

Clinical Profile of Bronchial Asthma and its Association to Accessory Nipple

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Abstract

Introduction: Asthma is a very common disease and the presence of extra nipple and breasts known as supernumerary or accessory breast tissue usually found within the milk line is also not uncommon. Various authors found an association of accessory nipple with various systemic anomalies. The present study has been undertaken to clarify some of these conflicting observation in bronchial asthma patients.

Aims and Objectives: The purpose of this study was to determine the clinical profile of bronchial asthma and prevalence, familial association, sex and side predilection of the accessory nipple in an asthmatic patient.

Materials and Methods: The present study was carried out in the Department of Medicine, Medical College and Associated Hospital, Rewa, Madhya Pradesh, India, from January 2005 to August 2006. Cases selected were all above the age of 15 years and were suffering from bronchial asthma. These patients were subjected to a thorough clinical interrogation, detail physical examination, and laboratory tests. The patients with evidence of organic heart disease, HIV, and respiratory diseases other than bronchial asthma were excluded from this study.

Results: In the present study from the sample size of 100 patients of bronchial asthma, the accessory nipple was present in 20% of cases. Prevalence of accessory nipple was more common in males ($n = 18$, 23.07%) than in female with bronchial asthma ($n = 02$, 9.09%). The family history of bronchial asthma was present in 30% of bronchial asthma patients with accessory nipple as compared to 23.75% of bronchial asthma patients without accessory nipple. Out of 20 patients of bronchial asthma with accessory nipple, 65% ($n = 13$) of patients had accessory nipple on left side along the milk line and 35% ($n = 07$) of patients on right side.

Conclusion: There has been an interesting correlation of accessory nipple in bronchial asthma which required further studies to support this observation.

Key words: Accessory, Anomalies, Association, Bronchial asthma, Nipple, Supernumerary

INTRODUCTION

Now a day bronchial asthma is commonly prevalent due to increasing smoking habits, modern life style, and increase air pollution. Though there are various factors causing chronic obstructive lung diseases including genetic factors but the association of bronchial asthma with supernumerary or accessory nipple is of outstanding importance. The presence of extra nipple and breasts,

polythelia and polymastia, respectively, is not uncommon. Such supernumerary breast tissue usually found within the milk line extending from the axilla to the pubic region. Polythelia (congenital supernumerary nipple) is a marker for more serious anomalies of the urinary and cardiovascular system¹ but in many cases, it is probably a chance finding.

Numerous authors have been observed and claim for a close association of supernumerary and a renal anomaly.²⁻⁵ However, a high index of suspicion should be maintained during physical examination because any disease that involved anatomically normal breasts may affect aberrantly located breast or nipples as well. These anomalies may be associated with several systemic disorders. The present study of “clinical profile of bronchial asthma and its association to accessory nipple” has been undertaken to

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clarify some of these conflicting observations and find out evidence to support such an association. The purpose of this study was to determine the clinical profile of bronchial asthma and prevalence, familial association, sex and side predilection of the supernumerary nipple in the asthmatic patient.

MATERIALS AND METHODS

Place of Study

This is a cross-sectional prospective clinical observation study. In the present study, 100 bronchial asthma patients were included. The present study was carried out in the Department of Medicine, Shyam Shah Medical College and associated Sanjay Gandhi Memorial (SGM) Hospital, Rewa, Madhya Pradesh, India, from January 2005 to August 2006 within a period of about 20 months. The patients were selected from medical wards, medical out patients department, tuberculosis, and chest clinic of SGM Hospital, Rewa, Madhya Pradesh.

Inclusion Criteria

Cases selected were all above the age of 15 years and were suffering from bronchial asthma. The criteria for selection of patients were as follows: History of paroxysmal attack of breathlessness, cough and wheeze with symptoms free period of remission, reversal of bronchospasm after administration of bronchodilator, history of allied disorders considered to be allergic in nature, family history of bronchial asthma and other allergic disorder.

Laboratory Tests

These patients were subjected to a thorough clinical interrogation, detail physical examination, and other laboratory investigations including Spirometry, X-ray chest, and electrocardiography (ECG) also.

Exclusion Criteria

Persons with evidence of organic heart diseases, HIV, respiratory disease other than bronchial asthma were excluded from this study.

Statistical Analyses

Results compiled and statistically analyzed with Chi-square and $P < 0.05$ significance test.

RESULTS

Out of 100 patients, in the present study, 78% of patients were males and 22% patients were female. The maximum number of patients were in the age group of 21-40 years ($n = 57, 57\%$) and least number of cases below 20 years of age ($n = 8, 8\%$). Out of 100 cases, the majority of patients

were from urban areas for both male ($n = 49, 62.83\%$ vs. $n = 29, 37.17\%$) and female ($n = 17, 77.88\%$ vs. $n = 05, 22.72\%$). The majority of cases were found to be laborers (30%) followed by students (23%) and housewives (13%). Out of 100 cases, maximum numbers of patients were from the middle socioeconomic status (53%) and least from the higher socioeconomic status (08%), lower socioeconomic status found to be in 39% of cases. In the present study, majority of the patients (61%) had bronchial asthma of 5-20 years duration. Among these patients most had a mild degree of disease (54.09%), only one patient (1.63%) had a severe degree of disease. The patients with bronchial asthma of <5 years duration had mild degree of disease (69.57%) and patients with bronchial asthma of more than 20 years of duration majority had moderate degree of disease (62.5%). The exacerbation of bronchial asthma had strong relation to seasonal variation ($n = 73, 73\%$) while 27% patients ($n = 27$) had no relation to seasonal variation. The majority of patients had exacerbation of bronchial asthma in winter season ($n = 57, 78.08\%$) followed by rainy season ($n = 13, 17.80\%$) and summer ($n = 03, 4.11$). The most common precipitating factors for acute exacerbation of bronchial asthma were allergens (56%) followed by upper respiratory tract infections (32%) and exercise (04%). There was no history of precipitating factors for acute exacerbation of bronchial asthma in 08% of cases. The exertional or episodic dyspnea was universal symptoms of the illness. As far as other symptoms of bronchial asthma are concerned wheezing was present in 45% cases, cough in 28% of cases, tightness in chest in 21% of cases, and fever only in 06% of cases. In the present study, out of 55 patients of mild degree of bronchial asthma, 14 patients (25.45%) had tachycardia, out of 44 patients who had moderate degree of bronchial asthma 19 patients (43.18%) had tachycardia, as far as severe degree of illness concerned there was single patient of severe bronchial asthma who had tachycardia. All the cases had respiratory rate of more than 16/min and in those 55 patients had mild degree of bronchial asthma, 44 patients had moderate degree of bronchial asthma, and only 1 patient had severe degree of bronchial asthma. Out of 100 patients, cyanosis was present only in 5 cases. Pulsus paradoxus was present only in 1 patient who had severe illness. On auscultation, 55 patients who had mild illness, 40% of patients had rhonchi and 21 patients had vesicular breath sound with prolonged expiratory phase; 44 patients who had moderate illness, 35 patients had rhonchi and 16 patients had vesicular breath sound with prolonged expiration. Only 3 patients had silent chest.

Maximum numbers of bronchial asthma patients were found to be addicted to tobacco (50%). 48% of patients had no addiction. Only 2% patients had history of alcohol addiction. In the present study, maximum patients who took regular treatment for bronchial asthma had a mild

degree of disease ($n = 39, 70.91\%$). On the contrary, most of the patients who did not take treatment or were on irregular treatment had moderate to severe degree of disease ($n = 25, 56.82\%$). There are no reports regarding the prevalence of accessory nipple in asthma.

In the present study, the accessory nipple was present in 20% of cases. Prevalence of accessory nipple was more common in males ($n = 18, 23.07\%$) than in females with bronchial asthma ($n = 02, 09.09\%$) (Table 1).

In the present study, the family history of bronchial asthma was present in 30% of bronchial asthma patients with the accessory nipple as compared to 23.75% of bronchial asthma patients without accessory nipple (Table 2).

In present study, it was found that out of 20 patients of bronchial asthma with accessory nipple, 65% ($n = 13$) had accessory nipple on left side along the milk line and 35% ($n = 07$) of patients had accessory nipple along the milk line on right side. In this study, none of the patients had accessory nipple outside the milk line, as shown in Table 3.

In our study, ECG abnormality was present maximally in patients having bronchial asthma of more than 20 years of duration ($n = 09, 56.25\%$) and least in those having the disease of more than 5-20 years of duration ($n = 20, 32.72\%$). The majority of patients had no radiological abnormalities except changes of hyperinflation of lungs ($n = 100, 25\%$). Pulmonary function test (Spirometry) was done by computerized spirometry. It was observed that patients having duration of bronchial asthma of <5 years had better pulmonary function test (forced expiratory volume in 1 s [FEV₁]/forced vital capacity [FVC%] pred. 85.86 ± 14.70) than those who had duration of bronchial

asthma of more than 20 years (FEV₁/FVC% pred. 74.31 ± 14.13).

DISCUSSION

Stone and Wheeler⁶ studies the anatomy, physiology, and benign pathology of the nipple and have observed that nipple and areola are pigmented areas of modified skin that connect with the underlying gland of the breast via ducts. The fairly common congenital anomalies of the nipple include inversion, clefts, and supernumerary nipples.

Cinpolat *et al.*⁷ had observed and define that an accessory breast with a complete ductal system, areola, and nipple is termed a “supernumerary breast.” Supernumerary nipples are fairly common, but complete supernumerary breasts are rare.

Galli-Tsinopoulou and Stergidou⁸ have observed that the supernumerary nipples (or polythelia) usually appear along the embryonic milk lines or in other sites including the back, thigh, vulva, neck, etc. The frequency of polythelia ranges from 0.2% to 5%.

Schmidt⁹ observed the prevalence of accessory nipple in a prospective clinical study of 502 individuals, irrespective of disease. Among these 28 (5.6%) exhibited the presence of accessory nipple. The male/female ratio was 20:08. The above observation shown in Table 4, that there was a high prevalence of supernumerary nipple in bronchial asthma (20%) as compared to general population as observed by Schmidt (5.6%). The presence of higher prevalence for male gender in both study groups was found.

In the present study, out of 20 cases, 65% patients ($n = 13$) had accessory nipple on left side along the milk line and 35% ($n = 07$) had accessory nipple along the milk line on

Table 1: Sex wise distribution of patients with accessory nipple

Sex	Accessory nipple (N (%))	
	Present	Absent
Male (n=78)	18 (23.07)	60 (76.92)
Female (n=22)	02 (9.09)	20 (90.90)
Total (n=100)	20 (20)	80 (80)

Z=5.6 significant

Table 2: Accessory nipple and family history of bronchial asthma

Sex	Family history of bronchial asthma (N (%))		
	Total	Present	Absent
Present	20	6 (30)	14 (70)
Absent	80	19 (23.75)	61 (76.25)
Total	100	25	75

Z=6 significant

Table 3: Side predilection of accessory nipple

Side of accessory nipple	Number of patients	Total %
Left side along the milk line	13	65
Right side along the milk line	07	35
Total	20	100

Table 4: Comparison of present study with prevalence of Accessory Nipple in normal individuals

Study	Total individuals	Accessory nipple		Total %
		Male	Female	
Schmidt study, 1998 (normal individuals)	502	20	08	5.6
Present study (bronchial asthma patients)	100	18	02	20

right side. None of the patients had accessory nipple outside the milk line. Schmidt⁹ also observed 28 individuals with the accessory nipple in which left:right side ratio 15:7 in males and 5:4 in females. Both observations are suggestive of a higher prevalence of accessory nipple on the left side.

Røikjer *et al.*¹⁰ observed that two different forms of ectopic breast tissue exist in human beings: Supernumerary and aberrant. Both forms are usually seen alongside the milk lines, which extend from the upper limbs to the inguinal region where they give rise to mammary glands, areolas, and nipples.

In present study, family history of bronchial asthma was present in 30% ($n = 19$) of bronchial asthma patients without accessory nipple.

Osswald *et al.*¹¹ also observed that supernumerary breasts and nipples are not uncommon and have familial and syndrome associations.

According to Vishwanathan and Shourie¹² incidence of bronchial asthma was higher in patients of asthmatic parents and there is some evidence of hereditary predisposition of this illness.

According to Toumbis-Ioannou and Cohen¹³ in their observations familial cases were recorded as parent child transmission, including one report of a family who had supernumerary nipples in four successive generations therefore, autosomal dominant with incomplete expressivity is the accepted transmission of inheritance.

According to Urbani and Betti,¹⁴ multi-generation involvement was the rule. Cellini and Offidani¹⁵ in their case report observed three cases of supernumerary nipple in the same family and found the familial tendency of supernumerary nipple.

Urbani and Betti⁵ observed association between supernumerary nipple with kidney and urinary tract malformations. They were observed in 146 white patients (123 men, 23 women) with accessory mammary tissue out of 2645 subject consecutively referred for physical examination. Kidney and urinary tract malformation were detected in 11 patients with accessory mammary tissue (09 men, 02 women) and in one control. These data show a significantly higher frequency of kidney and urinary tract malformation in patients with accessory mammary tissue as compared to controls (7.53% vs. 0.68% $P < 0.001$).

Grimshaw and Cohen¹⁶ observed that the presence of supernumerary nipples, known as polythelia, is the most common presentation of accessory breast tissue. It is

usually considered to be a benign congenital anomaly. However, polythelia may warrant attention for more than mere cosmetic concern because supernumerary nipples have been shown to be associated with an increased risk of genitourinary malignancies.

Pellegrini and Wagner¹⁷ also observed that congenital supernumerary nipple is a marker for more serious anomalies of the urinary and cardiovascular systems. It is associated with obstructive abnormalities of the kidney or the renal collecting system, renal, cardiac conduction disturbances, and congenital heart disease.

Rajaratnam *et al.*¹⁸ observed 68 Asian Indians from South India with supernumerary nipple and 49 age and sex matched controls without supernumerary nipple for evidence of mitral valve prolapsed and associated features. He found that mitral valve prolapsed were more common in the supernumerary group (odd ratio 6.0, 95% confidence intervals 2.16-16.63), indicating an association of supernumerary nipple with mitral valve prolapse.

As this interesting observation of supernumerary nipple in bronchial asthma has not been reported in the literature, hence it required more such studies to substantiate this finding.

CONCLUSION

There has been an interesting correlation of accessory nipple in bronchial asthma which requires further studies to support this observation. Index of suspicion should be maintained during the physical examination that aberrantly located breast and accessory nipple may be associated with bronchial asthma along with the other systemic disease.

Hence it can be concluded that male sex, advancing age, usual residence in urban area, middle socioeconomic status, history suggestive of atopy, family history of asthma, and all forms of tobacco smoking were associated with significantly higher odds of having asthma. The rapid rise in the prevalence of asthma, particularly over a relative short time frame, suggests that environmental rather than genetic factors are important in the development and/or the persistence of the disease. This has focused a significant body of effort into epidemiological research programs that may identify causative factors. It is hoped that some of these may be potentially modifiable.

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