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Overlay Denture - An Unnoted Saviour: A Case Report of Two Cases

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Abstract: ***Patients diagnosed with hypodontia, ectodermal dysplasia, hypoplastic conical teeth or having under gone cleft surgery pose challenge in treatment protocols due to compromised oral conditions and physiognomy of teeth present. These patients often exhibit asymmetry in extraoral appearance, aesthetic constraints, loss of vertical dimension of occlusion and need a multidisciplinary and complex approach to treatment. Systemic or financial limitations often restrict the patient as well as the dentist to approach the most desirable treatment option. An Overlay denture is a prosthesis partially supported by or includes natural teeth, tooth roots, or dental implants, providing a prosthetic option with good retention, function and aesthetics. This treatment imparts the patient with the fulfilment of possessing a prosthetic option which includes his natural teeth.***

Keywords: Overdenture, overlay denture, prosthesis after cleft surgery, denture retention, denture stability

1. Introduction

A prosthodontist is posed challenge on a daily basis to deliver prosthetic treatment options to patients with various developmental/congenital orofacial anomalies posing unique aesthetic and functional restorative challenges [1 - 3]. These defects are commonly associated in ectodermal dysplasia or cleft patients presenting as partial anodontia or abnormal eruption of tooth or microdontia, which creates a significant challenge for the dentist. Based on the oral condition, a definitive treatment is planned to improve function, phonation and aesthetics of the patient [4, 5]. Ectodermal dysplasia's form a diverse group of inherited disorders characterized by a congenital defect in two or more ectodermal structures, one of which involves hair, teeth, nails, or sweat glands. Most of the ectodermal dysplasia patients have small, tapered, conical teeth which do not permit crown preparation [6]. Due to underdeveloped alveolar bone and altered form of the tooth with partial anodontia these patients usually show depressed premaxilla which further debilitates the soft tissue profile of the patient. Reduced alveolar growth compromises the quality and quantity of the bone which hinders implant placement. In such cases providing the patient with a removable denture can drastically improve the function and aesthetics of the patient without further altering the existing dentition [7 - 9]. Cleft lip and palate (CLP) is the most common orofacial congenital malformation in live births that occur when parts of the lip, palate, or nose don't fuse together during embryonic development. In few cases CLP is also seen along with other congenital deformities. These patients Affected patients not only possess dental anomalies but aesthetic, speech, hearing, and psychological complications as well with a higher incidence of severe dental conditions. (10 - 14). They can cause a variety of oral manifestations, including missing, crooked, or small teeth, or teeth that don't line up evenly with deformities of maxilla or alveolar clefts. These project further issues in patient during mastication, while eating or during speech, maintenance of oral hygiene, and appearance of the patient (15).

In such conditions due to prolonged absence or anomalies of teeth it is possible to observe moderate alterations to the occlusal vertical dimension (OVD), occlusal instability and absence of an anterior guide which might be due to excessive dental wear which further damages function and aesthetics. Based on the previous studies conducted on patients with similar conditions it has been noted that minor changes obtained during treatment is well tolerated by the patient. Change in VDO should be conservative but if drastic changes have to be made in VDO of the patient then an interim prosthesis is provided and patient acclimatisation to the new VDO is observed. These interim prosthesis can be provided in the form of acrylic splints or provisional restorations or even interim dentures. As these prosthesis are provided during assessment period one of the important criteria to meet by these dentures is that these do alter or permanently change the dentition (16 - 18). "Overdenture is a removable partial or complete denture that covers and rests on one or more remaining natural teeth, roots and/or dental implants; a dental prosthesis that covers and is partially supported by natural teeth, tooth roots and/or dental implants. It is also called as overlay denture, overlay prosthesis and superimposed prosthesis - GPT - 9" (19).

Case Report 1

Ectodermal dysplasia variant with partial anodontia
A 8 year - old male patient presented with the chief complaints of poor dental aesthetics and mastication. General examination and medical history of the patient did not reveal any disorders that would contraindicate dental treatment. Intraoral examination revealed presence of proclined

maxillary central incisors, molars and mandibular first molars, insufficient growth of the alveolar bone and compromised soft - tissue profile of the patient (figure 1, 2, 3).

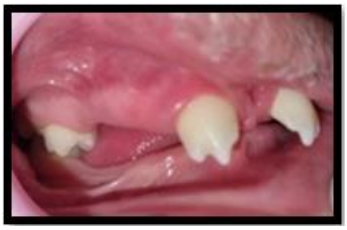

Figure 1: Right lateral view

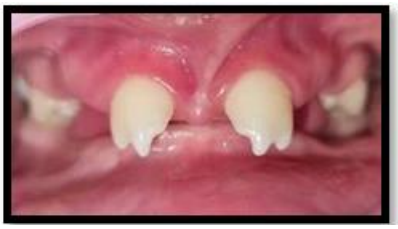

Figure 2: Occlusal view

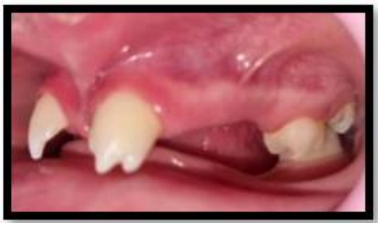

Figure 3: Left lateral

A panoramic radiography revealed no tooth germs of the remaining teeth. Due to this nature of dentition a conservative rehabilitation was planned along preserving and restoring natural dentition and the patient was informed on the same. A removable overlay denture was planned and fabricated (figure 4, 5, 6, 7).

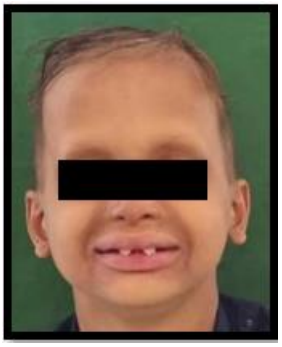

Figure 4: Pre – operative

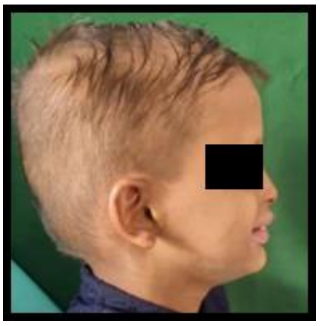

Figure 5: Pre - operative

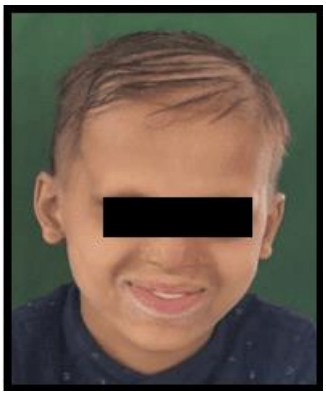

Figure 6: Post - operative

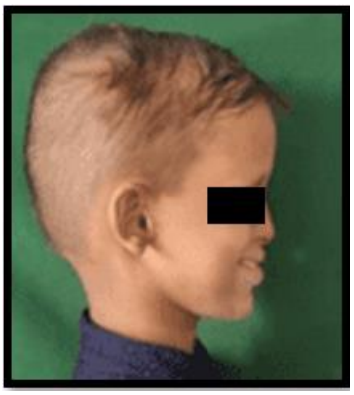

Figure 7: Post - operative

Case 2: Partial anodontia with cleft palate

A 38 year - old female patient reported with the chief complaint of missing teeth and compromised aesthetics. Her medical history included cleft palate surgery at the age of 6 years. Intraoral examination revealed missing premolars in the first quadrant, missing lateral incisor and premolars in the second quadrant and palatally placed canine in the second quadrant (figure: 8, 9).

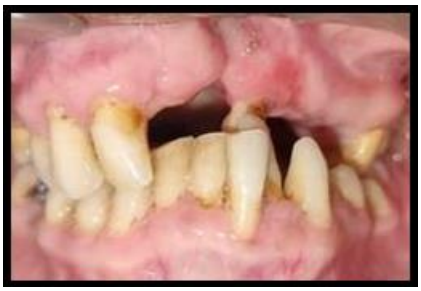

Figure 8: Pre - op Frontal view

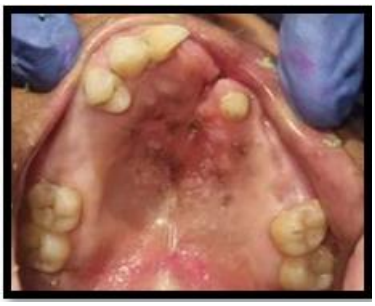

Figure 9: Pre - op Occlusal view

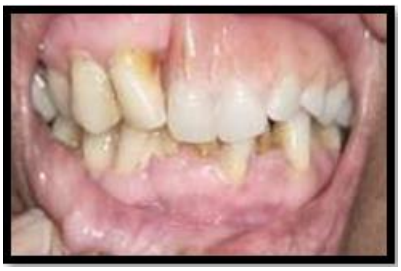

Figure 10: Post - op Frontal view

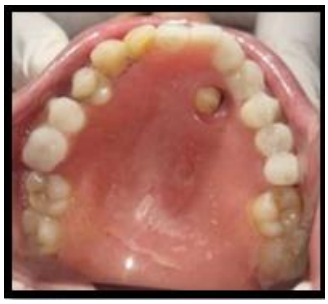

Figure 11: Post - op Occlusal view

From the history provided by the patient it was derived that there was no eruption of permanent teeth and an OPG revealed no unerupted teeth. Cross - bite was noted in the first and fourth quadrants along with compromised aesthetics. Considering all the conditions a removable overlay denture treatment was planned for the patient and fabricated (figure: 10, 11).

2. Discussion

Orofacial anomalies pose special challenges during rehabilitation. A simple technique for fabrication of an overlay denture is discussed in the present study which provides the patient with proper function, aesthetics and comfort along with the psychological advantage of retaining natural teeth. The procedure involves making impressions, surveying of master casts to determine the most suitable path of prosthesis insertion, followed by mounting of diagnostic using centric relation records. The physiological rest position, determined by facial measurements and interocclusal distance, was subsequently confirmed by phonetics, swallowing methods and aesthetics. After careful assessment, the planned alteration in VDO was determined clinically by transferring a bite record fabricated on the articulated diagnostic casts at a predetermined vertical dimension. Wax up for an overlay denture was done followed by acrylisation using heat - polymerizing acrylic resin. Surveying carried out prior ensured very minimal corrections and easy insertion of the prosthesis. Patient was subsequently recalled to refine the occlusion of the prosthesis to attain an harmonial occlusion with the natural teeth. On every visit patient was educated on the importance and methods for effective oral hygiene maintenance.

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