Fig. 4 : Impression procedure.

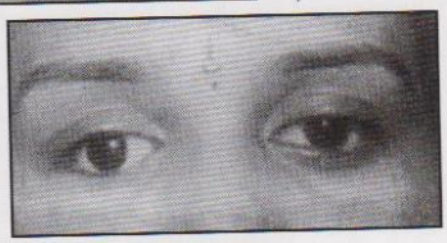

Fig. 5 : Occular prosthesis in place.

Fig. 6 : After rehabilation.

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Efficiency of Occlusal Splints - An Evaluation by TMJ Ultrasound

Thanga Arun Pushparaj *, M. S. Ravi, m.d.s.**, S. V. Bhide, m.d.s.***

ABSTRACT

It is realistic to assume that more complex a system is, the greater the likelihood that breakdown will occur. Functional Disturbances of the masticatory system can be as complicated as the system itself. Although numerous treatments have been advocated, not all are effective for every patient. Treatment selection must be based on accurate diagnosis and understanding of the disorder. Splint therapy is a proven modality for alleviating the pain of many types of temporomandibular disorders (TMD'S).

A patient with TMD was referred to Department of Prosthetic Dentistry, Sri Ramachandra Dental College, chennai. Reversible splint therapy was provided for the patient and the efficiency of occlusal splint on TMJ unloading was evaluated by TMJ Ultrasound.

INTRODUCTION

Splint therapy may be defined as the art and science of establishing neuromuscular harmony in the masticatory system and creating a mechanical disadvantage for parafunctional forces with removable appliances[1]. A properly constructed splint supports a harmonious relation among the muscles of mastication, disk assemblies, joint, ligaments, bones, teeth, and tendons. Appliance therapy has several favourable qualities that render it extremely helpful for the management of many TMDs. Since the cause and interrelationships of many TMDs are often complex, the initial therapy should generally be reversible and non-invasive. Occlusal appliances can best satisfy this requirements. The success or failure of occlusal appliance therapy depends on the selection, fabrication and adjustment of the appliance and on patient cooperation.

SPLINT TYPES AND FUNCTIONS :

All splints are classified as either permissive or non permissive. A permissive splint allows the teeth to move on the splint unimpeded, which in turn allows the condylar head and disk to function anatomically. Eg. Bite planes (Anterior jig, Lucia jig, Anterior deprogrammer) and stabilization splints (Flat plane, Tanner, superior repositioning and centric relation).

A non-Permissive splint has a ramp or indentations that position the mandible inferiorly and anteriorly and secure it there, eg. repositioning splint (Anterior repositioning appliance).

Soft splints could be considered pseudo permissive splints, as their functions are extremely different than those of the permissive.

Properly fabricated splints have atleast 6 functions. (1) to relax the muscles (2) to allow the condyle to seat in CR (3) to provide diagnostic information (4) to protect teeth (5) to mitigate periodontal ligament proprioception(to avoid parafunctional forces) and (6) to reduce cellular hypoxia level.

SELECTION OF SPLINT[2] :

- Stabilization Appliance (SA) is used in muscle hyperactivity such as Brusxism, local muscle soreness or chronic centrally mediated myalgia, Retrodiscitis and secondary to trauma.
- Anterior positioning appliance is used primarily for disc dearrangement disorders.
- Anterior Bite plane is used in muscle disorders related to orthopedic instability, acute change in occlusal condition and parafunctional activity.
- Posterior bite plane in case of severe loss of VD.
- Pivoting appliances are used in osteoarthritis of TMJ.
- Soft or Resillient appliances is used basically as a protective device.

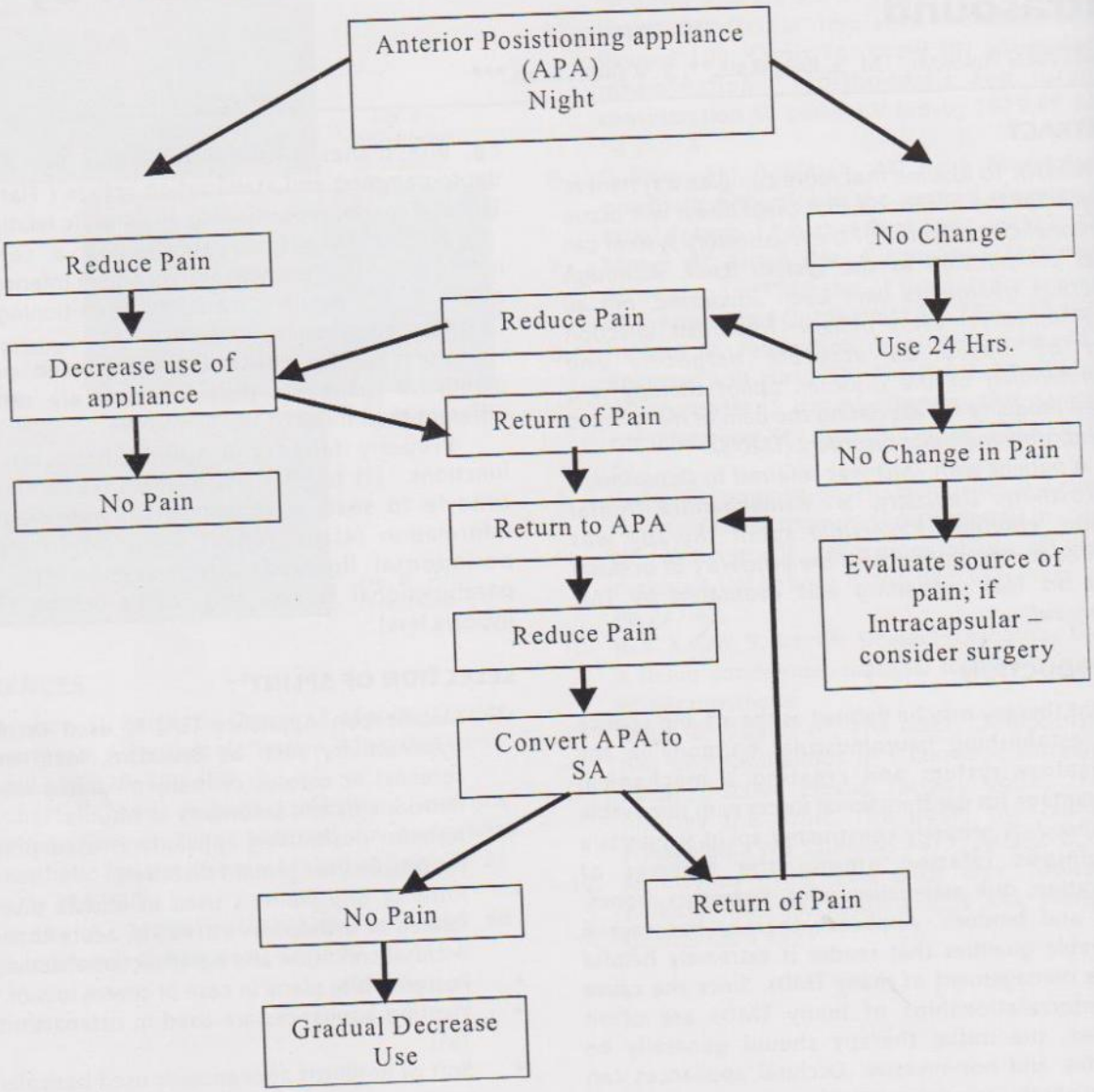
CASE REPORT :

A patient by name Mrs. Rajeswari aged 32 reported with a chief complaint of Joint sound, pain during mastication and catch during wide opening. The clinical features presents multiple clicking (thud), Reciprocal click, deflection and catch at wide opening. On Radiographic investigation Arthritic change was seen at the condyle. The provisoinal diagnosis was osteoarthritis secondary to functional disc dislocation with reduction. Treatment plan consists of Reassurance to the patient, hot and cold fermentation, Anterior positioning appliance and Non steroidal anti-inflamatory drugs.

Key Words : 1. Occlusal Splints, 2. Ultra Sound, 3. Dynamic Imaging, 4. Anterior Positioning Appliance.

* *Post Graduate Student, ** Professor, *** Professor and Head of the Department,* Sri Ramachandra Dental College & Hospital, Chennai.

FLOWCHART TO PROCEED ANTERIOR POSITIONING APPLIANCE (APA)



TECHNIQUE FOR FABRICATION OF APA :

Make maxillary impression and pour a cast fabricate a occlusal splint using clear self polymerising resin. Insert in the patient mouth (Fig 1) and ask the patient to protrude the mandible and identify the position which eliminates the clicking and mark the position with articulating paper (Fig 2). Mark a groove over the marked position so that the patient can easily protrude and find the position. In this anterior position the posterior disclusion space should be closed by adding clear self polymerising resin to the occlusal position of the splints to get uniform contact over the lower teeth (Fig 3). Mark the incisal and cusp tips in the splint and trim the other areas of splint to get uniform contact over the lower teeth in repositioned place (Fig 4). An anterior ramp is provided to guide the mandible in the new position (Fig 5 & 6).

This fabrication technique is simple, does not require mounted cast, precise position is located with direct assistance, minimizing cast mounting inaccuracies and can be finished in single appointment.

DISCUSSION :

The phenomenon perceived as sound is the result of periodic changes in the pressure of air against the eardrum. The periodicity of these changes lies

$$= 100 - \left[\frac{\text{Control Value} - \text{Experimental Value}}{\text{Control Value}} \times 100 \right]$$

concentrations of MMA were represented by

Group I = 3.5×10^{-3} v/v%
Group II = 1.75×10^{-3} v/v%
Group III = 0.875×10^{-3} v/v%
Group IV = 0.437×10^{-3} v/v%
Group V = 0.218×10^{-3} v/v%
Group VI = 0.021×10^{-3} v/v%

shows mean value of relative ratio of cell to control. Mean value of relative ratio (%) of cell numbers to control was maximum in group VI on 2nd day and minimum in group I (36%) on

shows variance ratio 'F' value being hence mean relative ratio (%) of cell differs significantly among the groups for time periods. It was observed that relative of cell number was maximum in group VI and minimum in group I for different time periods (2nd, and 5th day.)

Fig. 5 shows cytotoxicity of methylmethacrylate relative ratios of cell numbers to control. On cell culture, it was observed that in group I (3.5 x 10-3 v/v methylmethacrylate) relative ratio of cell number was 49%, 36% and 67% on 2nd, 3rd and 5th day respectively. This figure also showed cytotoxicity with group I, II, III, IV and V concentrations except group VI.

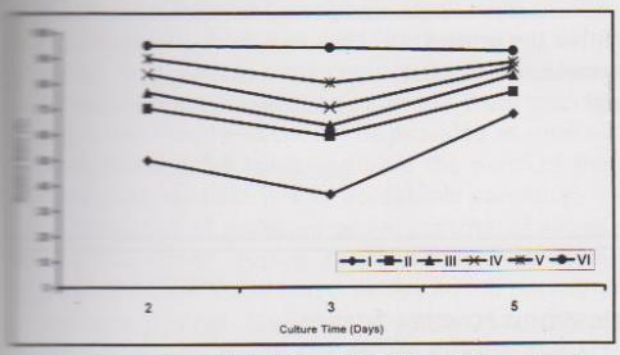


Fig. 5 : Showing cytotoxicity of MMA by relative ratio of cell numbers to control.

DISCUSSION

view of diffusion in and dilution by saliva in oral conditions, the cytotoxicity of methylemethacrylate was evaluated by culturing L929 cells with concentrations ranging from 3.5 x 10.5 to 0.021×10^{-3} v/v% taken from leaching experiment.[3] To test whether these concentrations were cytotoxic or not, these were taken. Cell cultures are valuable tools to acquire knowledge about the mechanisms where by dental bio-materials produce pathologic reaction at a cellular level [Wennberg A (1986) and Hunsten Patterson A (1988)] Cytolysis, cell growth and membrane changes have previously been used in cell culture system to reveal cytotoxic effects from chemical compounds. Briefly plating efficiency tests and total cell growth tests are methods commonly used to study in vitro cytotoxicity.4

In the present study, methylmethacrylate showed cytotoxic effect in the range of its leaching concentrations. It was evident that out of 6 concentrations of MMA, group I showed maximum cytotoxicity followed by group II, III, IV, V, VI. It was due to maximum concentrations of MMA in group I followed by group II, III, IV, V & VI. (Table I and II).

It was also found that cytotoxicity was maximum on 3rd day and minimum on 5th day in all groups except group VI. (Fig. 5) Because in all groups cell proliferation was found to be more while death was less on 5th day. In group VI, concentration of methylmethacrylate was too less to cytotoxicity.

Further study may be needed to test cytotoxicity of other eluates viz. Formaldehyde, methacrylic acid, benzoic acid etc.

CONCLUSION

On the basis of observations made and statistical analysis duly discussed, it was concluded that methyl methacrylate was found to be cytotoxic in concentrations from 0.218 x 10-3 to 3.5 x 10-3 V/V%. This range of concentrations of methyl methacrylate was leached from heat and auto polymerized acrylic resins samples after placing in artificial saliva and water.

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TABLE I : SHOWING MEAN VALUES OF RELATIVE RATIO (%) OF CELL NUMBERS TO CONTROL IN DIFFERENT CONCENTRATIONS OF MMA FOR DIFFERENT TIME PERIODS

Time (days)	Groups					
	I (Mean ± SD)	II (Mean ± SD)	III (Mean ± SD)	IV (Mean ± SD)	V (Mean ± SD)	VI (Mean ± SD)
2	49.9860 ±3.7775	70.3680 ±11.2447	76.6700 ±11.2447	83.8800 ±5.3500	89.994 ±7.3195	95.0760 ±6.5727
3	36.3200 ±4.3647	59.2700 ±11.5735	63.38800 ±7.6283	70.5920 ±6.3873	80.1940 ±5.4048	93.9560 ±5.0070
5	67.5980 ±3.8011	76.2400 ±4.7961	82.7200 ±3.1236	85.8600 ±0.8820	87.9200 ±2.363	92.3120 ±2.5258

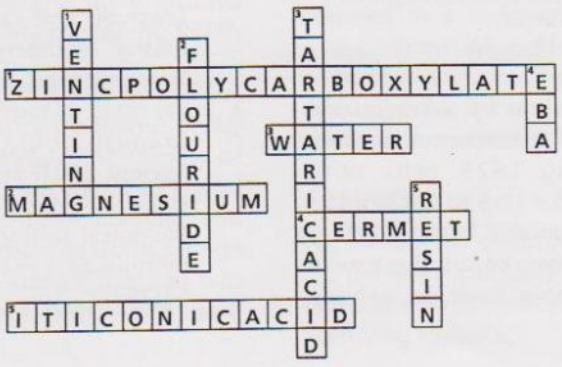
TABLE II : ANOVA TABLE OF RELATIVE RATIO (%) OF CELL NUMBER AMONG THE GROUPS FOR DIFFERENT TIME PERIODS

Time (days)	S.V.*	d.f.*	S.S.*	M.S.S.*	V.R.*
2	B*	5	5658.263	1131.653	F = 24.056
	W*	24	1129.011	47.042	p < 0.001
	T*	29	6787.274		
3	B*	5	9250.292	1850.058	F = 64.4171
	W*	24	689.284	28.720	p < 0.001
	T*	29	9939.577		
5	B*	5	1902.183	380.437	F = 38.572
	W*	24	236.700	9.863	p < 0.001
	T*	29	2138.883		

*S.V. = Source of variation
*d.f. = degree of freedom
*S.S. = Sum of square
*M.S.S. = Mean sum of square
*V.R. = Variance ratio

W* = Within the groups
B* = Between the groups
T* = Total

ANSWER : PROSTHODONTIC WORD POWER - 7



A successful Ocular Prosthesis in Phthisis Bulbi : A Clinical Report

Gupta Alka, M.D.S. (Part II) *, Jain Deshraj, M.D.S.**

ABSTRACT

Normal facial appearance is one of the inherent human trait, when altered or lost, challenges the patient's physical health and psychological well-being as well as maxillofacial prosthodontist's ingenuity. Ocular defects that compromise appearance or function may be due to phthisis bulbi. Fabrication of a custom ocular prosthesis allows infinite variations during construction. This article describes a technique by which the state of the art custom ocular prosthesis has been fabricated in a case of phthisis bulbi by making accurate functional impression with fine details of eye socket and following all the steps of fabrication meticulously.

INTRODUCTION

The art of making artificial eyes[1] has been known to man from the early Egyptian and Peruvian Indian times, but not until World War II, and the development of the refined plastics which came then, was fabrication of satisfactory aesthetic ocular prosthesis possible.

Ocular defects that compromise appearance or function may be due to phthisis bulbi. A condition where the eye becomes unsightly, small, sunken and non-functional, but has not deteriorated to a condition that requires evisceration or enucleation. Such ocular defect prevents an individual from leading a normal life. Prosthesis should be provided as soon as possible to raise the spirit and ease the mind of the afflicted, and reinstate him to acceptable normalcy.

Fabrication of a custom ocular prosthesis[2] allows infinite variations during construction. The close adaptation to the tissue bed provides its full potential to produce desired movements. Voids that collect mucus and debris, which can irritate mucosa and act as a potential source of infection, are minimized. The flush fitting shell provides a more natural surface for normal lacrimal tear function. The optimum cosmetic and functional results of a custom ocular prosthesis enhance the patient's rehabilitation to a normal life-style. This article describes the fabrication of a custom ocular prosthesis in a patient of phthisis bulbi.

CLINICAL REPORT

A 23-year-old male patient was referred to the Department of Prosthodontics, College of Dentistry Indore from the Ophthalmology Dept. of M.G.M. Medical College, Indore for prosthetic rehabilitation of left ocular defect.

Fig. 1 : Patient with ocular defect.

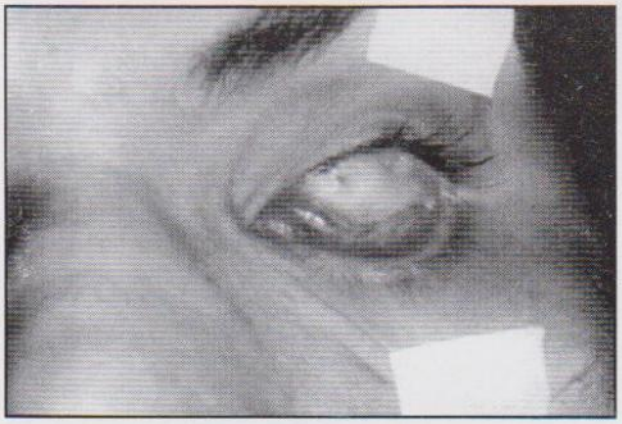


Fig. 2 : Phthisis bulbi.

The patient was having unsightly, small, sunken, non-functional eye (Figs. 1, 2) known as phthisis bulbi on left side. The etiology was not known but most probably due to trauma or infection in the childhood. On examination it was found that phthisis eye was able to perform and coordinate all the possible movements in unison with right eye. This shows that phthisis eye is having good musculature to perform

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Key Words : Phthisis bulbi, custom ocular prosthesis, functional impression.

* *Postgraduate Student, ** Professor and Head, Department of Prosthodontics,* College of Dentistry, Indore (M.P.), India.

the various eye movements and mucosa surrounding the eye was healthy without any infection.

The patient was taken up and the following clinical and laboratory steps were carried out for a successful ocular prosthesis:

1. Ocular Impression: 4% Lignocaine Hydrochloride topical solution [4% Xylocaine; Astra-IDL Ltd., Bangalore, India. Manufacturer?] was used as surface anaesthetic agent to reduce the irritability of mucosa while taking the impression. A modified impression technique[2, 3], where an impression tray is in the shape of an ocular prosthesis was used. Autopolymerizing resin impression tray [Dentsply RR (pink); Dentsply, Milford, Del.] was fabricated in the shape of eye shell and a hollowed needle cover [Medisafe 5-ml disposable syringe; Manoj surgical, Indore, India] was attached as a handle. Throughout the impression procedure the patient was instructed to sit straight looking in front at the level of the eyes. The impression tray was placed within the socket to support the eyelid and provide a normal contour (Fig. 3). The irreversible hydrocolloid impression material [Calgitex; Dental Products of India (DPI), Mumbai, India.] was mixed with enough water (1.5 parts water to one part powder), so that it flows easily and was injected into the socket with a syringe through the hollow handle of the impression tray. The socket may be momentarily overfilled with the thin mix of impression material, but the tissues pressed the excess out through both the hollowed handle and border and allowed only the optimally needed volume to remain. The operator stabilized the tray throughout the impression procedure. This allowed the impression material to flow over the underlying muscle bed and the anatomic details to be recorded accurately. Once the impression material was set the patient was instructed to blink the eyes to break the air seal and impression was carefully removed from the socket and visualised for any void or other defects (Fig. 4). Trimming of the excess impression material was done with fine scissors at the palpebral fissure.

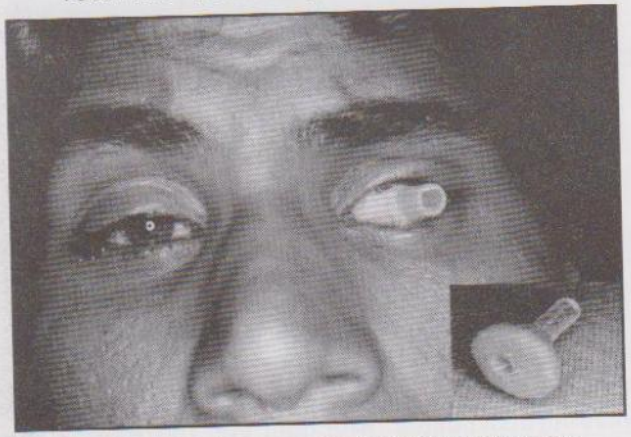

Fig. 3 : Impression tray and adjsuted impression tray positioned in the socket.

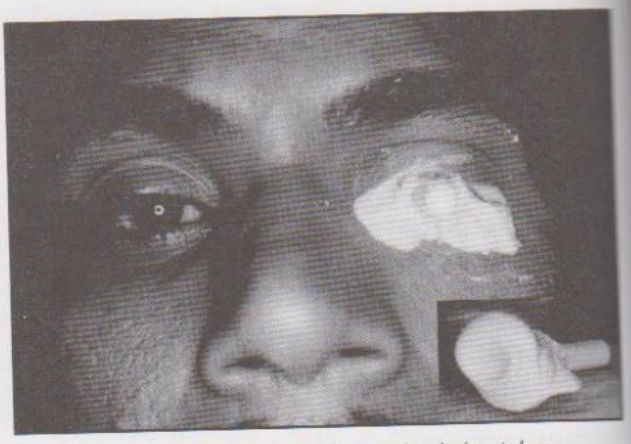

Fig. 4 : Alginate primary impression being taken on patient and interior aspect of impression.

2. Stone Mold Fabrication: The two piece dental stone mold was prepared[4] (Fig. 5). The dental stone [Kalstone; Kalabhai Karson, Mumbai, India] was poured to immerse the lower half of the impression after boxing. Once the stone sets keyholes were cut, separating medium was applied and the mold was completed with a second mix of stone. The prepared mold was used in the construction of wax pattern. The stone mold was lubricated with the petrolatum oil [Vaseline; Hindustan Lever, Pondicherry, India.] and a medium-hard dental wax [Y-Dents modeling wax; MDM Corp. Delhi, India.] was poured to prepare the wax pattern.

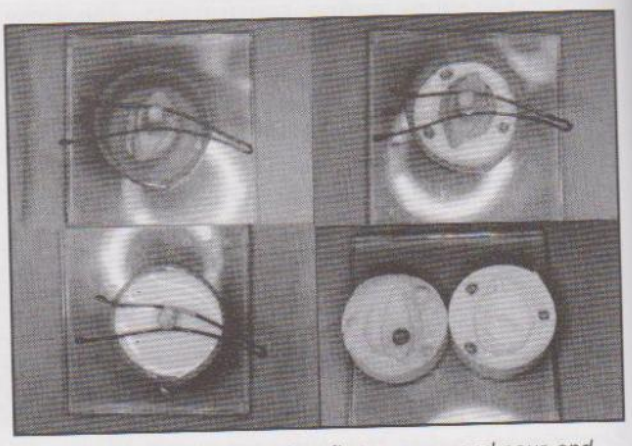

Fig. 5 : Procedure of boxing, first pour, second pour, and two piece stone mould fabrication.

3. Altered Scleral Wax Pattern Fabrication: The altered scleral wax pattern was prepared by a modified technique[5, 6] using wax pattern. A medium viscosity polyvinyl siloxane impression material [Aquasil; Dentsply, Milford, Del.] was mixed and painted over the tissue surface of the wax pattern.

The wax pattern was repositioned in the socket and the patient was instructed to keep his head upright while performing eye movements with the natural eye. The patient was instructed to move his natural eye in various directions until the impression material had set completely. Once the impression material was set the altered wax pattern was removed from the socket and the excess of rubber base impression material was trimmed (Fig.6). This altered wax pattern now represents scleral blank of the eye and was used to fabricate the final acrylic resin ocular prosthesis.

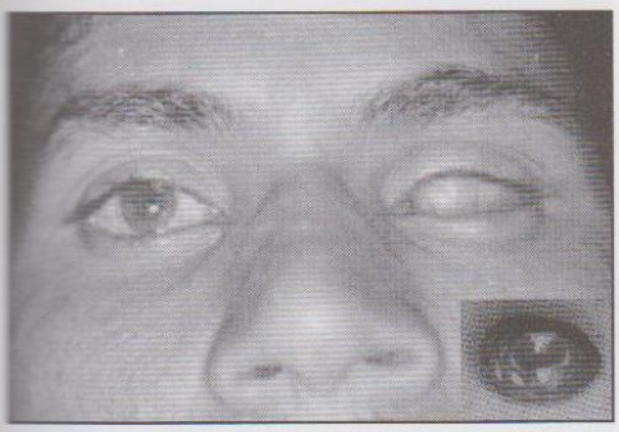

Fig. 6 : Scleral wax pattern in place and interior surface of altered scleral wax pattern.

4. Fitting of the iris on the scleral wax pattern: The selected iris-corneal button (Fig.7) [Corneal button; SMR Ophthalmic & Co., Mumbai, India.] from stock shell eye to match the diameter and colour of the eye was fixed. For that the scleral blank was inserted into the socket and the patient is asked to relax for few minutes enabling the protective blepharospasm to subside. Then scleral blank was examined carefully. If a discrepancy exists between the right and left palpebral opening or in the general contours, desired modifications are performed by wax. Once the shape and size of the scleral blank was satisfactory a dot was placed with red ink in the location of the center of the pupil. A circle was marked representing the iris area. A thin layer of approximately 0.5 to 1 mm of wax from this marked area was removed and the iris-corneal button was placed over there and margins were flushed. This wax pattern with iris-corneal button was tried and checked for its accuracy in terms of position and movement supero-inferiorly and mesio-distally correlating with the right eye. Corrections are carried till we got the satisfactory results with the various eye movements, fullness of the eye and opening of palpebral fissure (Fig.8).

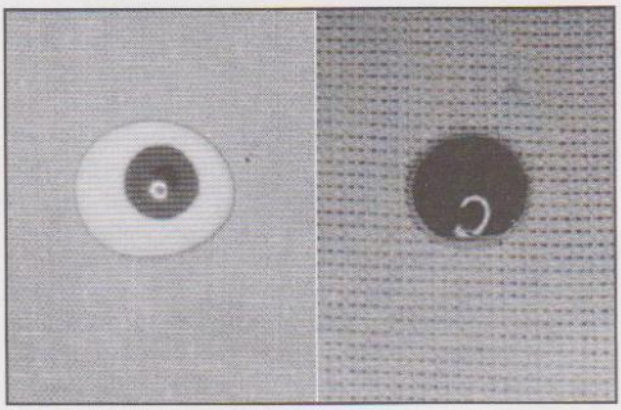

Fig. 7 : Selected iris from the stock eye and trimmed iris.

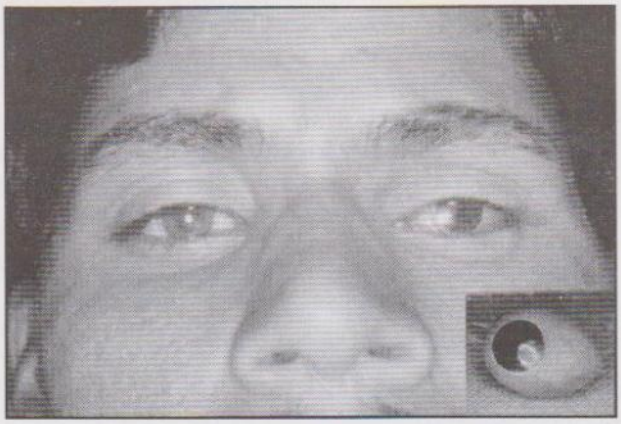

Fig. 8 : Fitted iris on scleral wax pattern and scleral wax pattern with iris in place.

5. Replication in scleral colored acrylic resin: The white acrylic resin [DPI Tooth molding powder shade - E; DPI] of desired shade was selected. The pattern was flasked and dewaxed in the conventional manner. The iris-corneal button was retrieved and placed back in the stone mold. Now the mold was packed with the chosen white acrylic dough. Trial pack was made, and then finally flask was closed and polymerized according to manufacturer's instructions. Polymerized ocular prosthesis was retrieved from the mold, finished and polished. The mold was used again for reacrylization, to tint the anterior scleral surface as per the patient's sclera to give the effect of veins. The 0.5 to 1-mm acrylic was

removed from the anterior scleral surface around the iris-corneal button. The mono-poly mixture [Mono-poly is made by combining 10 parts heat polymerized monomer to 1 part clear acrylic polymer by weight. To combine the monomer and polymer a pan of water is heated and brought to a light boil. The monomer is then poured into a glass beaker. The beaker is placed in the pan of boiling water and when the monomer is warm the polymer is shifted slowly into the monomer stirring continuously with a glass rod. After 10 minutes the solution attains the viscosity of light oil. This solution is a mono-poly mixture that is stored in a dark glass bottle.] was prepared with the help of clear acrylic powder and monomer[7,8,9,10] [Dentsply heat polymerized (clear); Dentsply]. The dark red and tan flocks [KT-899; Factor II Inc, Lakeside, Ariz] were added in this mono-poly mixture and this was applied on the anterior reduced scleral surface of prosthesis (Fig.9) to match the anterior scleral surface of the natural eye. This layer of mono-poly mixture and flocks was partially polymerized with the help of Light Cure Gun. The separating medium was applied again in the previous mold. The ocular prosthesis was refitted in the mold at the tissue surface side. The clear mono-poly viscous solution was filled on the anterior scleral surface of the mold and the mold was packed again and polymerized. Polymerized prosthesis was carefully removed, finished and polished.

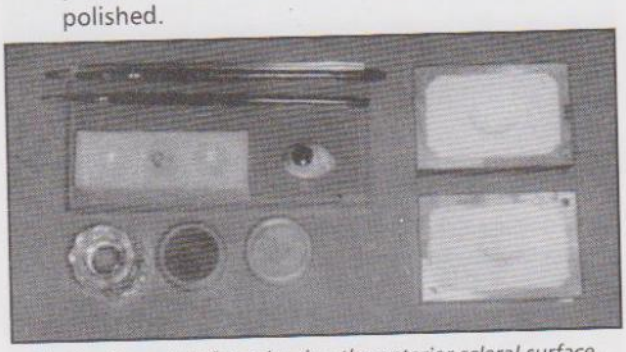

Fig. 9 : Procedure for colouring the anterior scleral surface.

6. Delivering of the ocular prosthesis: The finished and polished ocular prosthesis was inserted in the eye socket and examined for its aesthetic appearance and the degree of movement by instructing the patient to perform the movements in various directions. Necessary minor adjustments were carried and again the prosthesis was finished and polished and inserted. The ocular prosthesis was delivered finally to the patient (Fig. 10, 11, 12) with the following instructions:

Never clean or soak your artificial eye in alcohol because it will crack the plastic and destroy the ocular prosthesis. Remove the ocular prosthesis only as necessary. Too much handling can cause socket irritation and result in excessive secretions. If you remove your ocular prosthesis, be sure to store it in water or soft contact lens saline solution. This will keep deposits from drying on the surface. To clean your prosthesis, use an antibacterial soap. [Dettol; Godrej products, Kolkata, India.] Wash the eye between your fingertips. A damp cotton ball is also helpful to wipe away softened deposits from the surface.

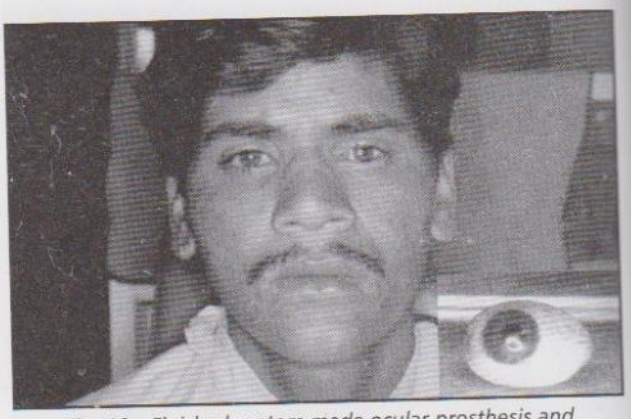

Fig. 10 : Finished custom made ocular prosthesis and prosthesis in place.

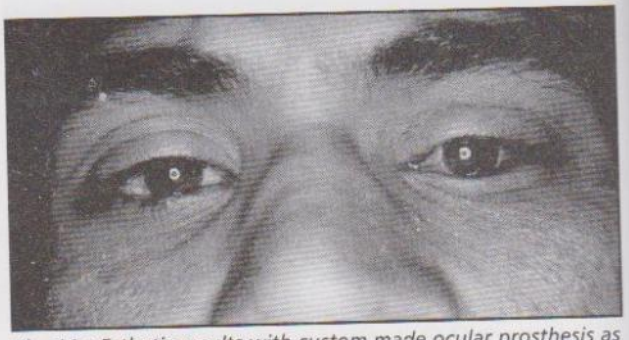

Fig. 11 : Esthetic results with custom made ocular prosthesis as patient looking straight ahead (close-up view).

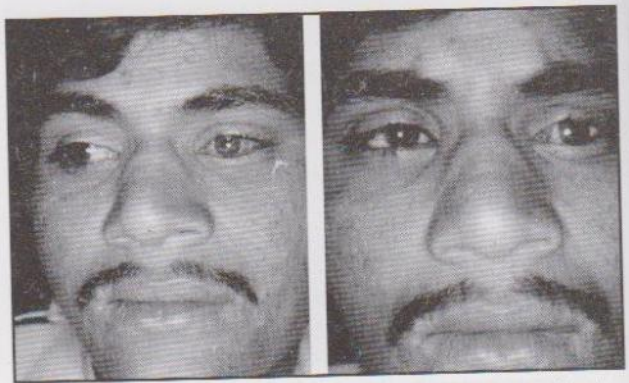

Fig. 12 : Functional result of custom made ocular prosthesis when patient is looking right side and on the left side.

SUMMARY

In a patient of phthisis bulbi, an ocular prosthesis with improved appearance, increased comfort, movement of the eye in unison with the patient's natural eye without being dislodged, has been fabricated. This could be achieved by making accurate functional impression with fine details of fitting surface of eye socket using factor II rayon flocks for colouring the anterior scleral surface and following all the steps of fabrication meticulously. Thus, resulting into excellence in terms of aesthetic appearance, movements and psychological improvement in patient's personality.

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Abstract

EFFECT OF SPLINTING AND INTER PROXIMAL CONTACT TIGHTNESS ON LOAD TRANSFER BY IMPLANT RESTORATIONS

This invitro investigation studied the effect of splinting and inter proximal contact tightness on passivity of fit and load-transfer characteristics of multiple implant restorations.

A photoelastic model of a partially edentulous left mandible with three endosseous implants (3.75 mm x 10 mm) was fabricated. Individual crowns were fabricated on three custom-milled titanium abutments for the nonsplinted restorations group. Five levels of interproximal contact tightness were evaluated after the units were cemented : open, ideal (8 - um shimstock drags without tearing), light (ideal + 10 um), medium (ideal + 50 um) and heavy (ideal + 90 um). Five three unit FPDs were fabricated for the splinted restorations group. Restorations were cemented to the model after internal adjustments using silicone disclosing material.

A polariscope was used to study the changes in stress distribution under stimulated nonloaded and loaded conditions (6.8 kg). Non splinted restorations with heavier interproximal contacts were associated with increased tensile stresses between implants. Occlusal loads tended to focus on the particular loaded implant splinted restorations distributed stresses more evenly and shared occlusal force between the implants when load was applied. Excessive contact tightness between individual crowns could result in nonpassivity between restorative units splinted restorations demonstrated better load distribution than nonsplinted restorations.

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J Prosthet Dent 2002; 87 : 528-535

The Construction of Intra-Oral Nasal Prosthesis for a Saddle Nose Patient - The Case Report

Deepti S. Shah, Darshna Shah, Reena Mittal

ABSTRACT

Management of patients with facial deformities requires a multi-disciplinary approach. Nose is one of the important part of the face. The beauty has always been associated with the size and shape of the nose, and if for any reason, the shape of the nose is deformed it can make a person to appear ugly and thus necessitates the rehabilitation of these patients. It greatly adds to the aesthetic and psychological well-being of the patient.

This case report discusses about an 18 yrs old girl who had saddle nose and an oro-nasal opening. The patient was first treated by the plastic surgeon and after that intra-oral nasal prosthesis and palatal plate were given which greatly improved her appearance and speech and also provided the necessary psychological boost to the patient.

INTRODUCTION

Maxillofacial rehabilitation has always been a challenge and the associated failures in this field have deterred clinicians to stay away from this area of specialisation Management of maxillofacial defect, whether congenital or acquired, warrant all facets of patient care, from diagnosis and treatment planning to rehabilitatin. In managing such patients, clinicians must consider the extensive and cumbersome surgical and medical procedures already undergone by the patient prior to rehabilitation.

Nose is such an important part of the face and a deformed one, can tremendously affect the appearance of an individual. The rehabilitation of such patients can be done by giving nasal prosthesis made by various materials like silicones, acrylic, etc., Silicone is normally preferred because of its light weight and elasticity but it has its own shortcomings. It is costly and needs special technical manpower. It has also limited lifespan, therefore an attempt has been made here to prepare a nasal prosthesis in acrylic resin.

HISTORY

A 18 yrs. old female reported to the prosthodontia department of the G.D.C.H., Ahmedabad. She was referred there by the plastic surgeon for the fabrication of an intra-oral nasal prosthesis. History suggested that the patient had chief complaint of depressed nose along with the nasal septum that was completely destroyed, due to some infection at 6 months of age resulting in depressed nose.

Patient also complained of nasal twang in voice.

EXAMINATION

Extra-Oral: It revealed the deformed nose and maxillary hypoplasia. (Fig 1 & 2)

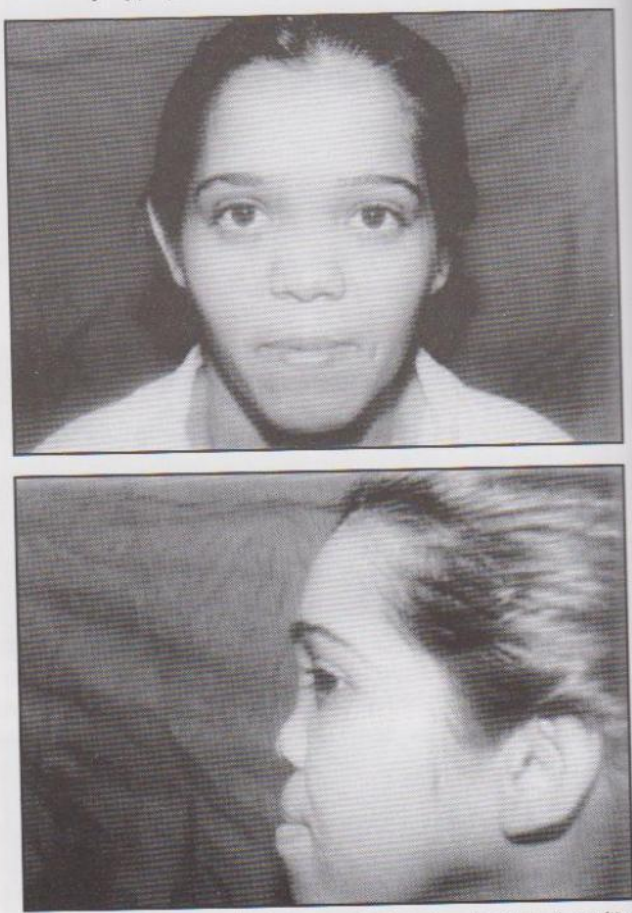

Fig. 1 & 2 : Presurgical photographs showing facial and profile view of the patient respectively.

Intra-Oral: It showed the narrow maxillary arch with high palatal vault. Malocclusion was present and all the teeth were present except both the upper canines. There was oro-nasal opening present in the soft palate area (Fig. 3).

Key Words: Intr-oral nasal prosthesis, palatal plate, Oro-nasal opening, Nasal voice, Linguovelus sounds, split cast.

** Postgraduate Student, ** Professor and Head, Department of Prosthodontics,* G.D.C.H., Ahmedabad (Gujarat).

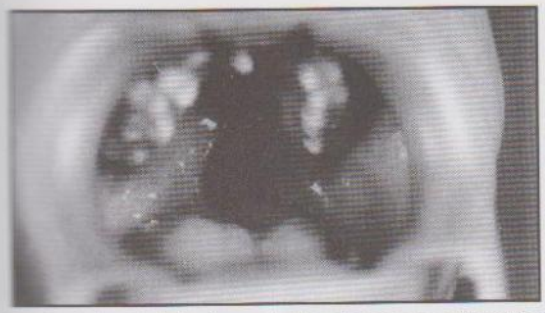

Fig. 3 : Intra oral photograph showing oro-nasal opening in the soft palate area.

Speech Evaluation: It revealed the misarticulation of linguovelus (k, g, ng) and sibilant (s, z, ch) sounds with nasal voice.

Management: Patient first reported to the plastic surgeon who had planned for Augmentation Septorhinoplasty with Pharyngoplasty under G.A. The surgeon had surgically created a cavity inside the nose and lined that cavity with the skin graft taken from the hamstrings area. Impression compound was placed in the cavity at the time of surgery to prevent the shrinkage of the cavity (Fig. 4, 5 & 6).

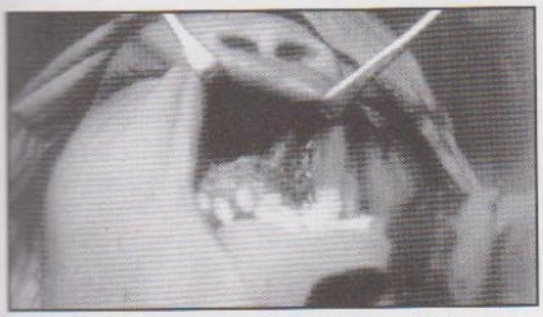

Fig. 4 : Photograph during surgery showing cavity prepared inside the nose.

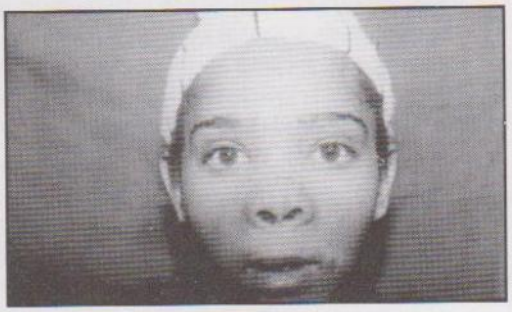

Fig. 5 & 6 : Facial and profile view after survery respectively.

DENTAL TREATMENT PLAN

Nasal Prosthesis: Procedure started nearly 20 days after surgery. Opening of the cavity was prepared in the upper labial vestibule and all the procedures for prosthesis fabrication were performed from this opening (Fig. 7 & 8). Impression of the cavity was taken with the impression compound and after its beading and boxing split cast was made (Fig. 9 & 10). Both the parts of the split cast were joined and then it was flasked and after dewaxing, the cavity was filled with heat cured acrylic resin and was cured. Then after deflasking, finishing and polishing, necessary adjustments were done and it was delivered to the patient. Two hole were made anteriorly simulating anterior nares, through and through, so that the patient could breath through it. Initially it was little bit difficult but later on she was accustomed to that. A 19 gauge wire loop was inserted in the anterior region so that the patient could take it out and insert it herself. Oral hygiene instructions were given to the patient.

Fig. 7 : Facial view after recovery, without anything placed inside the cavity.

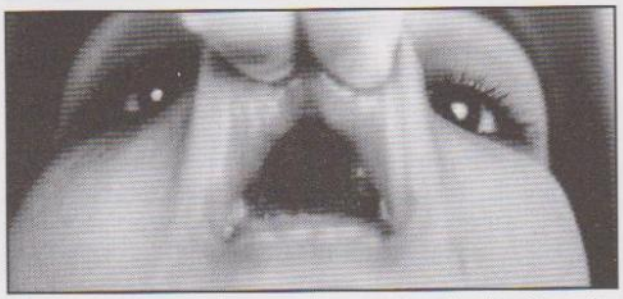

Fig. 8 : Photograph showing the cavity lined by the skingraft.

Fig. 9 : Impression of the cavity.

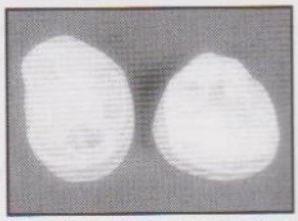

Fig. 10 : Split cast made from the impression.

Palatal Prosthesis: For this first an irreversible hydrocolliod impression was taken of the arch including the defect. The cast was made and on the customed tray, made up of autopolymerising resin, the defect portion was border moulded with greenstick compound and then final impressin was made with zinc oxide eugenol impression paste. Two Adam's clasps were made on both the upper first molars for the retention of the plate. It was then fabricated with heat cured acrylic resin. After finishing, polishing and necessary adjustments it was inserted in the mouth (Fig. 11 & 12). The patient was kept on regular follow-up.

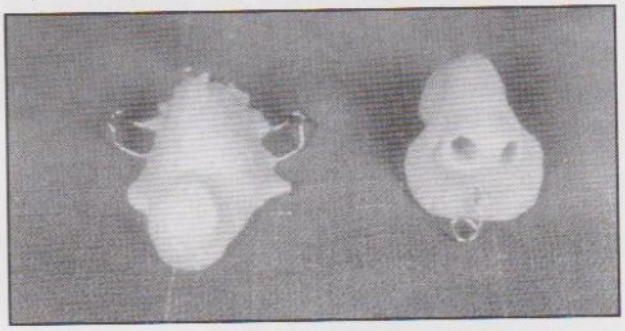

Fig. 11 : Both the nasal and the palatal prosthesis are shown.

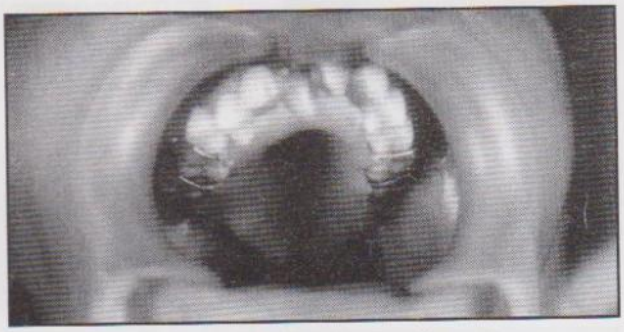

Fig. 12 : Palatal plate in place.

TREATMENT OUTCOME

The nasal prosthesis resulted in the contouring of the bridge of the nose and also improved the maxillary hypoplasia upto some extent. The palatal plate corrected the articulation of speech. The patient was very much satisfied after the treatment (Fig. 13 & 14).

DISCUSSION

Without doubt, maxillo facial prosthodontia is one of the most challenging fields in dentistry. Its most difficult aspect is to cope up with the expectations of the patients and to make a satisfactory prosthesis. The prosthodontist must try to restore the normal form and function of the oral and perioral structures, that will enable the patient to reenter the society with confidence, which is everybody's right.

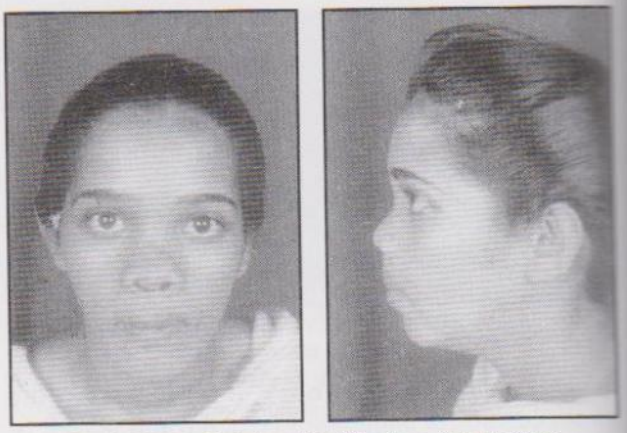

Fig. 13 & 14 : Facial and Profile view of the patient, wearing nasal prosthesis respectively.

CONCLUSION

Both the intra-oral nasal and palatal prosthesis were given to the patient. Now she is comfortable with the prosthesis. Restoration of speech was also there.

The prosthodontic rehabilitation boosted the self-esteem of the patient enabling her to lead a normal social life.

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Estrogen Depletion and Tooth Loss

Swati Gupta, M.D.S. (Prosthodontics) *, Suresh Chandra, M.D.S. **, B. K. Tandon, B.Sc., B.D.S., M.D.S. ***

ABSTRACT

Postmenopausal estrogen depletion causes a lot of disturbances in the metabolic system of female. One such effect is decreased bone density, which leads to postmenopausal osteoporosis. However, the effect of increased bone loss on maxilla and mandible has not been documented conclusively. The present study therefore, was an attempt to investigate the effect of alveolar bone loss due to estrogen deficiency and tooth loss.

INTRODUCTION

Postmenopausal estrogen depletion is probably the commonest and most important factor causing decrease in bone density amongst other factors such as deficient dietary calcium, smoking, alcohol, hyperparathyroidism etc.

The effects of postmenopausal estrogen depletion on skeletal system are well established[1,2,3]. However, aspects like tooth loss, residual ridge resorption in Maxilla and Mandible due to estrogen depletion has not been studied extensively[4,5,6].

The present study, therefore was an attempt to investigate the assumption that the estrogen depletion could cause decreased bone density leading to alveolar bone loss, tooth loss and subsequent increased residual ridge resorption.

METHOD

A total number of 160 North Indian females, aged 31-68 years, having good oral hygiene were selected for the study. Subjects with history of or undergoing treatment for diseases affecting the calcium and phosphate metabolism of the body were excluded from the study.

Key Words : Postmenopause, Estrogen, Broadband ultrasound attenuation (BUA), T - score, Ultrasound Bone Imaging Scanner (UBIS) 3000.

*^ **Principle:** Transmission of an Ultrasound beam through calcaneus. The measurement of the attenuation corresponded with the measurement of the reduction of the ultrasound signal power through the bone tissues.*

*# **T - score:** Comparison between the result on a patient and the mean value of a normal subjects aged 20-40 years.*

*$ **DEXA:** Dual energy X-ray absorptionmetry.*

@ Baylink DJ, Wergedal JE, Yamamoto K, Mantzke E. Systemic factors in alveolar bone loss. J. Prosthet. Dent. 1974, 31 : 486-505.

** Sr. Lecturer, ** Professor & Head, *** Professor, Department of Prosthodontics & Dental Material Sciences,* U. P. Dental College, Lucknow.

The methodology was divided into four parts:

1. Questionnaire: Based on the information provided by the patient, the questionnaire was completed by the operator. The salient points of the questionnaire were as follows :
   - Any operation
   - Medication
   - Hostory of fracture
   - Past visits to the dentist
2. Assessment of hormonal status: Subjects were questioned about their menstrual cycle including the last menstrual period and whether hysterectomy or bilateral oophorectomy was performed.
   The subjects past natural or surgical menopause were considered to be in postmenopausal phase and were included in the study as deficient in estrogen.
3. Intraoral Examination: Dentition present excluding third molars was recorded.
4. Measurement of Bone Density: It was accomplished with the help of UBIS 3000 using BUA^.

OBSERVATIONS

A total number of 160 subjects were observed and were divided into following groups:

Group I: Based on menopausal age with reference to hormonal status it was subdivided into:

Subgroup		No. of subjects
A-	Premenopausal	39
B-	Postmenopausal	121

Group II: Based on bone density which was evaluated using T - score #, it was subdivided into:

Subgroup		No. of subjects
A-	Normal	63
B-	Osteopenia	67
C-	Osteoporotic	30

Group III: Based on age of the subject irrespective of their hormonal status were subdivided into:

Subgroup		No. of subjects
A-	40-50 years	55
B-	51-60 years	67
C-	61-70 years	31