

Autotransplantation of Mandibular Third Molar after Enucleation of Radicular Cyst: A Case Report

Neelima Gehlot¹, Gaurav Verma², Divya Archana³, Pawan Prasad³

¹Professor and Head, Department of Oral and Maxillofacial Surgery, Teerthanker Mahaveer Dental College and Research Centre, Moradabad, Uttar Pradesh India, ²Senior Lecture, Department of Oral and Maxillofacial Surgery, Teerthanker Mahaveer Dental College and Research Centre, Moradabad, Uttar Pradesh, India, ³MDS 3rd Year Student, Department of Oral and Maxillofacial Surgery, Teerthanker Mahaveer Dental College and Research Centre, Moradabad, Uttar Pradesh India

Abstract

Rapidly evolving implantation and alveolar ridge reconstruction techniques created a new area in modern dentistry where tooth loss is no longer a problem. Endless variations of implant's length, diameter, surface, and design along with autogenous, alogogenous, aloplastic, or xenogenous bone substitutes made it possible to recreate physiological occlusion, esthetic, and masticatory function. However, none of nowadays technologies in implant dentistry have the potential to adapt to a growth and development changes of a child's jaw. Therefore, patient's young age is a restriction for implantation and a particular challenge for a dentist willing to restore missing tooth. Thus, tooth auto-transplantation can be a good choice for treatment.

Key words: Auto-transplantation Bone substitutes, Ridge reconstruction

INTRODUCTION

The major goal of dentistry is to maintain the harmony of dentition. Transplantation of tooth has been a method to restore the masticatory function and esthetics. Dental autotransplantation is can be defined as "movement of one tooth's dental germ from one position to another within the same person." Tooth transplantation can be classified into three categories: (1) Homogenous: when tooth of same species is used for transplantation, (2) heterogenous: When tooth from different species is used for transplantation, and (3) autogenous: When tooth of same individual is used for transplantation.^[1]

Autotransplantation has an crucial role in the substituting missing teeth in young patients as osseointegrated implants are contraindicated in them. The tooth which is autotransplanted has the capacity of preserving the alveolar ridge and functional adaptation, which is very important

and advantageous in comparison to osseointegrated implants as they remain stationary in the oral cavity and do not erupt, resulting in infraocclusion. Successful transplantation of teeth results in improved esthetics, dentofacial development, arch form, arch integrity, mastication, and speech.^[1,2] The purpose of the paper is to describe the auto transplantation of left mandibular third molar to replace cyst i.r.t 36.

CASE REPORT

A 25 years old patient reported to the department of oral and maxillofacial surgery with a chief complaint of pain and swelling in lower left back tooth region since 1 month. Patient had undergone root canal treatment for the same tooth 6 months back. Inspectory findings revealed swelling of buccal and lingual mucosa in respect to 36. OPG showed a well-defined radiolucency with sclerotic border involving periapical region of 36. Routine blood examinations reports were normal. After analyzing clinical and radiographic features provisional diagnosis of radicular cyst was made. At the same time radiographs also showed partially erupted 38 and it was decided to extract 36 followed by enucleation of the cyst followed by autotransplantation of 38 with packing of PRF at the extraction site of 36. Complete medical history of the patient was taken and was found to be noncontributory.

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Corresponding Author: Dr. Divya Archana, MDS 3rd Year Student, Department of Oral and Maxillofacial Surgery, Teerthanker Mahaveer Dental College and Research Centre, Moradabad, Uttar Pradesh India.

Treatment plan and postoperative consequences were explained to the patient. An informed written consent was taken.

The procedure was started by asking the patient to rinse with Betadine gargles and proper surgical disinfection was followed. About 2% lignocaine hydrochloride was administered to anesthetic inferior alveolar, lingual, and long buccal nerves. It was decided to enucleate the cyst first and so 36 was extracted and the cystic cavity was explored and the cyst was enucleated. Once the cystic lining was removed a gauze was placed at the socket of 36, after this and incisions were placed and 38 was disimpacted, at the same time while

the disimpaction was being performed blood was withdrawn from the patient and PRF was prepared. When 38 was successfully disimpacted PRF was packed in the socket of 36 followed by autotransplantation of 38 at 36 position. 38 got snugly fit in the socket of 36 after that splinting was done.

The patient was instructed to avoid the use of operated site, to have soft diet and to perform warm saline rinse thrice till



Figure 1: Pre-operative picture of patient



Figure 2: Profile pic of the patient



Figure 3: Immediate post-operative of the patient



Figure 4: PRF formation



Figure 5: Immediate post-operative



Figure 6: OPT after 5 months of treatment

first follow up. Pt was given antibiotics and analgesic for 5 days in the first follow-up the healing was satisfactory.

At 1 month follow-up, intraoral examination showed adequate stability of the transplanted tooth and OPG revealed resolution of the cystic cavity was seen [Figures 1-6].

DISCUSSION

The earliest evidence of tooth transplantation is found with ancient Egypt, where slaves were forced to donate their teeth to their rulers. The surgical method of dental tooth transplantation was first explained by Abulcassis in 1950, Moreover, it was in year 1564, a French dentist Ambroise, who performed and explained tooth bud transplantation. In the year 1956 transplantation method for molar was described. Since then the basic treatment guidelines have remained the same but the newer developments have like usage of cone beam computed tomography in treatment planning, two stage procedure and three dimensional prototyping have decreased the complications and have improved the prognosis.^[3,4]

Many studies have evaluated the treatment outcome for autologous transplantation. Jonsson and Sigurdsson recorded 92% success rate after 2.5–26 years of follow-up. A large sample size was evaluated by Kvint *et al.* and they reported a success rate of 81% success rate after a mean duration of 4.8 months. Moreover, several recent articles have recorded 100% of success rate for immature autotransplanted teeth after a follow-up for 4 years. The major factor for success of autotransplantation depends on healing of periodontal ligament that depends on number of viable cells preserved at root surfaces.^[3-5]

Autotransplantation of tooth are advantageous over osseointegrated implants. Autotransplants helps in maintaining accomplishable periodontal ligament and thereby they continue to erupt in the oral cavity during growth, thereby making it best suitable for growing child.

These teeth can also be moved orthodontically using fixed orthodontic appliances. Moreover, they help in preserving the volume of alveolar bone and in case of failure, they provide option for osseointegrated implants.^[4,5]

Autotransplantation can be indicated in patients with no relevant medical history in repositioning of ectopically positioned teeth to their position in arch, first molars with a bad prognosis which can be autotransplanted by third molar, loss of anterior teeth due to trauma or pathology that can be replaced by mandibular second premolars, hypodontia in one arch and crowding in the other arch. The approximation of size and shape of the donor site and receptor site are prerequisite for effective transplantation root resorption and attachment loss is major complications of Autotransplantation. Moreover, autotransplantation ensures maintenance and regeneration of periodontium.^[5,6]

CONCLUSION

Autogenous transplantation should always be considered as a treatment plan when indicated. It is an uncomplicated and affordable treatment modality with good success rates. When performed with full efficacy it ensures biocompatibility in oral cavity helps in preservation of periodontium and provides better functional and esthetic adaptation.

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