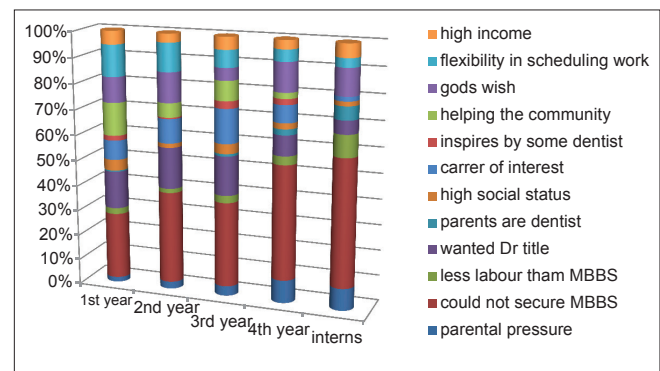


Figure 1: Dentistry as a career

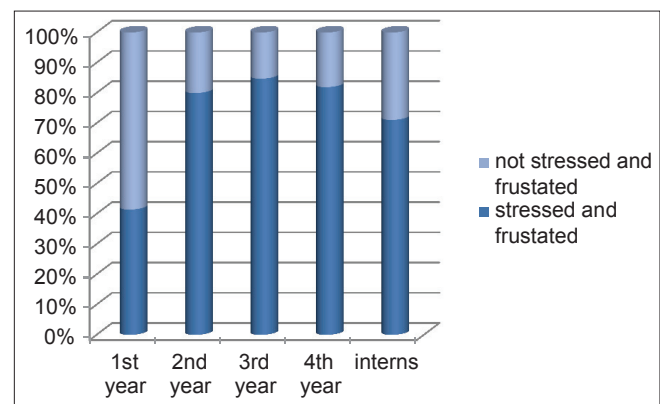


Figure 2: Level of stress in relation to future prospects

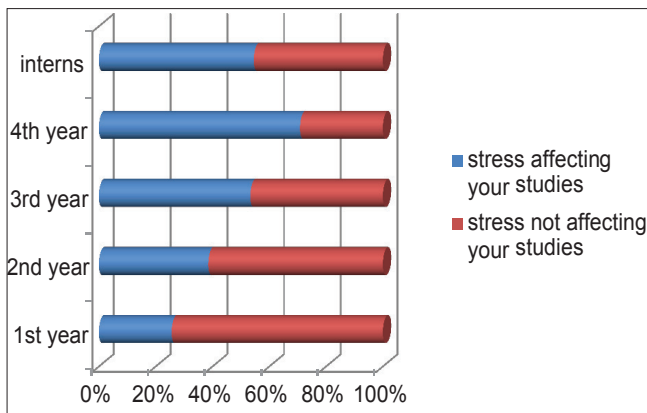


Figure 3: Interference in academics due to stress

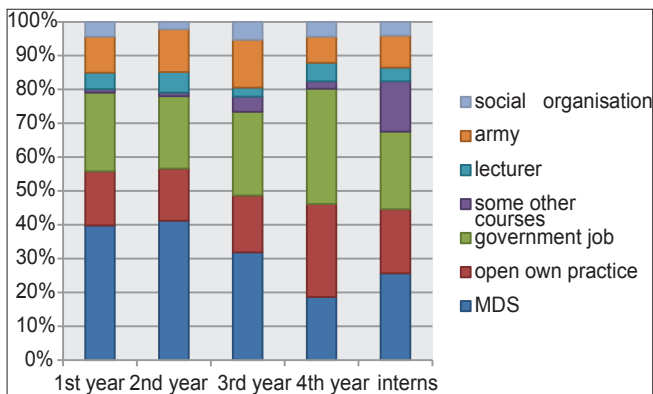


Figure 4: Future plans

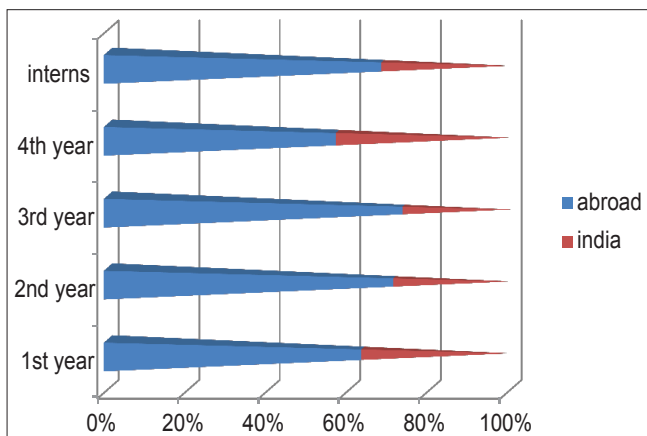


Figure 5: Need for migration to abroad for better prospects

- And 89% students expressed the need for an orientation course to be included in the curriculum (Figure 7).
- The silver lining in this dark scenario is that 83.03% students want to continue their career in the field of dentistry (Figure 8).

## DISCUSSION

In order to find out a few answers, we came across interesting and thought provoking statistics. According to

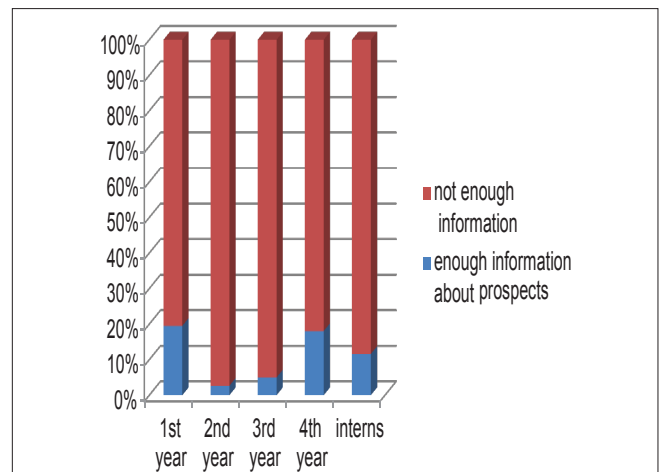


Figure 6: Awareness about prospects

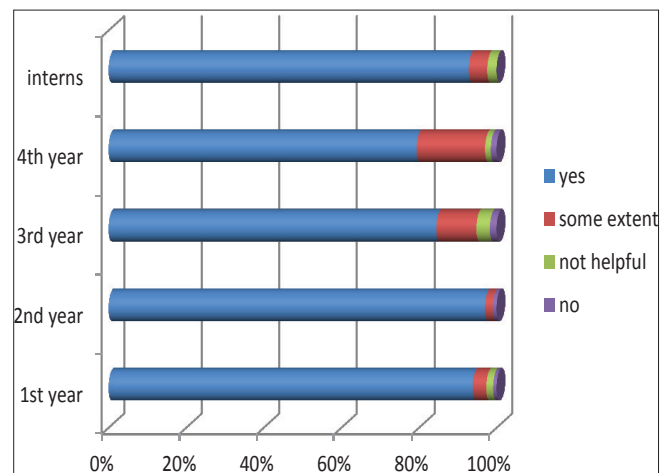


Figure 7: Need of orientation course

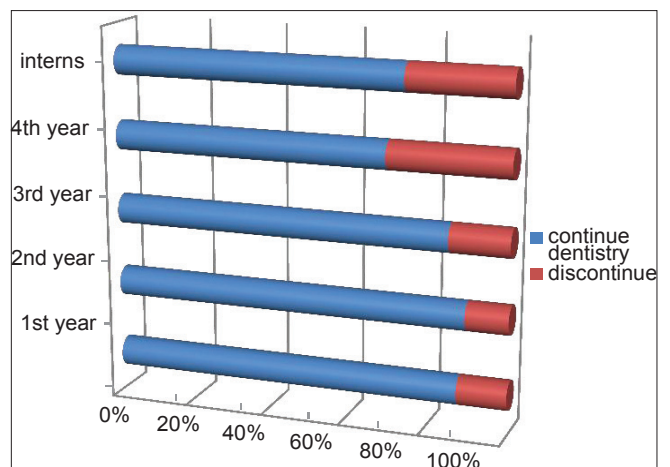


Figure 8: Wish to continue with dentistry as a career

our study majority of students opted for dentistry because they could not secure a seat for MBBS, this clearly shows the declining interest of the students of Uttarakhand in the field. Similar studies conducted in Bhubaneswar and Mysore also showed comparable results. A reduction in

overall applications to the undergraduate course has been seen during the last decade, although fluctuations have occurred from year to year.<sup>2</sup> So, it is essential to keep up momentum in the drive to attract suitable applicants for the course. This can be done by increasing the quality instead of quantity of Dental Education in India.

The prevalence of stress amongst the dental students due to worries of future is seen to be increasing year by year. A study with prime objective of determining the perceived causes of stress among undergraduate dental students of the academic year 2009–10, at the College of Dentistry, King Saud University, Riyadh, Saudi Arabia said that one of the major causes of stress amongst dental students is “Fear of not having possibility to pursue a post graduate dental education program.”

Increased awareness of Indian patients has raised their expectations from the dental practitioners. Awareness about the dental education among Indian population has also decreased the charm of BDS degree alone and more and more patients try to consult a specialist for their problems. This is the reason why the aim of most dental graduates is to get the master's degree (MDS). This has been proved by various studies in India as well as overseas. According to a survey of dental students of Gandhi Dental College and Hospital, Bhubaneswar around 40% of students in first year of graduation were interested in pursuing post graduation. Increasing trend towards post graduation was observed with the seniority and almost 70 % students from the fourth year of graduation have voted for master degree. But the disappointing ratio of 1:10 (MDS seats: number of dental graduated passing every year) is a bottleneck in the career prospects of a dentist.<sup>3-5</sup>

A large population of candidates wants to go for government jobs but are disappointed due to very limited vacancies. Astonishingly, the Dentist: Population ratio in India is as low as one dentist per 11249.50 people. So, according to the data dentists should be in great demand.<sup>6</sup>

The National Urban and Rural Health mission programs provide effective health care to the rural as well as poor urban population, especially the disadvantaged groups including women and children, by improving access, enabling community ownership and demand for services, strengthening public health systems for efficient service delivery, enhancing equity and accountability and promoting decentralisation.<sup>7</sup> These programs are not only beneficial for the people but also provide employment to healthcare professionals. Unfortunately, there are no such program for oral and dental healthcare. In a country where 60% have never visited a dentist; over 50% not concerned about preventing

or curing dental problems; almost 30% do not use any oral care product; 75% of toothpaste users brush only once or less than once a day; over 50% of rural India does not use a toothbrush to clean teeth, such programs are a must.<sup>8</sup>

Majority of the students according to the survey, would like to migrate to other countries if given a chance. The reason for migration is the monetary benefits that the dentists get in most of the developed countries, especially the United States, United Kingdom, Canada, Australia, and New Zealand. These are the main four countries that receive the greatest immigration from India. Out of the 63 percent of dentists in New Zealand who are from overseas, for example, 15 percent are Indians.<sup>2</sup> The facilities in the developed countries are more advanced, easily accessible, and promising as compared to those available in India. Those aspiring to rise in research and academics prefer to go abroad.

Our research should be viewed with the following limitation in mind, all collected data were self reported and therefore not verifiable. In particular, there was some inconsistency in the collected data (i.e. participants provided multiple answers to questions that asked for only one answer), indicating that some of the reported information was unreliable.

## CONCLUSION

Dental students of Uttarakhand have poor awareness about the future prospects which is a matter of stress and has direct impact on academics and we think the scenario throughout the country may be same as the numbers of qualified dental surgeons are increasing every day. We can't say there is lack of opportunities for the young dentists but what we need is a systematic approach to give them the right direction. Students are aspiring to do MDS but are discouraged seeing the lack of government seats. There are lesser openings for dental surgeons in government and public sector jobs. If we see the scenario of private practice there is an accumulation of private practitioners in urban areas depriving the rural population from basic facilities. Therefore, we may suggest the Policy makers of Indian Health System like Government of India, various state governments and Dental Council of India to look into the matter to increase the number of MDS seats in government as well as private colleges under government quota; create jobs in the government, private and semi-government sectors; conduction of orientation courses regarding future prospects in the various Dental colleges of India. Counselling cell in each and every dental college to combat the stress amongst dental students. Programs similar to NRHM and NUHM for dental and oral healthcare should also be launched.

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# Diarrhoea and Sanitation Practices in Children a Study from Kishanganj District, Bihar

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## Abstract

**Introduction:** Diarrhoea is a common and preventable disease, but unfortunately in India like other developing countries of the world, diarrhoea continues to be serious problems in infants and children. It is among the topmost causes of morbidity and mortality in children.

**Objective:** Present study was conducted to study the association of different sanitation practices and diarrhoea in children of rural area of Kishanganj district, of Bihar.

**Materials & Methods:** To ensure reasonable limit of precision target sample size of approximate 3742 children, upto 12 years of age were selected for the study. The survey consisted of 30 clusters and each cluster consists of about 125 children. The association of diarrhoea in children were studied in relation to some factors, like source of drinking water, defecating practices and excreta disposal, and habits of cleaning hand.

**Result:** It was observed in our study that the incidence of diarrhoea was more in those children who were using wells (22.7%) in comparison to those children who were using tube-wells (16.6%) for drinking water source. The incidence of diarrhoea in children excreting outside the household premises was lower (13.5%) than the children excreting inside the household premises (32%). Incidence of diarrhoea in children having the habits of cleaning hands was lower (10.2%) than the children not having the habits of cleaning their hands (21.8%).

**Conclusion:** The incidence of diarrhoea was found to be low in the children whose drinking water source was tube wells. Also, it was found to be low in children excreting outside the household premises and having the habits of cleaning hands.

**Keywords:** Diarrhoea, Sanitation, Factors

## INTRODUCTION

Diarrheal diseases are amongst the top three killers of children in the world today.<sup>1</sup> It is the second leading cause of death in children under five years old. Together, they account for approximately one in six deaths among children younger than five years.<sup>2</sup> Each year diarrhoea kills around 760000 children under five. Globally, there are nearly 1.7 billion cases of diarrhoeal disease every year. Of India's more than 2.3 million annual deaths among children, about 334000 are attributable to diarrhoeal diseases.<sup>2-4</sup> Despite the substantially declining mortality rate from diarrhoea in developing countries, diarrhoea

still accounts for approximately 11% of all mortality in children under 5 years of age.<sup>5</sup> Rotavirus is the leading cause of severe diarrhoea in children in developed and developing countries.<sup>6</sup> Diarrhoea is a symptom of infections which can be defined as "defecation frequency of three or more loose/liquid stools in a day (or more frequent passage than is normal for the individual)".<sup>7</sup> There are three clinical types of diarrhoea – a) acute watery diarrhoea- Lasts several hours or days, and includes cholera, b) acute bloody diarrhoea - also called dysentery, and c) persistent diarrhoea - Lasts 14 days or longer. Diarrhoeal infections are caused by a host of bacterial, viral, and parasitic organisms, most of which are spread by faeces-

contaminated water. Infection is more common when there is a shortage of adequate sanitation, hygiene and safe water for drinking, cooking and cleaning. Because diarrhoeal diseases are of faecal origin (i.e contaminated water from sewage, septic tanks and latrines) interventions that prevent faecal material entering the domestic environment of the susceptible child are likely to be of greatest significance for public health.<sup>8</sup> The key primary barriers to the transmission of enteric pathogens are safe stool disposal and adequate handwashing, especially after contact with faecal material during anal cleansing of adults and children.<sup>9</sup> In developing countries, 1.1 billion people still defecate in the open and handwashing with soap is practiced, on average, only after 17% of toilet uses.<sup>10,11</sup> Reductions in diarrhoea incidence have reached 5% for watery supply at source, 19% for water quality interventions (results after 12 months), 36% for sanitation interventions and 47% for handwashing with soap and water (estimates from pooled analyses).<sup>12,13</sup> Diarrhoea incidence remains a tremendous burden on children in low and middle income countries,<sup>14</sup> due to multiple determinants.<sup>15</sup> These countries are particularly affected by deficient water systems and services, poor sanitation and hygiene.<sup>16,10</sup> These determinants of diarrhoeal diseases are strongly linked to poverty and social inequalities.<sup>17</sup> Clean fresh water, free from contamination is essential for positive health. Consumption of contaminated water leads to various water borne diseases, like amoebiasis, bacillary dysentery, cholera, typhoid, infective hepatitis, etc. The mode of excreta disposal has also an important bearing on diarrhoeal morbidity sanitary excreta disposal plays an important role in breaking of faeco-oral transmission chain.

## MATERIALS AND METHODS

Present study was conducted in Kishanganj district of Bihar, from the period Sept-2013 to Oct-2013 (two months). A pre-designed, pre-tested study schedule was used for collecting data. Privacy of the parents and children were maintained. Children selected for this study belonged to the age group of newborn to 12 years, who were mostly the permanent residents of this area or who are residing in this zone for more than 6 months. The survey has been conducted as per standard WHO/CDD case management process, cluster sampling method as described in WHO/CDD household survey manual (CDD/SER/86.2, REV.1989). The survey consisting of 30 clusters by and large from rural and few from sub and semi-urban population. The sample size has been collected using standard method in CDD household survey manual. To ensure reasonable limit of precision target sample size of approximate 3742 children upto 12 years of age was selected. Thus each cluster consists of about 125 children. The study was done stage by stage depending on a number of blocks in the district chart enclosed. Primarily two queries

were made in each household – (1) is there one or more than one resident child under 12 years of age in the household, and if so (2) whether or not any of the child is a victim of diarrhoea or any of the children had diarrhoea within the last 2 weeks. The diagnosis was confirmed after detailed and thorough interrogation of the patients and their parents or guardians, clinical examination of the patient and by required pathological examination like routine examination of stool of the sufferer child. Finally, the relation of diarrhoea in children in relation to some factors, related with the sanitation practices like source of drinking water, defecation practices and habit of cleaning hand were established.

## RESULTS

Incidence of Diarrhoea among children of each age group according to source of Drinking Water.

In the present study, 3355 children (89.6%) used tube well as their source of drinking water, whereas 387 children (10.4%) used well as their source of drinking water. The incidence of acute and persistent diarrhoea in these two groups i.e Tube well and well groups was 418 (12.4%) and 142 (4.2%) and 70 (18%) and 18 (4.7%) children, respectively.

Incidence of Diarrhoea among children of each age group according to defecating practices and excreta disposal of children.

In the present study, majority of the cases 2976 (79.5%) children were defecating outside the household premises whereas in 766 (20.5%) children were defecating somewhere within the household premises. The incidence of acute and persistent diarrhoea in children excreting outside the household premises was 299 (10%) and 104 (3.5%). The incidence of acute and persistent diarrhoea in children excreting inside the household premises was 189 (24.7%) and 56 (7.3%) respectively.

Incidence of Diarrhoea among children of each age group according to habit of cleaning hand.

In the present study, 1441(38.5%) children had the habit of cleaning their hand, whereas 2301 (61.5%) children did not have any habit of cleaning their hand before taking food or after defecation (where children did not take food themselves, their mother were enquired about habit of cleaning hand). The incidence of acute and persistent diarrhoea in children having the habit of cleaning their hand was 113 (7.8%) and 34(2.4%) respectively. The incidence of acute and persistent diarrhoea in children not having the habit of cleaning their hand was 375(16.3%) and 126(5.5%).

## DISCUSSION

In the present study, 3742 children under the age of 12 years residing in the 30 villages of Kishanganj district were surveyed with a view of finding out the incidence of diarrhoea in the child population. Children were divided into four groups, i.e 0-5 months, 6-11 months, 13-35 months and 36th months to 12 years. The frequency of each of these age group was 149(4%), 175(4.7%), 684(18.3%) and 2734(73%), respectively.

- i. In the present study, the incidence of diarrhoea was low in the children groups, using drinking water from tube-well. It was about 12.4% and 4.2% and 18% and 4.7% for acute and persistent diarrhoea in children whose source of drinking water were tube well and well, respectively (Table 1). Saran M et al.(1981)<sup>18</sup> reported the incidence of diarrhoea as 21.5% and 50.83% respectively, in children utilizing well water as a prime source for drinking and eating purposes. Contamination of drinking water, by sewage through pump failure or blockage of a sewage system<sup>19</sup> and outbreaks of viral gastroenteritis resulting from sewage contamination of water supplies have been previously described.<sup>20,21</sup>
- ii. In the present study, in majority of the cases, 2976 (79.5%) children excreta were thrown outside the house whereas in 766 (20.5%) children were defecating somewhere in house boundary. In my study group only 3 houses had sanitary latrine. Unfortunately, even in that household, children were found to be defecating in open.  
In the present study, the incidence of diarrhoea was much higher where the children defecating inside the

house premises whereas the incidence was much lower in children who defecated outside the house hold premises (Table 2).

The influence of defecation practices and excreta disposal to the incidence of diarrhoea had been observed by many observers. Rao (1976)<sup>22</sup>, Saran(1981)<sup>18</sup> and Agarwal (1981)<sup>23</sup> who had reported that incidence of diarrhoea was more in those who were habituated either open field or door yard defecation. A previous study conducted in an urban poor setting in Indonesia also reported an increased risk of having diarrhoea in children with unavailability of sewage and/or a place to dispose the child's stools.<sup>24</sup> Martens T.E et al (1992) observed that children from the families where excreta disposal was practiced properly in latrines were showed much less incidence of diarrhoea in comparison to those families where excreta disposal of the children was done improperly. He also emphatically stated that childhood diarrhoeal episode would be lessened by 12 percent, if the improper excreta disposal could be reduced to 50 percent. Dikassa L et al (1993)<sup>25</sup> showed the close association of disposal particles of child faeces, household garbage and lack of proper sanitation to the increased risk of diarrhoea in children.

- iii. In the present study, the incidence of acute and persistent diarrhoea in children having the habit of cleaning their hand was 113 (7.8%) and 34 (2.4%), respectively. The incidence of acute and persistent diarrhoea in children not having the habit of cleaning their hand was 375 (16.3%) and 126 (5.5%), respectively (Table-3). It has also been observed in

**Table 1: Incidence of diarrhoea among children of each age group according to source of drinking water**

Age group in month	Drinking water sources							
	Tubewell				Well			
	Mode of onset							
	Normal	Acute	Persistent	Total	Normal	Acute	Persistent	Total
0-5	128	10	1	139	9	0	1	10
6-11	87	38	32	157	11	4	3	18
12-35	396	169	36	601	52	24	4	80
36 <sup>th</sup> & above	2156	201	78	2455	227	42	10	279
Total	2767	418	142	3355 (89.6%)	299	70	18	387 (10.4%)
Percentage	83.4	12.4	4.2	100	77.3	18	4.7	100

**Table 2: Incidence of diarrhoea among children of each age group according to defecating practices & excreta disposal of children**

Age in months	Method of disposal of excreta : Home				Method of disposal of excreta : Outside			
	Mode of onset							
	Normal	Acute	Persistent	Total	Normal	Acute	Persistent	Total
0-5	137	10	2	149	0	0	0	0
6-11	98	42	35	175	0	0	0	0
12-35	264	130	18	412	187	63	22	272
36 <sup>th</sup> & above	22	7	1	30	2386	236	82	2704
Total	521	189	56	766 (20.5%)	2573	299	104	2976 (79.5%)
Percentage	68	24.7	7.3	100	86.5	10	3.5	100

**Table 3: Incidence of diarrhoea among children of each age group according to habit of cleaning hand**

Age group in months	Habit of cleaning hand							
	Yes				No			
	Mode of onset							
	Normal	Acute	Persistent	Total	Normal	Acute	Persistent	Total
0-5	60	4	0	64	77	6	2	85
6-11	41	11	7	59	57	31	28	116
12-35	205	43	6	254	246	150	34	430
36 <sup>th</sup> & above	988	56	21	1064	1420	188	62	1670
Total	1294	113	34	1441 (38.5%)	1800	375	126	2301 (61.5%)
Percentage	89.8	7.8	2.4	100	78.2	16.3	5.5	100

different studies that various enteric pathogens causing diarrhoeal diseases can survive on the hands. The best studied hygiene practice with consistent evidence in developing countries is hand washing.<sup>26</sup> Evidence from the randomized controlled trials (RCTs) on hand washing showed reductions in diarrhoea of around 30% and of 43-53% of soap is used.<sup>27-29</sup> Our study found that mother and child who reported washing their hands with water and soap had lower percentage of diarrhoea than who did not. High rate of incidence of diarrhoea amongst children who and whose mother are ignored about hygiene and did not wash their hands, and utensils regularly before feeding were found by Saran et al (1981)<sup>18</sup> and Agarwal et al (1981).<sup>23</sup>

## CONCLUSION

The present study has been carried out to find the incidence of diarrhoea in children under 12 years of age, in rural area of Kishanganj district of Bihar, and to collect data on various hygienic and sanitation practices of the children of this area in relation to diarrhoea among them. Conclusions of our present study are:

- The incidence of diarrhoea is less in children using tube well water (16.6%), as compared to children using well water (22.7%).
- The incidence of diarrhoea is less in children defecating outside the house hold premises (13.5%), as compared to children defecating the house hold premises (32%).
- The incidence of diarrhoea was less in children where these children and their mother had the habit of cleaning their hands before taking food or after defecation (10.2%) as compared to where children and their mother did not have the habit of cleaning their hand before taking food or after defecation (21.8%).

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# Diagnostic Dilemma in Benign Condition of Cervix: A Case Report

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## Abstract

Chronic cervicitis is a benign condition being usually asymptomatic, but may sometime present in an unusual manner pose a diagnostic dilemma for treating gynaecologists. Cervicitis is inflammation of cervix. It affects major half of all women at some point during their adult life. Chronic cervicitis results due to repeated episode of acute cervicitis or incomplete treatment. Usually it is asymptomatic, but sometimes may result in vaginal discharge, dyspareunia, intermenstrual or post coital bleed, polyp etc. Sometime it may present in an unusual manner as an elongated cervix as in the present case.

**Keywords:** Cervix, Inflammation, Vagina

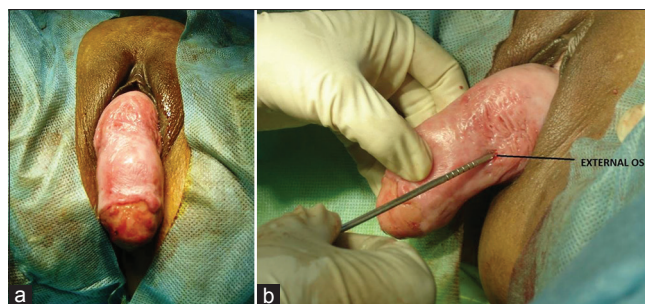
## INTRODUCTION

Cervicitis is inflammation of cervix. It affects major half of all women at some point during their adult life. Chronic cervicitis is a benign condition may results due to repeated episode of acute cervicitis or incomplete treatment. Usually it is asymptomatic, but sometimes may result in vaginal discharge, dyspareunia, intermenstrual or post coital bleed, polyp etc. Sometime it may present in an unusual manner as an elongated cervix as in the present case. There are few case reports<sup>1,2</sup> of similar presentation reported in literature.

## CASE REPORT

A 45-years-old multiparous lady (P5L5) presented to outpatient department with the chief complaint of something coming out of vagina since one and half years. She had regular cycles with no complaints of discharge, intermenstrual or postcoital bleed. On local examination (Figure 1a), there was a fleshy mass 4 × 5 cm, just at the introitus. On per speculum examination, cervix was replaced by cylindrical mass 8 × 4 cm long resembling penis. The external cervical os was not visualized on it. The mass was smooth, firm in

consistency, mobile and did not bleed to touch. A provisional diagnosis of cervical polyp or congenital elongation of cervix was made. On ultrasound, uterus and adnexa were normal, but the cervical canal could barely be discerned with a mass probably originating from cervix. The mass was uniformly echoic with no abnormal vascular patterns seen. On examination of the penile mass in operation theatre, on sustained search, small external cervical os (pin head size) was visualized on posterolateral surface, almost at the middle of the mass (Figure 1b) and diagnosis of cervical elongation was



**Figure 1: (a) Penile mass lying outside the introitus on external genitalia examination. (b) External cervical os visualized on posterolateral surface of the penile mass on examination in operation theatre**

made. Communication of this external cervical os with the cervical canal and uterine cavity was confirmed by sounding through external cervical os. The cervical length was 4 cm and uterocervical length was 12 cm. Her screen for sexually transmitted disease (hepatitis B antigen, syphilis and HIV) was negative. Trachelorrhaphy was planned. While excision of mass, care was taken by keeping a dilator in the cervical canal for marking and trachelorrhaphy was completed. On cut section mass was pale pinkish in colour with no areas of hemorrhage or necrosis and there were no identifiable fibroid or polyp. Histopathology confirmed the diagnosis of cervical elongation with chronic cervicitis with squamous metaplasia. Postoperative period was uneventful. Six weeks after surgery patient showed restoration of normal cervix with patent cervical os in normal position with normal PAP smear. Patient on annual follow up had no complaints.

## DISCUSSION

After extensive search of literature on pubmed with keywords as cervical elongation, unusual presentation of chronic cervicitis, cervical fibroid polyp, only few cases are reported till date.

Doherty et al<sup>1</sup> reported a case of 67 years old lady with postmenopausal bleeding and invasive looking cervical tumour for which hysterectomy was done and histopathology report was plasma cell cervicitis with presence of human papilloma virus (HPV)16 in cervical plasma cell. Plasma cell cervicitis is rare variant of chronic cervicitis. Only few cases of plasma cell cervicitis had been reported earlier.

Gurung et al<sup>3</sup> noticed cervical elongation in 37 years old multiparous lady, due to huge portio-vaginal fibroma for which vaginal hysterectomy with pelvic floor repair was done and histopathology was cervical fibroid with hypertrophic cervix.

Salmo et al<sup>2</sup> reported a case of 29 years old lady presented with postcoital bleed due to cervical polyp for which polypectomy was done and histopathology was Russell body cervicitis with endocervical polyp. Russell bodies are not uncommon in reactive plasma cells with distinctive intra-cytoplasmic eosinophilic inclusions. Russell bodies are accumulation of condensed immunoglobulin within the cytoplasm of plasma cells which can be seen in inflammatory as well as neoplastic processes such as plasmacytoma and B-cell lymphomas.

The presentation in our case was entirely different as a penile mass posing a diagnostic challenge to the treating obstetrician with the histopathology of chronic cervicitis.

Thus, cervicitis can be present in various non classical form like in the present case as elongated penile mass coming out of vagina. Differentials like congenital cervical elongation with hypertrophy and cervical fibroid polyp may be considered for the above case. However, final diagnosis of chronic cervicitis in the present case was perplexing.

## CONCLUSION

Nonclassical presentation of chronic cervicitis in form of cervical elongation was witnessed for the first time. Its uniqueness and its unusual clinical manifestation prompted us to share our experience.

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# Autogenous Buccal Fat Pad in the Treatment of Oral Submucous Fibrosis: A Case Report and Review of Literature

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## Abstract

Oral submucous fibrosis is a chronic diseased condition characterized by gradually increasing fibrosis of the oral cavity, mainly the buccal mucosa, anterior faucal pillars resulting in partial and gradually tending towards complete trismus if left untreated. The incidence of the disease is mainly in the Indian subcontinent, with its highest incidence in South India due to various deleterious habits. There are numerous medical modalities that can be used for the management of oral submucous fibrosis, but sometimes surgical intervention becomes inevitable. Various types of flaps have been used to reconstruct the surgical defects following surgical excision of fibrous bands, but it was seen that the use of autogenous buccal fat pad remains the most versatile because of its excellent blood supply and minimal donor site morbidity. Here we present a case of oral submucous fibrosis surgically treated and which was reconstructed using autogenous buccal pad of fat.

**Keywords:** Oral submucous fibrosis (OSMF), Buccal fat pad, Autogenous

## INTRODUCTION

Oral submucous fibrosis (OSMF) is a chronic, resistant disease which may involve the submucosal layer of any part of the oral cavity and may extend up to pharynx and oesophagus. In 1952, Schwartz introduced the term "atrophica idiopathica mucosa oris" to describe an oral fibrosing disease he discovered in 5 Indian women from Kenya.<sup>1</sup> Joshi subsequently termed it as oral submucous fibrosis (OSMF) in 1953.<sup>2</sup> This condition has been referred to, under a number of names such as diffuse oral submucous fibrosis, idiopathica scleroderma of the mouth, idiopathic palatal fibrosis.<sup>3</sup> Worldwide, estimates of oral submucous fibrosis indicate that 2.5 million people are affected, with a higher incidence in the Indian subcontinent.<sup>4</sup> The highest incidence is found in South India, with an overall prevalence rate of 2.5% in various states of the country.<sup>5</sup>

Clinical signs and symptoms include excessive salivation, limited mouth opening, burning sensation, absent gustatory sensation, etc. which subsequently results to difficulty in chewing and swallowing. It has also been reported with an

increased risk of malignancy and hence it is considered as one of pre-malignant condition.

Non surgical management of these patients includes discontinuation or reduction of the habit, to avoid consumption of spicy foods. Medicinal measures include use of local steroids, placental extracts, hyaluronidase injections singly or in combination with oral anti-oxidant supplements along with oral physiotherapy exercises. Surgical management measures include excision of fibrous bands and coverage of resultant defects with skin grafts, collagen or other dressing materials like, buccal pad of fat, local flaps, vascularized flaps, with or without coronoidectomy and post-operative active jaw physiotherapy.<sup>3</sup>

The buccal pad of fat was first described in 1977 by Egyedi for the closure of oroantral communications after oncological resections.<sup>6</sup> There is rich vascular supply to buccal pad of fat through an abundant network of vascular anastomoses through the small branches of facial, internal maxillary and superficial temporal artery and veins.<sup>7</sup> This

helps in accelerated wound healing as compared to other surgical modalities used for treatment of OSMF.

We employed the usage of autologous buccal pad of fat for the treatment of oral submucous fibrosis, which yielded excellent results.

## CASE REPORT

A 23 year-old male patient presented to the Department of Oral and Maxillofacial Surgery with a 3-year history of progressive inability to open the mouth. He gave history of smoking tobacco for 1 year and intermittent pan chewing for the same period. On intraoral examination blanching was seen and on palpation dense fibrotic bands were present in the buccal and the retromolar pad areas, on both sides extending up to anterior faucial regions of the oral mucosa. The inter-incisal distance at the time of presentation was 14 mm (Figure 1). Diagnosis of Oral submucous fibrosis was made correlating clinical signs and symptoms with histopathological findings from incisional biopsy.

After routine laboratory and radiological investigations and written consent, pre anesthetic evaluation was done and the patient was taken under General Anaesthesia. The patient was prepared as per the routine aseptic protocol. Blind awake nasal intubation was done with no 6.5 ET tube.

Local anesthesia was infiltrated in area of buccal mucosa on both sides and bilateral incisions were made in the buccal mucosa at the level of the occlusal plane away from Stensen's duct orifice. Fibrous bands were broken and blunt dissection was done in supramuscular plane. Buccal artery was encountered exercises were started on the third and so it was ligated. Cautery was also used to control bleeding. The buccal fat pad was approached through the postero-superior margin of the surgical wound (Figure 2). The fat was gently

teased out, from lateral surface of buccinator muscle by gentle dissection and lateral pressure on the cheeks (Figure 3). The fat was then interposed in the raw area and was secured to the margins of the wound using 3-0 vicryl sutures. The same procedure was carried out on the contralateral side (Figure 4).

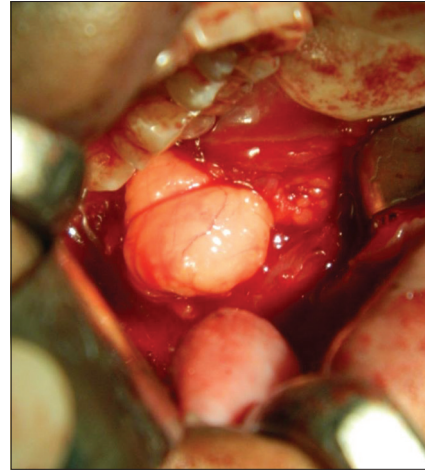


Figure 2: Buccal fat pad exposed

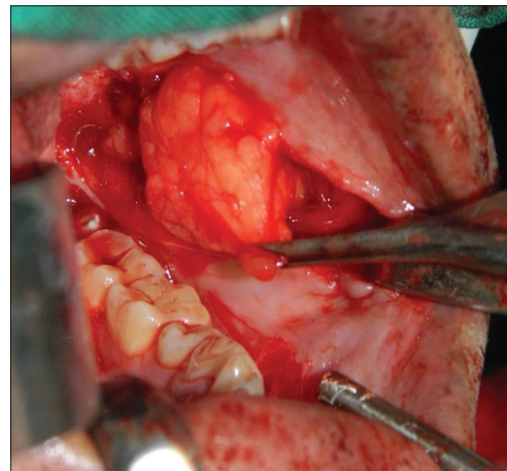


Figure 3: Buccal fat pad in situ



Figure 1: Pre operative pic

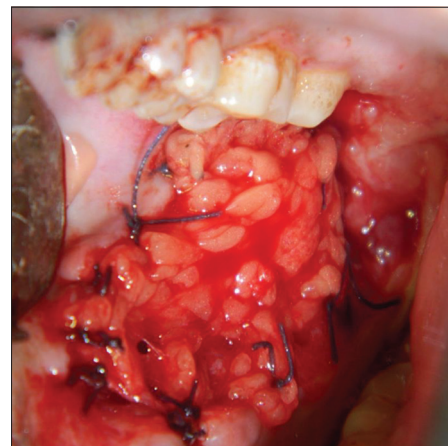


Figure 4: Buccal fat pad secured in to the defect with quilting sutures

Sofratule was placed on both sides and transbuccal suturing was done placing a button of gauze on the cheeks.

Postoperatively systemic antibiotics, analgesics were given and Ryles tube feeding for 3 days was given. Mouth opening exercises were started on the third day (Figure 5). The patient was discharged on the fourth day with instructions to maintain proper oral hygiene and to continue active oral physiotherapy. At 2 weeks follow-up, the oral wounds had healed well. There was an observational change in color from yellowish white to red indicating clinical epithelialization.<sup>8</sup> The patient reported no pain or intolerance to spicy foods. A passive mouth opening of 27 mm and a forceful mouth opening of 32 mm has been maintained (Figure 6). The patient is currently under regular follow-up.

## DISCUSSION

Oral submucous fibrosis is a chronic inflammatory disease affecting the oral mucosa and has a high risk of malignant transformation. Though the exact etiology is not known,



**Figure 5: Immediate post operative inter incisal distance measurement**



**Figure 6: Post operative passive mouth opening**

chronic irritation due to habit of chewing betel nut in various forms is considered as a major contributory factor. Experimentally, alkaloid component of the Arecanut, Arecoline and Capsaicin, the active irritant in chilies have been implicated.<sup>9</sup>

Most patients complain of burning sensation of oral mucosa during the early stage of the disease, especially when spicy food is consumed. Clinically, there are erosions and ulcerations; subsequently, the oral mucosa becomes blanched and loses its elasticity. Vertical bands appear in the buccal mucosa, the retromolar area, the soft palate, and the pterygomandibular raphe, and a fibrotic ring forms around the entire rima oris.<sup>10</sup> Histopathological picture shows juxtaepithelial inflammatory reaction followed by fibroelastic changes in the lamina propria, with epithelial atrophy leading to stiffness of the oral mucosa causing trismus and difficulty in eating clinically.<sup>11</sup>

Early on, the histopathology consists mostly of chronic inflammatory cells with an eosinophilic component infiltrating the subepithelial connective tissues. Older lesions demonstrate a reduced vascularity, reduced numbers of inflammatory cells, and dense bundles and sheets of collagen deposited immediately beneath the epithelium. The diffuse hyalinization of subepithelial stroma usually extends into the submucosal tissues, typically replacing the fatty and fibrovascular tissues.<sup>3</sup> So the basic aim of the treatment modality has been relieving the symptoms which hamper function in the form of trismus, difficulty in mastication, deglutition and speech. The surgical procedures primarily aimed at the surgical elimination of fibrotic bands.

Buccal pad of fat was first described by Heister. The buccal fat pad is a supple and lobulated mass, easily accessible, and mobilized. Anatomically, the buccal fat pad is described as consisting of a central body and 4 extensions buccal, pterygoid, superficial and deep temporal. The main body is situated deeply along the posterior maxilla and upper fibers of the buccinator. The buccal extension lies superficially within the cheek and is mainly responsible for cheek fullness. The buccal extension and main body together constitute 55% to 70% of total weight. The average volume of the buccal fat pad is approximately 10 ml and mean thickness is 6mm. The blood supply of the buccal fat pad comes from 3 sources: maxillary artery (buccal and temporal branches), superficial temporal artery, and transverse facial artery.<sup>10, 12, 13</sup> The buccal pad of fat is a specialized type of fatty tissue called as synsarcosis it enhances inter muscular motion.

Easy mobilization of the buccal fat pad, its excellent blood supply, minimal donor site morbidity, ease of harvesting, simplicity, versatility, low rate of complications, as well

as quick surgical technique make it an ideal flap.<sup>14</sup> The operation can be performed in one incision, affecting neither appearance nor function of the area. It has been used as pedicled graft in facial augmentation procedures, for the repair of persistent oroantral fistulas after dental extractions and in the reconstruction of small and medium size maxillary defects after resection of a tumor.<sup>13</sup>

The rich vascularity of the pedicled graft ensures its vitality and resistance to infections compared to a free graft.<sup>7</sup> Early return to function with normal eating can be commenced within 5 to 7 days with rapid and predictable wound healing expected confidently. Yeh reported elimination of symptoms such as painful ulceration, burning sensation and intolerance to spicy foods.<sup>15</sup> Early, vigorous and sustained physiotherapy is of paramount importance in the outcome of treatment. The resilience of the graft encourages immediate commencement of mouth opening exercises. These factors make the buccal fat pad a logical, reliable and convenient technique for the treatment of oral submucous fibrosis.

## CONCLUSION

Autogenous Buccal fat of pad is very easy and safe procedure for intraoral defects without any foreign body graft rejection and has given very good result in our case of oral submucous fibrosis without inducing any further fibrous band postoperatively. Literature also suggests that rich blood supply easy mobilization and fewer complications make it an ideal flap.

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# Latent Systemic Lupus Erythematosus: A Rare Case Report

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## Abstract

Systemic lupus erythematosus (SLE) is a chronic, autoimmune, connective tissue disorder which has multi-organ involvement. In many cases oral manifestations might be first one to appear and these manifestations might bring patient to oral physicians for treatment. Responsibility lies on Oral Physician to identify such oral manifestations as a part of systemic manifestation and initiate appropriate treatment required for their oral symptoms. Management of this disease should be individualized and should include both pharmacological and non-pharmacological modalities for symptom relief and resolution for improved quality of life. Various treatments like use of occlusal splint have been implicated for relief of oral symptoms and have been found to be very effective.

**Keywords:** Autoimmune disease, Corticosteroids, Oral manifestations, Occlusal splints, Systemic Lupus Erythematosus

## INTRODUCTION

Systemic Lupus Erythematosus is a clinically heterogeneous autoimmune disease<sup>1</sup> of complex aetiology, with protein manifestations, having a variable course and prognosis. It affects primarily women in their childbearing years (20-40 years).<sup>2</sup> Prevalence of SLE is 1:1000.<sup>3</sup> Etiologic mechanism of SLE remains unknown, but multiple factors like genetic, hormonal, immunological and environmental have been found to play a role in its development. Presentation of SLE is complex, as disease has multi-organ involvement (Table 1). Patients experience flare-ups to varying degrees as well as periods of disease recurrence. Certain clinical features are common in every patient but with a unique set of identifiers. A Minimum of four out of eleven criteria should be met in order to confirm the diagnosis of SLE patient (Table 2). A rheumatologist or nephrologist may diagnose a patient if the patient meets only three of the criteria (1 must be clinical and 1 must be serologic) and has other clinical manifestations such as alopecia, skin vasculitis, Reynaud's phenomenon, or lung fibrosis.<sup>4</sup> Some patients may have only one organ involved or only have some of the manifestations and will, therefore, not be diagnosed under the ACR criteria. Such patients are classified as having "Incomplete" or "Latent" lupus.<sup>5</sup> The disease activity usually occurs in three phases

i.e flare, chronic, and long quiescence. A flare or relapsing remission is an exacerbation that occurs suddenly and unpredictably; patients are usually in good health between flares. Chronic SLE has persistent activity of some type such as chronic synovitis and chronic cytopenias. Patients with long quiescence have a long remission period before having additional flare-up.<sup>6,7</sup> As the prevalence of SLE is low, most of oral physicians have insufficient experience for diagnosis and management of "Latent SLE".<sup>8</sup> The authors present a case report of a female patient suffering from systemic lupus erythematosus with associated oral manifestations treated with mild corticosteroids and occlusal splint to reduce flare-up with regular follow up visits and subsequent symptomatic relief and focuses on the identification and management of such patients.

## CASE REPORT

A 45 year old female reported to the Oral Medicine Department, Jaipur Dental College with chief complaint of generalized redness of gums with associated pain, burning sensation, difficulty in chewing food and drinking water since 8 months. Medical history revealed presence of extra-oral eruptions (Figure 1a-c) on forehead, vermillion border of lips and upper extremities peripheral joints which

**Table 1: Clinical features of systemic lupus erythematosus**

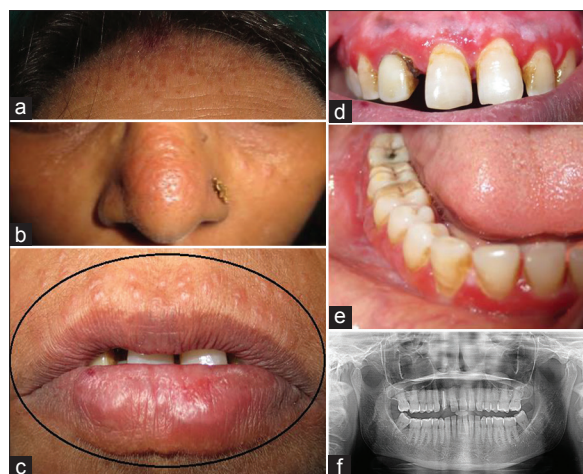
System	Features
Constitutional	Fatigue Fever (in absence of infection) Weight loss
Musculoskeletal	Arthritis, arthralgia Myositis
Skin	Butterfly Rash Photosensitivity Mucous membrane lesion Alopecia Raynaud's phenomenon Purpura, Urticaria Vasculitis
Renal	Hematuria, Proteinuria Casts Nephrotic syndrome
Gastrointestinal	Nausea, vomiting Abdominal pain
Pulmonary	Pleurisy Pulmonary parenchyma Pulmonary hypertension
Cardiac	Pericarditis, Endocarditis Myocarditis
Reticuloendothelial	Lymphadenopathy Splenomegaly Hepatomegaly
Hematologic	Anemia Thrombocytopenia Leukopenia
Neuropsychiatric	Psychosis, Seizures Organic brain syndrome Transverse myelitis Cranial neuropathies Peripheral neuropathies

(Guidelines for referral and management of SLE in adults. Arthritis Rheumatol. 1999 September; 42(9):1785-1796)

**Table 2: Diagnostic criteria of SLE. Adapted from Tan et al, 1982 [1]. A person is said to have SLE if he/she meets any 4 of these 11 criteria simultaneously or in succession**

Criterion	Definition/examples
1. Malar rash	Fixed erythema over the malar eminences, tending to spare the nasolabial folds
2. Discoid rash	Erythematosus raised patches, may scar
3. Photosensitivity	Skin rash as a result of unusual reaction to sunlight
4. Oral ulcers	Usually painless
5. Arthritis	Non-erosive: Jaccoud's arthropathy
6. Serositis	a) Pleuritis-pleuritic pain, pleural rub, pleural effusion b) Pericarditis-ECG changes, rub, pericardial effusion
7. Renal disorder	a) Proteinuria (> 3+ or 0.5 g/day) b) Cellular casts in urine
8. Neurological disorder	a) Seizures b) Psychosis
9. Haematological disorder	a) Haemolytic anaemia b) Leukopenia c) Lymphopenia d) Thrombocytopenia
10. Immunological disorder	a) Anti-DNA antibodies b) Anti-Sm antibodies c) Anti-phospholipid antibodies
11. Anti-nuclear antibody	Exclude drug causes

(Manson and Rahman. Orphanet journal of rare diseases. 2006 1:6  
doi: 10.1186/1750-1172-1-6)



**Figure 1:Extraoral and intraoral manifestations (I visit). (a) Pigmented papules on forehead. (b) Butterfly rash. (c) Vesicles involving perioral area and vermillion border. (d) Desquamative gingivitis. (e) Multiple crops of oral ulceration. (f) Orthopantomograph**

aggravated on exposure to sun rays with previous history of pain and inflammation in upper and lower peripheral joints and constitutional symptoms of fatigue, headache, fever, malaise and unsatisfying sleep since last 8 months. Patient also complained of reduced vision and dryness of eyes since last 1 year. Medical consultation sought by the patient from a physician 8 months back revealed a suspected case of “systemic lupus erythematosus” (SLE). Drug History revealed consumption of Tab.Bioquin 200 mg BD \*15 days, Digene gel TDS \* 15 days, Derantox capsules OD \*10 days, Tacrorotor 0.1% ointment to be applied topically on affected area, Melagard 50+ TDS \* 15 days. Patient discontinued medication four months back as there was only mild relief. In family history, there was no record of presence of any such signs, symptoms or disease in any of patient's distant family relatives/cousins. Patient had no deleterious habit and kept insignificant oral hygiene. In general examination, the height and the weight of the patient was within the normal range for a female of given age. In Extra oral examination, facial profile was symmetrical, TMJ was clinically normal and lymph nodes were non-tender and non-palpable. Mild alopecia was present. Chronic Cutaneous manifestations involved presence of “butterfly rash-mask”<sup>2</sup>- (Figure 1a-c) shaped flat erythema over the malar eminences, bridge of nose and upper vermillion border of lips typically sparing the nasolabial folds. Eruptions aggravated on exposure to sun and hence a generalized photosensitivity was present along with cracking of lower lips. Intra oral examination revealed generalized inflammation and erythema of upper and lower attached gingiva showing typical characteristic features of desquamative gingivitis(Figure 1d).There were localised regions of atrophied mucosa with erythema and multiple crops of painful oral ulceration (Figure 1e) interspersed with small patches of white keratotic regions present in lower

left vestibule, right buccal vestibule and posterior region of right buccal mucosae. The oral lesions were tender, burning sensation was measured on VAS score of 3 with incidence of unpredictable irregular flare up pattern. Bleeding from mucosa was noted on wiping with gauze. Examination of hard tissue revealed dental caries wrt 36, 37, 38, 46, 47, 48 spacing between upper anteriors and midline diastema.

With the patient's consent, Investigations were done which included a histopathological smear of the offending regions intraorally, revealing presence of sub-epithelial and perivascular infiltrates and disturbed keratinization cellular atypia. Haematological investigations revealed Glomerular filtration rate (GFR-28), TLC count 9500/mm<sup>3</sup>(normal 4000-11000/mm<sup>3</sup>), haemoglobin 9.0 gm % (normal 12-15.5 %) indicating anaemia, haematocrit 33%(normal 45 %), ESR 15 mm 1st hr (normal westgreen 0-20 mm), platelets 2,10,000/mm<sup>3</sup>(normal 150,000-400,000/ul), total RBC 3.6 ml/mm<sup>3</sup>(normal 3.8-5.8 \* 10<sup>12</sup>/l), DLC count was done and all the leucocytes were found to be within normal range, Anti Nuclear Antibody (ANA) test was negative, C-reactive protein was found to be negative and rheumatoid factor was Positive. Radiographic examination included an Orthopantomograph (OPG) which revealed a completely normal maxillary, mandibular jaw bone and a normal permanent dentition (Figure 1f).

Examining the medical history and analysing Constitutional, Musculoskeletal, Cutaneous and Haematological manifestations of patient, but a negative ANA, 4 of 11 criteria were documented specific for diagnosis of SLE. Thus, it was concluded to confer a confirmed diagnosis of "Latent or Passive Systemic Lupus Erythematosus" under the 1999 Revised American College of Rheumatology (ACR) criteria.

Patient consent was sought prior to initiation of treatment. Treatment plan included providing supportive and symptomatic care. Patient was educated, counseled and reassured about the relapsing, remission pattern and unpredictable course of her disease. Major part of treatment involved administration of topical and mild oral corticosteroids. Local anesthetic gel was applied in offending regions intraorally (2% lignocaine) to provide on the spot symptomatic relief to the patient from burning sensation, also patient was instructed for topical application of triamcinolone acetonide 0.1% BD \* 7 days loaded on occlusal splint fabricated as a part of treatment and worn for 2 hrs 3 times daily for 7 days. Given the significant side effects of steroids, Oral Prednisolone was started at a mild dose of 30mg OD \* 7 Days and gradually tapered to 20 mg and 10mg subsequently in 1st and 2nd follow up. Protection from sun by wearing of protective clothing

and application of sunscreen protection factor of 15 was emphasized and dietary counseling was also done. Oral prophylaxis and oral hygiene was recommended. Periodic recall was done after 7 days.

1<sup>st</sup> follow up was after 7 days. On enquiring Patient reported reduction in burning sensation measured on VAS score of 1 and ease in chewing and drinking habits. Patient had complete symptomatic relief from pain. Extra oral examination revealed reduction in number of eruptions in the vermilion regions of lips, malar regions and forehead (Figure 2a, b). Intraorally erythema was reduced both in the upper and lower attached gingivae (Figure 2c). Consumption of prednisolone was tapered to a dose of 20 mg OD\* 7 days, topical application of triamcinolone acetonide was continued. Patient was asked to follow previous instructions. Second Periodic Recall was done again after 7 days.

In 2<sup>nd</sup> follow up, patient reported complete elimination of burning sensation measured on VAS score of 0. Joint pain in upper and lower extremities still persisted but in a milder form. Extra orally patient reported a complete cessation of eruptions on forehead, malar region and upper vermilion borders of lips (Figure 3a, b). Intraorally there was marked reduction in erythema both in upper and lower attached gingivae (Figure 3c). No side-effect or toxicity from steroid dose was reported. Prednisolone was tapered to 10 mg OD \* 7 days. As the prognosis was good, all previous instructions were re-advised and patient was kept on a regular follow up and monitoring.

## DISCUSSION AND MANAGEMENT OF LATENT SLE

SLE is a systemic illness with multiple end-organ involvement. In addition to the persistent risk of disease



**Figure 2: Periodic Recall (2<sup>nd</sup> visit) Cessation of burning sensation & pain wrt lesion intraorally and reduction in number of extra oral & intraoral manifestations. (a) Extraoral eruptions –malar region. (b) Perioral area and vermilion border of lips. (c) reduction in intraoral erythema**



**Figure 3: Periodic Recall (3<sup>rd</sup> visit) Marked reduction in erythema of attached gingivae and reduction in number of extra oral eruptions. (a) Forehead region (b) Perioral region (c) Intraoral region**

flares more than one-half of SLE patients develop permanent organ system damage.<sup>10</sup> As such it challenges both the patient and their families. The general principle in management of SLE is analogous to that of other inflammatory disorders: suppression of inflammation in an attempt to prevent organ damage.<sup>11</sup> Patients with newly diagnosed SLE often has anxieties about a possibly fatal chronic illness with unpredictable flares and potential disability; these anxieties should be addressed. Patient should learn how to cope with and monitor their disease and to assist physician in distinguishing coincident unrelated symptoms from signs and symptoms of a flare. Psychological support by either the physician and appropriate health professional is essential.<sup>12</sup> SLE patients may need the expertise of professionals in the fields of social work, vocational counselling, psychology, physical and occupational therapy, ophthalmology, dermatology, nephrology, cardiology, orthopaedic surgery and oral physicians too play an important role in diagnosis and treatment of SLE. Not all of these are needed at any one time and their coordination is best done by a specialist, usually a rheumatologist, who has experience in following up patients with SLE and knows what value is added from these consultants. The four major tasks of the oral physician in diagnosis and management of “Latent or Mild SLE” are to 1) be alert to the possibility of SLE in their patients and to make diagnosis as early as possible 2) to manage and monitor patients with mild SLE 3) to recognize when referral to rheumatologist is

indicated 4) collaboration with specialist in monitoring disease activity and treatment in latent SLE. In Latent SLE disease, routine health assessment including regular gynaecologic assessments, dental care and ophthalmologic examinations for females (in patients consuming glucocorticoid) is very important. With the experience and significant knowledge oral physicians in collaborating with specialist can play a key part in monitoring and management of this disease.

## CONCLUSION

SLE is a very complex disease with multifactorial aetiology and multiple organ involvement making the diagnosis challenging. Clinical manifestations as well as immunological abnormalities assist in the diagnosis. Management of SLE depends on the level of disease activity and can include general measures, NSAIDs and steroids. Literature reveals an ongoing research to improve the quality of life and increase survival of patients affected by SLE.

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# Dental Rehabilitation of Amelogenesis Imperfecta in the Mixed Dentition

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## Abstract

Amelogenesis Imperfecta represents a group of hereditary defects of enamel unassociated with any other generalised defects. It is entirely an ectodermal disturbance, since the mesodermal components of the teeth are basically normal. This clinical report describes the management of a 10 year-old boy with a X-linked hypocalcified type of AI. The first phase of the treatment was preventive measures to improve dental and periodontal health. On the second phase the root stumps were extracted and the molars were endodontic treated and covered with stainless steel crowns. Polycarbonate crowns on maxillary permanent incisors and direct composite veneers on mandibular permanent incisors were placed.

**Keywords:** Amelogenesis imperfecta, Composite, Esthetics, Polycarbonate crowns, Stainless steel crowns

## INTRODUCTION

Amelogenesis imperfect comprises of group of developmental anomalies affecting the morphology and appearance of enamel of a few teeth or all teeth. This may also be associated with other biochemical changes in the body.<sup>1</sup> There are four main types of AI based on phenotype namely hypoplastic, hypomaturational, hypocalcified and hypomaturational-hypoplastic with taurodontism.<sup>2</sup> AI has genetic origin and the mode of inheritance may vary. It can affect both primary and permanent dentition.<sup>3</sup>

Type	Forms of AI	Clinical features
Type I	Hypoplastic Enamel	Well-mineralized enamel but in reduced amount
Type II	Hypomaturated Enamel	Mottled, opaque white-brown or yellow discoloured enamel
Type III	Hypocalcified Enamel	Pigmented, softened and easily scrapable enamel
Type IV	Hypomaturated-hypoplastic Enamel	Combined features of hypomaturated and hypoplastic

According to the literature, AI patients, regardless of subtype, have similar oral complications: tooth sensitivity, poor dental esthetics, and decreased occlusal vertical dimension. Other dental anomalies associated with AI include, but are not limited to multiple impacted teeth, congenitally missing teeth, open occlusal relationship, taurodontism, pulpal calcification, root malformations, progressive root and crown resorption and anterior open bite occlusion.<sup>5</sup>

The treatment of patients with AI should be planned taking both the clinical and the emotional demands into consideration. Historically, patients used to cover their teeth with either pieces of paper or chewing gum in order to have an ordinary appearance.

The psychological impact on an individual who has teeth affected by amelogenesis imperfecta cannot be underestimated. The individual may be too embarrassed to smile because they are unhappy with the appearance of their teeth.<sup>6</sup> Therefore, the planning of esthetic restorations on the anterior teeth may not only preserve the tooth structure and reduce sensitivity, but also eliminate the adverse social impact of their teeth.

Treatment is as ever based on the principles of prevention before intervention. However, since AI has genetic origin so preventive care cannot be possible and intervention is to be done early in a more radical manner.

This report describes the clinical management of a case of amelogenesis imperfecta in the mixed dentition, with special emphasis on the esthetic demands of the patient and the longevity of the restorations.

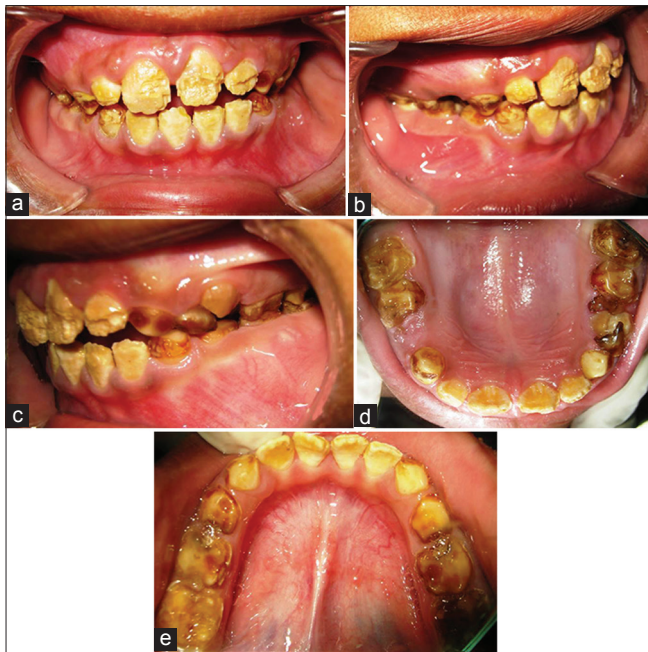
## CASE PRESENTATION

A 10 year old male attended the clinic because of discolored primary and permanent teeth which manifested some thermal

sensitivity. A detailed medical, dental, and social history was obtained. The patient was examined dentally and medically.

Clinically, the child's oral hygiene was unsatisfactory and he exhibited moderate chronic marginal gingivitis. On examination it was found that enamel thickness of all teeth was reduced and in some teeth dentin was exposed. The teeth had orange brown discoloration, with diffuse pitting present on all surfaces of the teeth. (Figure 1a-e).

Radiographic investigation included an Orthopantomogram (OPG). OPG showed retained 54 root stumps, 65 with



**Figure 1: (a-e) Preoperative clinical picture showing irregular dark yellow to brown discolored labial surface of maxillary and mandibular teeth**



**Figure 2: The radiographic appearance of the dentition panoramic radiograph showing diminished enamel on the erupted teeth and all of the developing teeth consistent with the patient's chronological age**

completely resorbed roots and pulpally involved 85 and 75. Crowns of all teeth showed reduced enamel thickness with normal dentin. Root morphology of all teeth was completely normal (Figure 2). The clinical and radiographic features and the family history were consistent with a diagnosis of X-linked hypocalcified Amelogenesis Imperfecta.

The treatment objectives were to improve the esthetics, eliminate the tooth sensitivity, prevent further loss of tooth structure, modify the child's attitude and behavior towards dental treatment and improve his periodontal health. The parents were informed of the diagnosis and all the treatment modalities were discussed with them. As part of the treatment plan, the treatment alternatives were explained to the child and his parents. This included the amount of tooth structure that would need to be removed, the expected clinical longevity of the restorations and the length of the treatment period. After considering all of the treatment options, it was decided to place direct composite veneers (3M™ ESPE™ Filtek™ Z250 Universal Restorative) on the permanent lower incisors, Polycarbonate preformed Crowns (3M™ ESPE™) on the permanent upper incisors and stainless steel crowns (3M™ ESPE™) on the primary and permanent molars; the parents understood that this could temporarily compromise the esthetics in the molar regions.

Initial periodontal therapy consisted of oral prophylaxis and oral hygiene instructions, scaling, and root planning. This was followed by extractions of retained 54 root stumps and 65.

A Universal restorative composite was chosen to restore the defective tooth structure of the permanent incisors. No preparations were preformed on the incisors, other than cleaning with a rotary bristle brush with pumice prior to acid-etching with 35% phosphoric acid for 30 seconds followed by rinsing with water spray. The labial surfaces of the mandibular incisors were then directly restored with resin composite. Conservative tooth preparation was



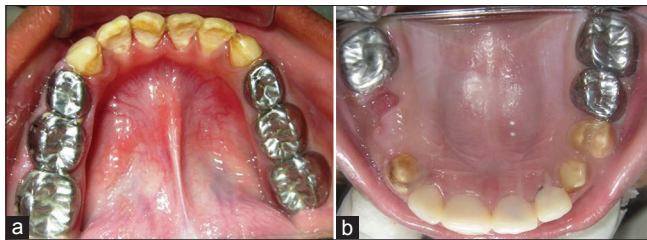
**Figure 3: Postoperative clinical picture showing esthetic composite veneering in mandibular teeth and Polycarbonate crowns on maxillary teeth**

performed on the maxillary permanent incisors prior to placement of the polycarbonate crowns (Figure 3).

Endodontic procedures were performed on 85, 75 and 74. Furthermore, preformed stainless steel crowns (3M) were placed following minimal slice preparations of the teeth bilaterally at each visit so as to balance the occlusion and alter the vertical dimension (Figure 4a, 4b). The adaptation and quality of the margins of the preformed stainless steel crowns were evaluated using a panoramic radiograph. Maxillary primary canines were left un-restored as they were about to exfoliate.

The stainless steel crowns on the first permanent molars are considered to be only temporary restorations. Once the second permanent molars and the premolars have established the level of the occlusal plane, the stainless steel crowns on the first permanent molars will be replaced by cast full-coverage restorations (Figure 5).

Six monthly follow up was done till 18 months. Six months after the completion of treatment, no deterioration was visible in the restorations. The Gingiva was slightly inflamed, because of insufficient brushing.



**Figure 4: (a) Postoperative clinical picture showing composite veneering and stainless steel crowns in posterior teeth in mandibular arch. (b) Postoperative clinical picture showing polycarbonate crowns and stainless steel crowns in posterior teeth in maxillary arch**



**Figure 5: The post-operative panoramic radiograph after restorations of all the erupted teeth and extraction of the retained root stumps**

## DISCUSSION

Treatment of the different amelogenesis imperfecta types depends on the specific AI type and the character of the affected enamel. Treatments range from preventive care using oral prophylaxis, sealants and bonding for esthetics to extensive removable and fixed prosthetic reconstruction. The treatment approach should ideally be developed considering the specific AI type and underlying defect. Nowadays, there is a range of materials used to restore the teeth that includes the use of composite resin, polycarbonate crowns, stainless steel crowns (SSCs), glass ionomer cement and functional maintenance dispositives to restore a mutilated dentition.<sup>7</sup> In most cases, full coverage restorations are preferable for posterior primary teeth due to the extensive loss of enamel and also to prevent further loss of tooth structure.<sup>8</sup> In primary and the early mixed dentition, stainless steel crowns prove to be the most effective type of restoration.<sup>7,8</sup>

The successful management of amelogenesis imperfecta during childhood requires the cooperation and motivation of both the patient and parents need to be fully assessed before a definitive treatment plan is formulated.<sup>9</sup> Usually, the treatment will extend over many years and long term success will depend on regular attendances for restorative procedures and the maintenance of a high level of oral care.

Frequent topical fluoride applications and dietary control are strongly recommended to prevent caries. Plaque retention and calculus formation resulting from the rough enamel surfaces necessitate high levels of oral health care.<sup>10</sup> The exposed dentin can be sensitive to such stimuli as sweet, hot and cold; topical fluoride applications can control this until definitive restorations can be placed. The newly available Tooth Mousse (GC®) which contains Recaldent® CPP-ACP may prove useful in this regard.

Scott H Rosenblum treated a 13-year-old with full coverage stainless steel crowns on the molars with an increase in vertical dimension and stainless steel crowns with veneer phasing on the anterior teeth.<sup>11</sup> In adolescents, porcelain veneers are also likely to be useful; however their use with amelogenesis imperfecta has not been extensively reported. Porcelain jacket crowns which provide esthetic permanent restorations, have reportedly been successful in affected adults, but their use in young patients is contraindicated because of the presence of large pulp chamber and the likely need for frequent replacement due to passive eruption.<sup>12</sup>

## CONCLUSION

The psychosocial effects of amelogenesis imperfecta on affected individuals are significant.<sup>6</sup> Although there

are technical difficulties associated with performing extensive restorative care in the mixed dentition, they are outweighed by the psychosocial benefits to the affected child. Nevertheless, preserving as much tooth structure as possible is highly desirable because the restorations will need to be replaced several times during adulthood.<sup>12</sup>

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# Juvenile Trabecular Ossifying Fibroma: Unusual Radiographic Features

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## Abstract

Ossifying fibromas are uncommon benign lesion with aggressive local growth. These tumors are believed to originate from the periodontal ligament. Juvenile ossifying fibromas (JOF) were classified into juvenile parosteal ossifying fibroma and juvenile trabecular ossifying fibroma (WHO 2005). These tumors though benign are clinically persistent thereby mandating aggressive resection. We report a case of JOF of trabecular pattern in a 12 year old girl the treatment was radical en bloc resection.

**Keywords:** Ossifying Fibroma, Juvenile ossifying fibroma, Trabecular ossifying fibroma

## INTRODUCTION

Benign fibro-osseous lesion of head and neck region are uncommon.<sup>1</sup> Because of their intense osteoblastic activity, these tumours are very aggressive and osteolytic nature.<sup>2</sup> However, it has been infrequently reported to be found in the frontal, ethmoidal, sphenoidal and temporal bones as well as the orbit and anterior cranial fossa. The Trabecular variant of juvenile ossifying fibroma was previously described by Reed and Hagy, in 1965.<sup>3</sup> We report a rare case of trabecular JOF of maxilla in a twelve-year-old female patient with its clinical, radiological features, our experience in its management and a brief discussion regarding the case.

## CASE REPORT

A twelve-year-old systemically healthy girl, presented with 2 year history of a swelling on the left mid face (Figure 1a, 1b). Perceived 2 years before this consultation, the swelling was as a small peanut sized growth which gradually increased to the present size of 2.5 X 3 X 2 cms. Swelling was diffused and asymptomatic. There was no anaesthesia or paraesthesia of the upper lip, cheek, or jaw, and there was no history of trauma. Intra oral examination revealed the lesion to extend from the region of the left anterior maxilla to the ipsilateral first molar and superiorly from upper buccal vestibule

extending inferiorly to the level of attached gingiva. The buccal cortical plate was expanded with no apparent mucosal changes. The swelling was hard in consistency with no signs of fluctuation. No orbital or nasal deformity was observed. However, there was mild facial asymmetry.

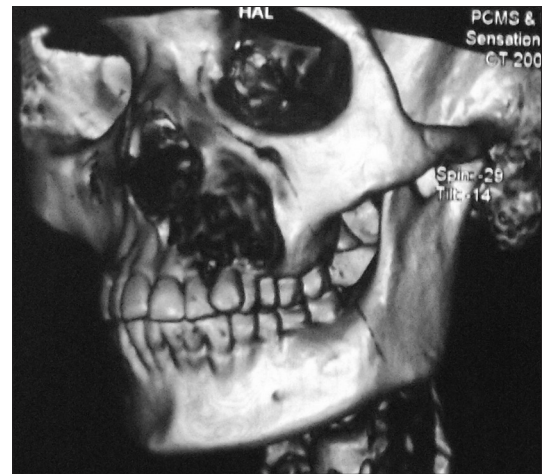
Palpation revealed the swelling to be firm with no associated tenderness or rise in local temperature. Intra orally, a solitary swelling, covered by normal mucosa, about 4x3 cms, oval in shape was seen extending from 21 to 42 (Figure 2). It felt multi lobular, hard in consistency and there was slight obliteration of the buccal vestibule. The teeth in the affected area were normal with no signs of nonvitality. No lymphadenopathy was detected and mouth opening was normal.

Intraoral periapical and occlusal radiographic examination revealed a lesion displaying mixed radio density in the 22, 23 region causing root divergence (Figure 2a, 2b). The orthopantomograph examination revealed an image showing displacement of teeth 22, and 23 with no evidence of root resorption of teeth was seen. The centre of the lesion appeared radiolucent with flecks of radiopaque foci, while the margins were more radiopaque. The lesion extended from the bone crest and fanning out laterally to approximately 3 cm above apical level of the adjacent teeth (Figure 3). Computed tomography of the facial bones was

advised which demonstrated a relatively well circumscribed lesion on the left maxilla with no involvement of the nasal septum, Maxillary antrum and left orbital floor. This heterogeneous tumour was of measuring 2.5×3×2 cm. Aspiration yielded negative results, ruling out any cystic lesion. As the lesion was asymptomatic and slow growing, and with no associated neurological symptoms, the diagnosis was concluded to be a benign neoplastic process. Ossifying fibroma, Pindborg tumour, the odontogenic adenomatoid tumour, cemento-ossifying fibroma The mixed odontogenic tumours, odontoma and ameloblastic fibro-odontoma also occur in younger patients and present as mixed density mass lesions in the tooth bearing portions of the jaws. The incisional biopsy was performed under local anaesthesia. Histopathological examination revealed that the tumour is composed of cell rich stroma with highly active proliferative fibroblast, abundant multi nucleated giant cells and many bony trabeculae which was lined by osteoblasts. These features were suggestive of Trabecular variant of juvenile Ossifying fibroma.

Under general anaesthesia, the tumour was exposed and enucleation of was performed (Figure 4) with a clear

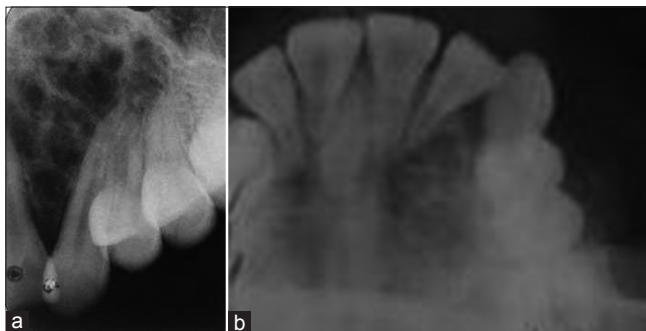
demarcation was evident between tumour and healthy bone. The postoperative course was uneventful and there were no signs of recurrence after a periodic follow-up of 6 months (Figure 5).



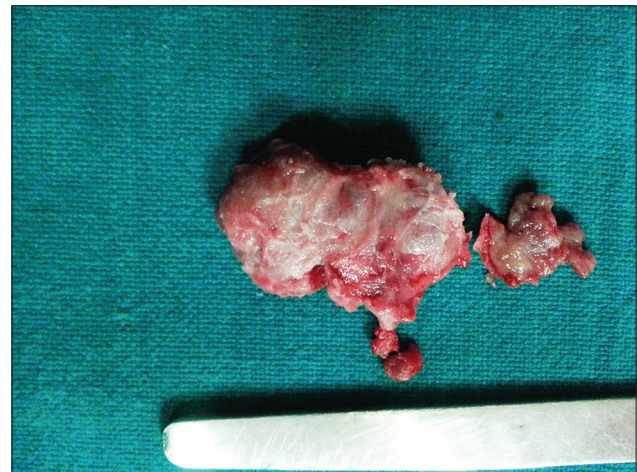
**Figure 3: 3D CT Showing relatively well circumscribed lesion on the left maxilla**



**Figure 1: (a) Front view of swelling of left side of face. (b) Lateral view of swelling of left side of face**



**Figure 2: (a) Intraoral periapical radiograph showing mixed radiodensity in 22, 23 region with root divergence. (b) Occlusal radiograph showing root divergence & mixed radiodensity in 22,23 region**



**Figure 4: Excised tumor specimen**



**Figure 5: Postoperative picture after follow up**

## DISCUSSION

Ossifying fibroma is an uncommon benign osteogenic neoplasm, accounting for 2% of oral tumours in children.<sup>4</sup> Juvenile ossifying fibroma behaves aggressively and has a high recurrence rate when not treated adequately, the correct treatment being en bloc resection with free surgical margins. The juvenile form could be distinguished from ossifying fibroma by the following features: earlier onset (at childhood or adolescence), locally aggressive growth and osteoid trabeculae on histological examination.<sup>1</sup>

Regezzi and Sciubba<sup>5</sup> stated that multiple Ossifying fibroma are sporadic but there is familial inclination in few cases. They also stated that chromosomal translocations were seen in few instances.

Initially the tumour is asymptomatic, but as it progress in size and invade surrounding bone it causes functional alterations and cosmetic deformities.<sup>6</sup> Displacement of the teeth may be seen but the teeth remain vital and the overlying mucosa is characteristically intact, although most lesions are discovered during routine dental examinations. Centrifugal growth of the tumour usually causes bowing of the inferior border of the mandible but cortical perforation is rare.

In Fibro-osseous lesions, the morphology of the normal bone is replaced by fibroblasts, collagen fibres, and immature osteoid cells. This group comprises of fibrous dysplasia, benign fibro-osseous neoplasms (central ossifying fibroma), and a heterogeneous group of reactive lesions (osseous dysplasias).<sup>5</sup> Juvenile ossifying fibromas are more radiopaque than conventional lesions and they have a 'ground glass' appearance or may form dense lobulated masses.<sup>7</sup> Radiologically, juvenile ossifying fibroma presents as a clearly circumscribed, concentrically expanding, solitary mass with bone density. It is the circumscribed nature of ossifying fibroma which distinguishes it from fibrous dysplasia.

Histologically, these lesions are always benign, composed of highly vascular and fibroblast-rich connective tissue, which produces a calcified substance that often cannot be clearly attributed to either cement or bone. Clumps of osteoblasts are also present. The incidence of juvenile ossifying fibroma is unknown. A literature review revealed 17 cases

reported between 2003 and 2010 with a sex-ratio of five females for one male in adults, while a male predominance is observed in the juvenile form.

Complications of the lesions involving the paranasal sinuses includes ocular disturbances, intracranial extension, cysts, and recurrences.<sup>8</sup>

As far as the management of these lesions, it is generally agreed that juvenile ossifying fibroma is a locally aggressive lesion and without adequately treated, it has a high recurrence rate. Hence there is no place for simple curettage of the lesion. The treatment should aim for the complete resection with free surgical margins and grafting.

## TAKE HOME MESSAGES

1. Juvenile ossifying fibromas occur predominately in young people under the age of 15 years & may grow rapidly.
2. A key feature to differentiate ossifying fibroma from fibrous dysplasia is the pattern of mineralization. The pattern of mineralization in ossifying fibroma varies from place to place, whereas in fibrous dysplasia it is uniform throughout the lesion.
3. The advocated treatment for juvenile trabecular pattern of ossifying fibroma is complete surgical resection and partial/incomplete resection leads to recurrence.

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# Osteochondroma of Coronoid Process and Joint Formation with Zygomatic Arch (Jacob Disease): A Rare Case Report

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## Abstract

Osteochondroma is one of the most common benign neoplasia of the skeleton. In the head region it was been described in cranial base, posterior maxillary surface, maxillary sinus and different mandibular areas like ramus, condyle, body and symphysis. Osteochondroma of the coronoid process is one of the rare conditions. In this case report we are presenting a case of Osteochondroma of Coronoid Process and Joint Formation with Zygomatic Arch.

**Keywords:** Mandible, Osteochondroma, Jacob disease, Computed tomography

## INTRODUCTION

Enlargement of the coronoid process of the mandible was first noted and described by Langenbeck in 1853. The joint formation between coronoid process and zygoma was first described by Jacob in 1899. Subsequently, enlargement of the coronoid process has been sporadically reported in the literature.<sup>1</sup>

Osteochondroma is the most common benign neoplasia of the skeleton. It is more frequently found in long bones due to the endochondral growth. It has been described in the head, on the cranial base, jaw, maxillary sinuses, condyle, ramus, body and symphyseal mandibular region. Coronoid process is a low frequent site.<sup>2</sup> Osteochondroma, exostosis, osteoma, hypertrophy, hyperplasia and developmental anomalous may cause coronoid process enlargement.<sup>3,4</sup> Osteochondroma is uncommon in the craniofacial skeleton. However osteochondroma of the coronoid process is even more rare.<sup>5,6</sup>

We present a case of Jacob disease due to osteochondroma of coronoid process including all criteria such as clinical, radiological, surgical and histopathological.

## CASE REPORT

A male patient of 58 years reported to private clinic with complaint of swelling over the left side of face

with mild pain (Figure 1 and 2). The swelling was first noticed by the patient around 6 months back. The main complaint of the patient was that the swelling was increasing in size after the extraction of the upper left molars. The extraction was carried out somewhere else several months back.

On extra-oral examination a hard, palpable swelling was noticed over the left temporomandibular joint area. Swelling was more obvious while opening the mouth.

On intra-oral examination, upper left molars were found absent with normal extraction healing. Swelling was non palpable intra-orally. Submandibular lymph nodes were normal. Oral hygiene of the patient was fair.

Patient did not have any relevant medical history. Patient gave history of tobacco chewing for ten years.

## INVESTIGATIONS DONE

1. X-ray O.P.G, lateral view of the left side.
2. C.T. Scan.
3. Haemogram.

Orthopantomogram suggested a large radio opaque lesion just above the coronoid process over shadowing it (Figure 3).

C.T Remarks: The C.T imaging feature reveal 27.8\* 22.8\* 17.7 mm sized well defined osseous lesion arising from the lateral aspect of the coronoid process of mandible on the left. CT Scan also suggests presence of thin and smooth cartilaginous cap all around the lesion, which favours the diagnosis to be Osteochondroma [bony plus cartilaginous part]. No atypical features were seen (Figure 4).

## DISCUSSION

Although osteochondroma is the most common tumor of skeletal bones, it is relatively uncommon in the jaw, occurring at the condyle or the tip of the coronoid process. This benign cartilage-capped growth is usually discovered incidentally on radiographic examination or on palpation of a protruding mass in the affected area.<sup>7</sup>

Initial signs and symptoms include tightness within the joint area and gradual reduction in mouth opening. The slow development of trismus and painless facial mass typify the later stages.<sup>8</sup>

Shackelford and Brown<sup>9</sup> first reported 2 cases of enlargement of the coronoid process, there has been much confusion with regard to the basic nature of this entity. Differences in the proportion of cartilaginous and bony elements in the specimen have justified several histologic diagnoses, namely, osteochondroma, osteoma, cartilage-capped exostosis, and hyperplasia.<sup>10</sup>

McLoughlin et al<sup>11</sup> analyzed 31 cases of hyperplasia of the mandibular coronoid process. They discovered that many patients who suffered the disease had experienced a trauma before, especially zygomatic arch bone trauma.

Bennett V. York and Steve Cockerham<sup>12</sup> have reported a case occurring in 2 members of 1 family, indicating that heredity may play a role in coronoid process hyperplasia.



Figure 1: Clinical photograph of patient when reported to private clinic



Figure 3: Orthopantomogram of patient



Figure 2: Slight facial asymmetry (clinical picture)



Figure 4: Computed tomography imaging

## TREATMENT

Surgical treatment is recommended to treat coronoid process. Intraoral coronoidectomy in association with early postoperative rehabilitation may ensure satisfactory short-term results and get quite well long-term results.

## CONCLUSION

CT imaging is an important tool in patients who presented with zygomatic swelling and limited mouth opening. CT imaging with 3D reconstruction can diagnose the Jacob disease with showing relationship between enlarged coronoid and zygomatic arch. CT imaging can be used as a guide for planning the core needle biopsy and surgical approach in the preoperative period.

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