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# RESEARCH ARTICLE

## MAXILLOFACIAL PROSTHETIC TREATMENT OF CONGENITAL CRANIOFACIAL DEFECT PATIENTS.

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### Abstract

Cleft palate is one of the most common congenital craniofacial anomaly, which have serious consequences as concern with physical activities such as eating, breathing and speaking, but their psychological well-being, somaxillofacial prosthetic treatment for these patients restricted physical and psychological defect.

### Introduction:-

The morphology of the jaw has a functional and aesthetic role. The palate separates the oral cavity from the nasal fossa and occlusion between the dental arches provides the mandible with the stability which enables the pharyngeal muscles to initiate the critically important act of swallowing. Aesthetically, the maxillary bone is responsible for the projection of the nose, cheeks and hemi-face.<sup>(1)</sup>

The congenital anomalies are quite frequent, although their prevalence among the general population depends on racial, ethnic and geographic factors, as well as on socioeconomic status.<sup>(2)</sup> Cleft lip and palate (CLP) is the most common congenital craniofacial anomaly.

A maxillary-palatal defect may have serious consequences as far as concerns the relationship between form and function: inability to chew and swallow, disorders in phonation and important psychological implications<sup>(3)</sup>.

The causes of cleft palate are not entirely clear. The causes may be due to infectious diseases of the mother, mechanical interference with local blood supply in the fetus, malnutrition in the mother or any of the several changes in intrauterine environment.<sup>(4)</sup>

The difficulties of cleft palate patients involve physical activities such as eating, breathing and speaking, but their psychological well-being is also affected. Thus, it has been suggested that a prosthesis may improve both the physical and psychological performances of patients, as well as their quality of life.<sup>(5)</sup>

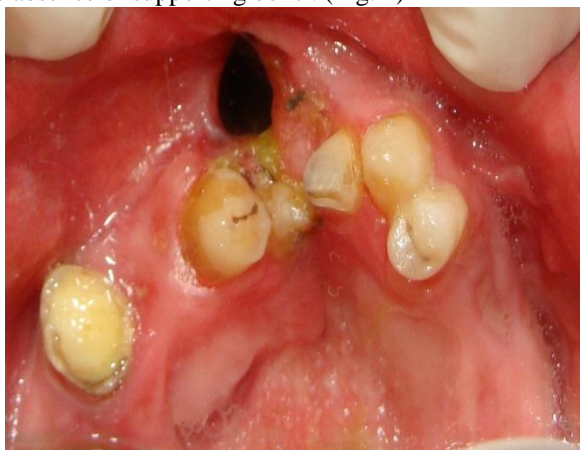
Patients in this group usually present with a palatal defect, despite previous attempts at a surgical repair, although there are still a few older patients that have been left with an unprepared palatal defect. The oro-nasal communication may contribute to a hyper nasal speech pattern and difficulties with feeding and drinking. Where there is only a small fistula, some patients are surprisingly able to manage without any intervention.<sup>(6)</sup>

When rehabilitating these patients, face the difficult decision of whether to use fixed or removable partial dentures (FPDs, RPDs). In patients with severe deficiency, more extensive, advanced restorative care is required to resolve functional, esthetic, and phonetic problems. There are various methods of definitive prosthetic treatment in cleft palate patients. A combination of bone grafting and implant-supported fixed or removable prostheses is an invasive

treatment approach. A conservative alternative treatment could be conventional fixed or removable prostheses for patients who refuse surgical intervention<sup>(7)</sup>. RPDs are especially indicated in patients with tissue deficiency, several fistulae, soft palate dysfunction, or uncoordinated nasopharyngeal sphincter action, which can lead to hyper nasal speech<sup>(8)</sup>. Furthermore, it is suggested that a prosthesis may improve the psychological status of patients as well as their quality of life<sup>(9)</sup>. Providing maxillofacial prosthetic treatment for patients with congenital and craniofacial defects should not only address physical and functional deficiencies, but, ideally, should also consider the possible psychological effects of these deformities.<sup>(10)</sup>

### Case report 1:-

A 30 -year-old man came to the Patient Admission Office at the School of Dentistry of the University of Baghdad seeking prosthetic treatment for his perforated maxilla. he had several previous reconstructive surgical attempts to close or reduce her palatal cleft lip/palate. he has only few teeth, which moved to become close to mid palatine suture after surgery, after Consulted surgeon about extracting these teeth, they preferred to leave some of them to prevent open oro- nasal fistula, so made preparation of remaining teeth to make over denture and obtain retention from undercut especially in the absence of supporting bone. (Fig. 1)



**Fig. 1:-** Pretreatment intraoral view.

Thus, prosthetic treatment was chosen, elaborating a removable acrylic prosthesis best suited for him, with a palatal obturator of soft resin to improve denture retention and stability. For absent for bone reasons, the patient enable the placement of an implant-retained overdenture.

After preliminary impressions of the maxillary and mandibular arches had been made using irreversible hydrocolloid impression material (alginate), custom trays were made and final impression made with heavy and light body additional silicone impression material (EliteHD+, Zhermack, Rovigo, Italy) (Fig. 2).



**Fig 2:-** Final impression made with heavy and light body additional silicone impression material.

A complete denture of acrylic was made using routine procedures, but with obturator bulb the closure of the palatovelar communication. It was initially made of acrylic tissue surface lining by high impact soft lining material. After check retention, stability and denture occlusion, gave instruction to the patient how to use, clean the denture and another appointment to check the appliance. (Fig. 3) and (Fig. 4).



**Fig. 3:-** Frontal view of patient before and after rehabilitation.



**Fig. 4:-** Final prostheses.

### **Case report 2:-**

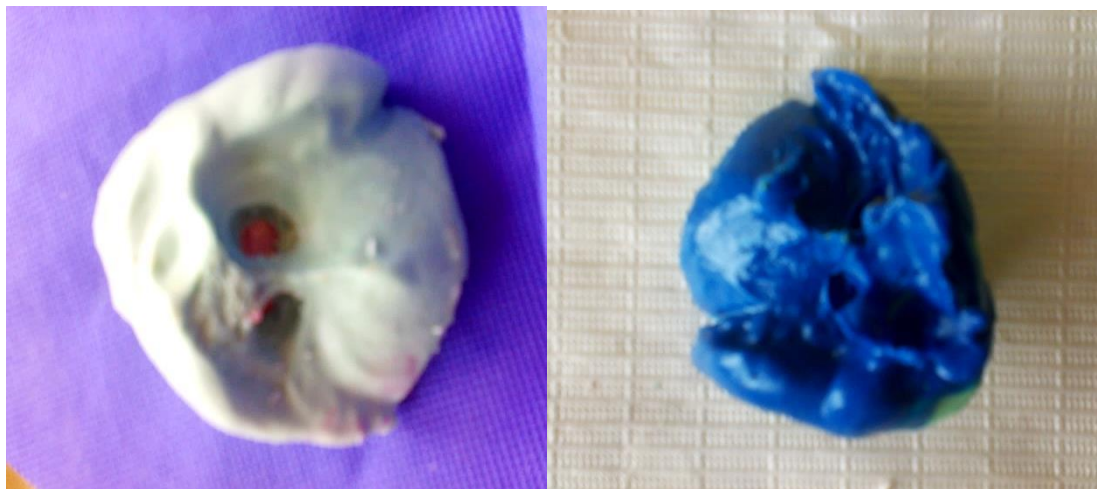
A 28 -year-old female patient in good general health . She present with cleft palate and only right and left first premolar which due to several surgical hasa positionon useful to construction, removal partial denture or fix restoration, so decided to benefit from these teeth by making preparation to construction over denture support by them to replace the support that loss due to absent of supporting bone.(Fig. 5)



**Fig. 5:-** Pretreatment intraoral view.



Thus, prosthetic treatment was chosen, elaborating a removable acrylic prosthesis best suited for her, with a palatal obturator of soft resin to improve denture retention and stability. Maxillary complete-arch impressions were made using irreversible hydrocolloid impression material. Final impressions after prepared teeth were obtained using hydrophilic addition (heavy and light body) silicone impression material (EliteHD+, Zhermack, Rovigo, Italy) (Fig. 6).



**Fig.6:-** final impression made with heavy and light body additional silicone impression material.

Routine procedures of acrylic complete dentures continue to construct the acrylic denture with tissue surface lining by high impact soft lining material. After check retention, stability and denture occlusion, gave instruction to the patient how to use, clean the denture and another appointment to check the appliance. (Fig. 7).



**Fig. 7:-** Frontal view of patient before and after rehabilitation.

### Discussion:-

Obturator prostheses are aiming to restore the anatomical loss of hard and soft tissues, providing enough retention to the denture to improve function and psychological well being. There are several factors determined materials used to create obturator prostheses such as type and extent of the cleft palate and the ability of the patient to overcome with conventional removable dentures. Generally, palatal obturators are used as simple solutions for the reconstruction of minor palatal defects, while larger maxillary-palatal defects represent a considerable challenge for functional and aesthetic reconstruction.<sup>(11)</sup>

The area of defect in contact with obturator is inadequately keratinized gingiva, so soft materials used for lining tissue side in contact with defect.

Patients with defect usually had bone atrophy or small amount of bone remaining after corrective surgery, so prostheses obturator could obtain retention from defect area undercut that no interference with the path of insertion and removal of appliances and not cause any pressure or pain on the soft tissue of patients.

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