



DENTAL PROSTHESIS; DENTAL PROSTHESIS FOR CLEFT PATIENT FOR ACHIEVEMENT OF RETENTION

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INTRODUCTION

Achievement of retention in obturators for cleft patients is a real big challenge for Prosthodontist. Various methods or techniques can be employed to get adequate mechanical qualities in dental prosthesis to restore functional abilities & esthetics for cleft patients.¹

Using fundamental principles for achieving retention in any prosthesis, various important factors like edentulous span, condition of existing dentition with special focus on abutment teeth, periodontal status, extent of the defect, lip line, smile line, age & socioeconomic status of the patient should be kept in mind during treatment planning phase.²

During provision of removable partial denture

ABSTRACT... Objectives: To provide various means of retention in dental prosthesis for cleft patients. **Study Design:** It was a descriptive type of study. **Place and Duration of study:** The study was carried out at Hamdard University Dental Hospital, Karachi. Total duration of this study was three years. **Materials and Methods:** Total 30 patients were selected after taking consent by random sampling technique. The age range varies from 01 month to 45 years. Among 30 patients, 19 were female while 11 were males. Special designed Performa was made and filled by getting all related information from patient/ attendants. Then various treatment options were discussed with the patient or attendant & with mutual consent prosthesis was fabricated utilizing various method of retention. **Results:** Feeding plate was fabricated for five patients, in which retention is achieved through maximum extension of prosthesis, using elastic band, utilization of favorable undercuts. Conventional removable partial denture was fabricated for 17 patients. Mainly retention was achieved through retainers, considering esthetics maximum number of clasp is incorporated. To get better patient's compliance flexible removable partial denture was fabricated for 03 patients while precision attachment was provided to one patient. Speech bulb prosthesis was fabricated for one patient, its retention was mainly achieved by means of Adam's clasp. Seven patients were provided with fixed prosthesis, in four cases pink porcelain was added in cervical area to further improve esthetics & retention. Mainly due to financial status & poor compliance from the patients, implant supported prosthesis was not provided to any patient. **Conclusion:** Utilization of various means of retention brings better adaptation of prosthesis in cleft patients.

Key words: Cleft patient, dentures, prosthodontist, obturators.

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(RPD), designing of the prosthesis is very important. Correct selection of clasp is very critical step, which itself depend upon multiple factors. When necessary, one must incorporate indirect retainer in the prosthesis as well. Harmonious occlusion & extension of the prosthesis within the physiological limits are also helpful in getting retention.^{3,4}

Though rare but still there are few edentulous patients having cleft as well, for them all basis principles to get retention in complete denture should be utilized with special focus on coverage of prosthesis up to the defect part in order to improve speech & swallowing.⁵

Accomplishment of retention in fixed prosthesis is dependent upon the condition of abutment tooth,

crown root ratio, extension of edentulous span, type of luting agent, periodontal status.⁶

With recent advances, now implant supported prosthesis are also provided for cleft patients but still their usage & data regarding longevity of the prosthesis is still limited.⁷

Apart from conventional means of retention, various gadgets like magnets, precision attachment, and hinge mechanism can also be used to achieve retention in dental prosthesis for cleft patients.⁸

In this article, provision of various methods & techniques to get retention in prosthesis fabricated for cleft patients is discussed.

MATERIAL & METHOD

It was a descriptive study and conducted at Prosthodontics Department of Hamdard University Dental Hospital, Karachi. The duration of this study was three years, in total 30 patients were selected after taking consent by random sampling technique. The age range varies from 01 month to 45 years. Among 30 patients, 19 were female while 11 were males. Special designed Performa was made and filled by getting all related information from patient/ attendants. Then various treatment options were discussed with the patient or attendant & with mutual consent prosthesis was fabricated utilizing various method of retention.

RESULTS

Prosthetic Rehabilitation was provided by means of fabrication of different types of prosthesis. Feeding plate was fabricated for five patients, in which retention is achieved through maximum extension of prosthesis, using elastic band, utilization of favorable undercuts.

Conventional removable partial denture was fabricated for 17 patients. Among those 17 patients, cast partial denture (CPD) was fabricated for eight patients, while in one patient of CPD precision attachments were also incorporated. For 06 patients acrylic removable denture was fabricated. Mainly retention was achieved through

retainers, considering esthetics maximum number of clasp is incorporated. Apart from clasp, special focus will be on maximum extension of the prosthesis within the physiological limit in order to get more retention To get better patient's compliance flexible removable partial denture was fabricated for 03 patients while precision attachment was provided to one patient.

Speech bulb prosthesis was fabricated for one patient, its retention was mainly achieved by means of Adam's clasp.

Seven patients were provided with fixed prosthesis, along with utilization of basic principles of retention in fixed prosthesis, in four cases pink porcelain was added in cervical area to further improve esthetics & retention.

Mainly due to financial status & poor compliance from the patients, implant supported prosthesis was not provided to any patient.



Figure-1. Intra Oral view of Cleft Defect

DISCUSSION

Oral rehabilitation for cleft patients starts from very early age. By fabrication of feeding plates for neonates, functions like suckling & swallowing will be markedly improved.⁹

In this study feeding obturators were fabricated for five patients, retention was mainly achieved by utilization of favorable undercuts. Use of certain innovations like using elastic band extra orally also helps in retention of the feeding plate.¹⁰



Figure-2. Provision of Fixed Prosthesis with pink porcelain

In this study (RPD) were provided for 17 patients, primarily clasp is the main source of retention for patients wearing RPD. Selection of particular type of clasp depends upon the extension of defect, abutment tooth status, presence of favorable undercut & periodontal status. Maximum extension of the prosthesis within the physiological limit also assists in getting retention. In this study this rule is applied for all patients. It was noted that there was marked improvement in functional capacity & esthetic outcome in cleft patients after provision of RPD having adequate retention. Adusumili et al discussed a case in which cleft patient was provided with RPD & satisfactory results were obtained.¹²

For further enhancement in esthetics & retention for cleft patients, provision of RPD by means of various types of attachments is a very useful option. In this study precision attachment was provided to one patient. Palmeiro et al¹³ also discussed a case where RPD was provided along with attachment to the cleft patient.

For three patients in this study, flexible partial denture was fabricated, this will not only improve their esthetics but also improve the retention in the prosthesis by better adaptation as compared to conventional acrylic removable partial denture. Thirumurthy et al also discussed a case where removable flexible partial denture was fabricated

for cleft patient.¹⁴

Speech bulb prosthesis was also fabricated for one patient having soft palate cleft, in which retention was obtained mainly means of Adam's clasp on both sides. Yenisey et al also discussed a case report where speech bulb prosthesis was fabricated and good results were obtained.¹⁵

Fixed prosthesis was provided for seven patients, retention was mainly achieved through prepared abutment teeth & luting agent. Apart from improvement in esthetics & functional abilities, the psychological impact of these patients was also markedly enhanced after provision of fixed prosthesis. Canapolat et al¹⁶ observed better results after provision of fixed prosthesis for cleft patients. All patients were satisfied with their fixed prosthesis & there was no case of decementation till six months. Bidra also discussed a case report where conventional fixed prosthesis was fabricated for cleft patient.¹⁷

In this study, pink porcelain was incorporated in the cervical area of fixed prosthesis in order to get better esthetics & retention as shown in figure 1&2. Small also reported the use of pink porcelain in fixed prosthesis.¹⁸

For better retention, if feasible then provide orthodontic treatment prior to fabricate any prosthesis where necessary. In this study three patients underwent orthodontic treatment. Then after completion of their orthodontic treatment, fixed prosthesis was provided for two patients while RPD was fabricated for one patient. Conley discussed a case where orthodontic treatment was conducted prior to prosthesis fabrication in cleft patient for better outcome.¹⁹

Jaija et al²⁰ in their study, conducted in Pakistani population reported that cleft patients reported to health care provider very late. There is poor post-surgical follow up and also there was lack of awareness regarding in health care provider & parents of cleft patients for their timely rehabilitation.

There is an immense need that in our country, special programs will be arranged for parents of cleft patients & health care provider to increase the awareness and knowledge about dental prosthesis. When patients will reach Prosthodontist at an early stage, then it is comparatively easier to fabricate dental prosthesis having good retention.

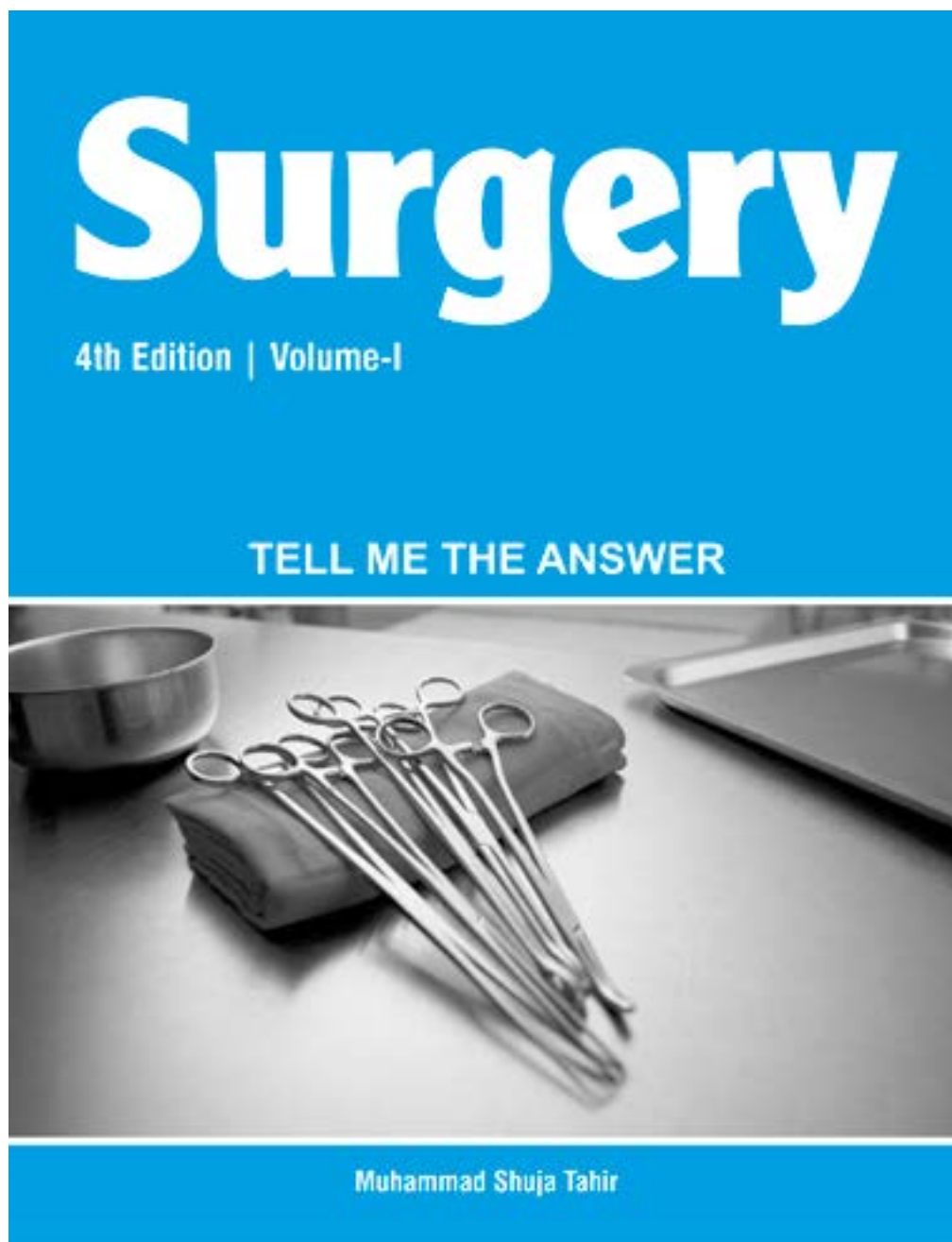
CONCLUSION

Presence of retention is the primary requisite for the success of any dental prosthesis. Retention can be achieved by means of various methods or techniques, which should be utilized by Prosthodontist wisely for oral rehabilitation of cleft patients.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

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3	Dr. Tahir Ali	Review of editing	
4	Dr. Moin Khan	Data analysis + Treatment of fatieuts	