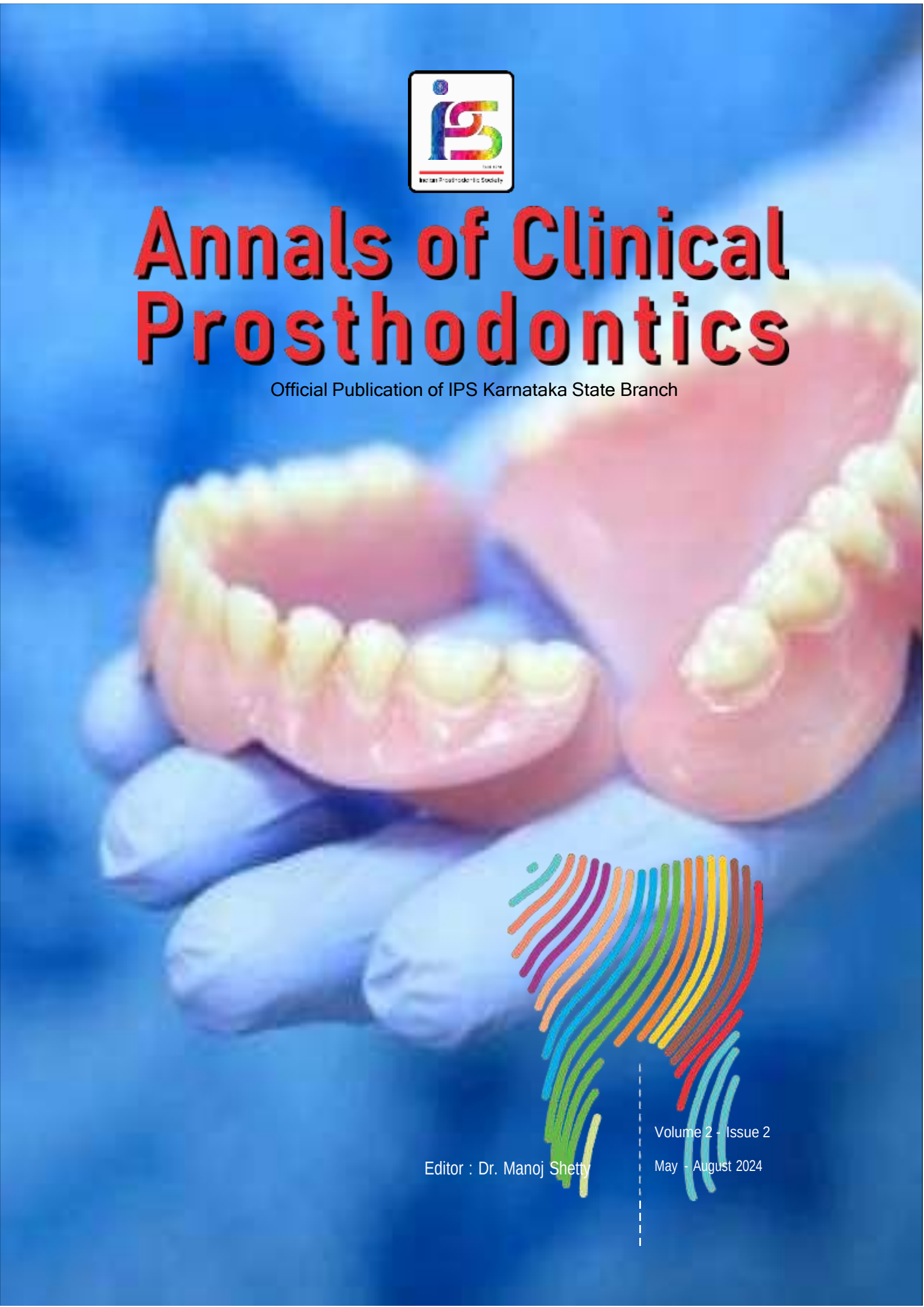

Annals of Clinical Prosthodontics

Official Publication of IPS Karnataka State Branch

Editor : Dr. Manoj Shetty

Volume 2 - Issue 2

May - August 2024

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Annals of Clinical Prosthodontics

(An official Publication of IPS Karnataka Branch)

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About the Journal:
Annals of Clinical Prosthodontics, a publication of the Indian Prosthodontic Society, was established in 2023. It is a peer-reviewed journal that publishes three issues per year print version. The journal operates under an open-access model, allowing free access to its content. Authors are permitted to self-archive the final accepted version of their articles in any OAI-compliant institutional or subject-based repository.

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Starting year of publication- 2023
Format of publication- Print
Frequency- Three issues per year
Subject- Medical sciences
Language- English

ARTICLE INDEX

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IMPRESSION MATERIALS AND TECHNIQUES USED FOR COMPLETE DENTURE FABRICATION AMONGST GENERAL PRACTITIONERS- A SURVEY IN AND AROUND CHENGALPET DISTRICT

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ABSTRACT

Aim: The aim of this article is to conduct a survey using a questionnaire on the various impression materials and methods for complete denture fabrication amongst general practitioners in and around Chengalpet district.

Materials and Methods: A survey questionnaire was prepared and distributed randomly to 50 practitioners in Chengalpet district irrespective of their field of specialization. The survey included a set of 11 questions regarding the choice of impression materials and techniques for complete denture fabrication. From the list of possible responses, each respondent was only permitted to select one.

Result: Irreversible hydrocolloid was the most commonly used material for primary \ impressions. When creating the impressions, the majority of practitioners used the selective pressure hypothesis. A spacer covering only the secondary stress-bearing and relief zones was employed by the majority of practitioners. Most dentists determined the spacer thickness based on the degree of relief. A spacer was used along with light body polyvinylsiloxane impression material by the majority. The preferred material for border moulding the custom tray is green stick compound. Eugenol pastes have been replaced by polyvinylsiloxane as the material used to create final imprints. By creating relief holes, excessive moveable tissue is taken into account. The selection of material was not substantially impacted by the material cost.

Keywords: Impression materials,

Technique, spacer design

INTRODUCTION

To achieve a good retention and peripheral seal, as well as to offer stability and support for the entire denture, a perfect impression method is required [1,2]. The defined boundaries of the final impression should ideally resemble denture flanges in terms of thickness and length [1,3]. In order to ensure a successful complete denture, adhere to the specified progressive steps [3,6,5]. These include primary impression, custom tray fabrication, border molding, and final impression. With the development of new materials and techniques, impression-making techniques have evolved, and today. For various therapeutic scenarios that require a thorough comprehension of impression concepts and principles, a variety of resources and methods are accessible. Despite the advancements, material selection typically depends on expertise and personal preference.

This study sought to determine the impression material and manufacturing technique choices used by general practitioners, including prosthodontists, in the Chengalpet district.

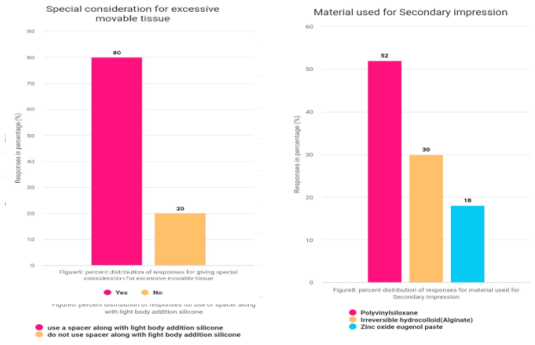
Materials and methods

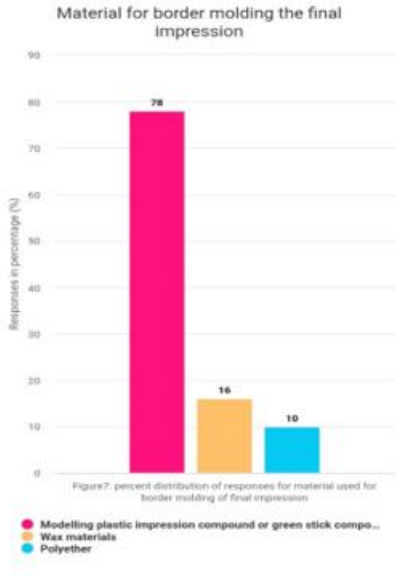
A questionnaire for the survey was created and distributed to the general practitioners including the Prosthodontist in chengalpet district. The survey comprised of two sections. In the first section, focus was on the type of impression material used during the primary and secondary impressions which include elastic and inelastic impression materials. The second section focused on techniques employed in fabrication of final impression and the spacer designs that will be used in final impression procedures. The questionnaire was prepared based on the survey which included 11 multiple choice questions which was circulated to the respondents. Every respondent were allowed to choose only one option for each question. The response from the respondents were kept confidential throughout the survey. The results were calculated based on the response received and it was converted to percentage distribution.

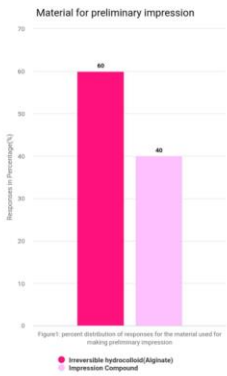
RESULTS

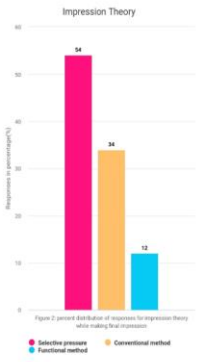
It was ensured that all 50 questionnaires were filled with no question left unanswered. (The article has rounded all percentages to the closest whole number). Concerning the selection of materials utilised to create initial impressions, 30 respondents (60%) indicated the use of irreversible hydrocolloid (alginate) and 20 (40%) still preferred using impression compound (figure1). 27 respondents (54%) use selective pressure technique while making the final impression, while 17 of them (34%) use the conventional method and 6 respondents (12%) use the mucocompressive or functional method (figure2). A majority of the practitioners 46(92%), utilised a spacer in the custom tray design and the rest did not use a spacer (figure3). Among the ones that use a spacer, 29 of them (58%) cover just the secondary stress-bearing and stress-relieving locations with a spacer, 11 respondents (22%) use full spacer not covering the major stress areas with additional relief if required and 10 of them (20%) use a complete spacer with extra relief and tissue stops (figure 4). Based on the degree of relief, 23 (46%) responders determined the spacer thickness. 20 of them (40%) decided it arbitrarily whereas 7 of them (14%) connected the type of impression material used with the spacer thickness (figure 5). A majority of the respondents 35(70%), use a spacer along with light body addition silicone while the rest of them,

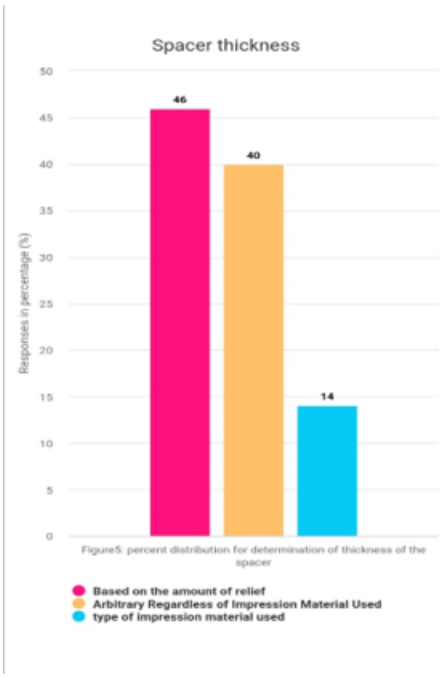
15(30%) do not use it (figure 6). It was found that the majority of responders border-molded the custom tray before leaving their final impression, it was discovered. 39 respondents (78%) use modelling plastic impression compound or green stick compound for border molding, 8 of them (16%) use wax materials and 5 of them (10%) use polyether (figure 7). About the material that is utilised to create secondary impression, 26 respondents (52%) used polyvinylsiloxane, 15 respondents (30%) used irreversible hydrocolloid (alginate) and 9 of them (18%) used zinc oxide eugenol paste (figure8). Majority of the respondents 40 (80%) gave special consideration for excessively movable tissue (figure9). 22 of them (44%) made relief holes in the custom tray, 14 of them (28%) used a spacer on the cast, 8 respondents (16%) selectively reduced the custom tray and 6 of them (12%) used modified impression techniques like window technique (figure 10). The selection of impression material appeared to be influenced by the material cost for 24 respondents (48%) (figure11).

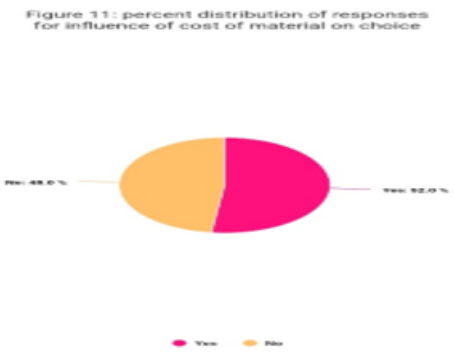












DISCUSSION

The Dental Surgeons participating in the survey correspond to different specialities and performed impression making as a part of their treatment plan at some point or another. With differing period of experience, the dentists were able to give their personal opinion regarding each and every question, thus providing better awareness into the subject.

In this survey, the most often utilised primary impression material was irreversible hydrocolloid (60%), impression compound being used only by 40% of the respondents. This is in confirmation of the survey conducted by Rupal *et al [7]* and Kakatkar[8] where they described that impression compound was used by maximum of the practitioners in India. Although a study conducted by Singh G *et al* [9]in four major Indian cities revealed that alginate was used by 71% of the practitioners. Surveys conducted in United Kingdom[10] and U.S Dental schools[11] have also reported the preferred substance for creating primary impressions is alginate.

Most of the practitioners (54%) used selectively pressure technique for making the final impression followed by 34% of the respondents using the conventional method. This is in agreement with previous surveys conducted in India and other countries [7,12,13]. By using a selective pressure approach, the non-stress carrying portions are relieved and the pressures are limited to the stress bearing areas.

In this survey, 92% of the respondents suggest using a spacer when designing a custom tray and Most people utilise a spacer that only covers the secondary stress-bearing and relieving zones (58%). Previous surveys conducted to analyse the design of spacer used have also shown same results.

Respondents were also asked the criteria used to decide the thickness of the spacer. Most of them (46%) decided the thickness based on the amount of relief, the rest made the decision arbitrarily (40%) or based on the choice of impression material (14%). According to a survey of dental colleges in the United States, the majority (45%) applied a coating of base plate wax for relief [12]. A. Roy Macgregor recommends the following thicknesses of the spacer based on the impression material used: 2.5mm for impression plaster, 0.5 mm for zinc-oxide eugenol paste, 2mm for alginate and 1.3-3mm for elastomeric impression materials [14].

66% of the respondents used a spacer when using light body addition silicone as the impression material of choice. This is in agreement with the fact that some amount of tissue compression occurs when using elastomeric impression materials [15].

The most widely used material (78%) is modelling plastic impression compound because of its affordability, dimensional stability, minimal material waste, extended shelf life, ease of adaption, and capacity to be added in increments. According to U.S. school surveys, elastomeric materials are

increasingly being used for border moulding [16]. Elastomeric impression materials have the advantage of being quicker and allowing for simultaneous recording of all boundaries.

A clear majority (52%) use polyvinylsiloxane as the material of choice for making the final impression. In contrast, zinc-oxide eugenol pastes were more frequently used in earlier surveys carried out in India [7,8]. Benefits of using elastomeric impression materials like PVS and polysulfides is their dimensional stability, ease of handling and manipulation, sufficient working and setting time, and enhancement of general qualities. The main disadvantage of Zinc-Oxide Eugenol pastes is that it is inelastic, adheres to the skin and mucosa, and burns.

Eighty percent of respondents gave special emphasis to excessively moveable flabby tissue, and the majority (44%) preferred to put relief holes. In contrast, the window technique, also known as the modified impression technique, was employed by the majority of respondents in a prior survey conducted by Mehra et al. [17].

The cost of material often influences the choice of impression material. 48% of the respondents considered the cost of the material before using a material. No significant correlation has been made between the cost of the material and choice of material in previous surveys.

***CONCLUSION*:**

This study described the existing patterns among general practitioners in and around the Chengalpet district with reference to impression materials and complete denture fabrication techniques. The following conclusions can be made in light of the study's findings and constraints.

● For preliminary impressions, the majority of responders chose irreversible hydrocolloid impression material.

● When making impressions, the majority of practitioners favoured the selective pressure theory.

● The majority of practitioners merely cover the secondary stress-bearing and stress-relieving areas with a spacer.

● Many practitioners used the degree of relief to determine the spacer thickness.

● Most of the dentists used a spacer along with light body addition silicone.

●Vast majority of practitioners selected low fusing modelling plastic for border molding the custom tray.

●Most of the dentists used polyvinylsiloxane as the material for making final impressions.

● Most of practitioners followed the principles of mucostatic impression wherever excessively mobile tissues were found.

●The cost of the material does not significantly influence the choice of material.

QUESTIONNAIRES

1. What is the material of choice for making the preliminary impression?

a) Impression Compound

b) Irreversible Hydrocolloid (Alginate)

c) Elastomeric Putty

d) Other (Please Specify)

2. What impression theory you use for making the final impression?

a) Mucostatic (Non-Pressure)

b) Functional (Pressure)

c) Selective Pressure

d) Conventional

3. Do you use a spacer design in your custom tray?

a) Yes

b) No

4. If yes, which design of spacer is mostly used?

a) Full Spacer with Tissue Stops and Additional Relief

b) Full spacer not covering the Major Stress Areas with Additional Relief if Required

c) Spacer covering only the Secondary Stress Bearing and Relief Areas

d) Spacer in Special Circumstances only (as in cases of flabby tissue, undercut areas, high vault or prominent ridges and spicules)

5. How is the spacer thickness decided?

a) Arbitrary Regardless of Impression Material Used

b) Based on the Choice of Impression Material

c) Based on the Amount of Relief

d) Other (Please Specify)

6. Do you use spacer with light body addition silicone?

a) Yes

b) No

7. Do the border molding procedure in the custom tray before making the final impression?

a) Yes

b) No

8. What material is used for border molding the final impression?

a) Modeling Plastic Impression Compound (Green Stick)

b) Wax

c) Polyvinylsiloxane

d) Polyether

e) Other (Please Specify)

9. What is the final impression material of choice?

a) Zinc Oxide Eugenol Paste

b) Non- Eugenol Paste

c) Polyvinylsiloxane

d) Polysulphide

e) Polyether

f) Irreversible Hydrocolloid

g) Impression Plaster

h) Other (Please Specify)

10. Do you have any special consideration made for excessive movable tissue?

a) Yes

b) No

If yes, how is relief provided for flabby tissue?

a) Relief Holes in Custom Tray

b) Selective Reduction of Custom Tray

c) Spacer on the cast

d) Modified Impression Technique (e.g. a window technique in conjunction with plaster, methods using light bodied impression paste e.t.c).

11. Is the cost of the material a significant factor in influencing the choice of impression material used?

a) Yes

b) No

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REHABILITATION OF EDENTULOUS RIDGES WITH LOCATOR OVERDENTURE AND IMPLANT SUPPORTED FIXED DENTAL PROSTHESIS-A CASE REPORT

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Abstract-

Edentulism is poorly received among the young as well as in the old.Various implant supported treatments have not only improves the chewing effeciency but also aids in psycho social well being.Removable implant supported dentures provides good prosthetic outcome with regard to economic and time saving aspects,esthetics and ease of clenasibiltity.Fixed treatment provides high retention and stability with high predictable outcome.The selection of the treatment depends on factors such has bone quality,interacrh distance,patient systemic conditions,cost factor,etc .In this case report we have presented a case with edentulism which was rehabilitated with a locator overdenture and subsequently rehabiltitated with implant supported fixed prosthesis.

Keywords: locator, Fixed treatment, Ankylos, Full mouth rehabilitation

Introduction:

This is the era where people seek a full functional limitless life. Their biological age no longer follows their mental age. People want a well-rounded life may it be at their 20s ,30s or their late 80s and now tooth loss is no longer a barrier .Dental implants have fulfilled this purpose for a few decades now. Various treatments that include removable and fixed options are evolving to benefit various clinical situations.

Implant supported prosthesis has improved patients` ability to look better, eat better and thus live better. Clinical studies have shown better improved life conditions in fixed option than removable treatment options. Although fixed prosthesis shows higher

rate of patient acceptance, all clinical scenarios don't allow a fixed option. The patient must be rehabilitated with atleast 4-6 implants for fixed prosthesis [1] so patients with insufficient bone height or poor quality of bone will have to proceed with removable options such as ball, bar or locator attachments.

Simrahan et al concluded that Locator attachment to be more advantageous to ball and bar sytems, regarding the rate of complications in clinical practice.[2]

In this case report we have presented a treatment of an 82 year old patient with edentulism who had expressed his strong desire for a fixed treatment.

Case History:

An 82 year old male patient reported to the Department of Oral Implantology with a chief complaint of missing upper teeth and lower teeth. On dental examination it was found he was a partially dentate patient with failing existing dentition with a grade III mobility .

On clinical examination it was found that he was in prime of health with no debilitating disorders . Medical investigations such as routine blood checkups ,vital signs were carried out. No medical history was reported that contradicted the implant treatment .

Psychosocial status:the patient was philosophical and expressed a strong desire for a fixed prosthesis.

Diagnosis :

Clinical study models were fabricated and surgical measurements and radiographic examination (panoramic Rx) of maxillary and Mandibular area was done .

Radiological assessment: Pre operative OPG:(**Figure 1**) On radiographic analysis we found sinus pneumatisation in the maxilla with reduced bone height in the posterior region. The mandible had adequate bone height of 10-11mm anteriorly.

Since we had enough data with the existing study models and xrays a CBCT was avoided.

Figure 1 :Preoperative OPG

Treatment planning:

- Extraction of the remaining teeth and immediate implant placement.
- Placement of Ankylos C/X implant (B-8mm) in 35 and 45 region.

(A-9.5mm) in 33 and 43 region,(B-11mm) in 15 region, (B-9.5mm) in 23 region,(A-11mm) in 13

region,(B-11mm) in 25 region.

- Maxillary and Mandibular ridges with metal ceramic prosthesis.
- Patient recall and check up every 6 months

The treatment plan was explained to the patient, and informed consent was obtained thereof as he agreed with the proposed prosthetic solution.

Pharmacological management:

Patient was prescribed antibiotics (Amoxicillin 500 mg) one day before surgery and one hour before sugery as prophylaxis.

Patient would be later adviced to continue the antibiotics thrice daily for a week post surgery.

Analgesics(Diclofenac Sodium 50 mg) were also prescribed post treatment. Antibacterial mouth rinse (Chlorhexidinegluconate) was also prescribed.

Case report:

Surgical phase:

The patient was prepared and sterilized surgical instruments were arranged for the surgery.Extractions were carried out with respect to maxillary and mandibular anterior teeth under local anaesthesia.(figure 2),(figure 3)The sockets were curetted and irrigated with antibacterial solution(chlorhexidine).

Fig.2 Extraction of mandibular teeth

Fig.3.Extraction of maxillary teeth

Fig.4. Flap elevation

Midcrestal incisions were carried out and full

thickness flap was elevated(figure 4).Septal bone was removed to ensure flap repositioning and tissue closure in the maxillary region.

Implant osteotomies were carried out with recommended sequence of drills (Ankylos

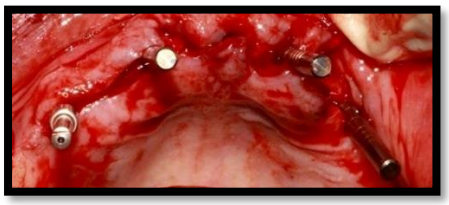
c/x) with copious irrigation. Linderman drill was used initate the sequential osteotomy. Trispade drill A &B were used to extend the osteotomy site according to the selection of the implants .(figure 5a &5b) .

5a 5b

Fig.5a: Trispade drill A for Ankylos c/x A implants.

Fig 5b: Trispade drill B for Ankylos c/x B implants

Guide pins were placed in each osteotomy to indicate the direction and ensure parallelism between implant osteotomy sites.(figure 6a &6b).



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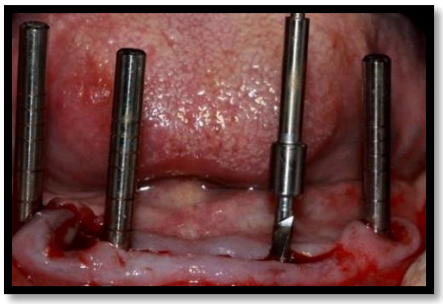


6b

Fig 6a: Paralleling pins placed in the maxillary ostetomies

Fig 6b: Paralleling pins placed in the mandibular ostetomies

In the mandibular region,Implants (Ankylos c/x wrt 35,33,43,45) (figure 7a) were placed carefully ,keeping a safe distance from the mental foramen. In the maxilla Implants (Ankylos c/x wrt 15,13,23,25) were placed at a maximum angulation of 20 degree, avoiding the sinus floor.(figure 7b).

7a

7b

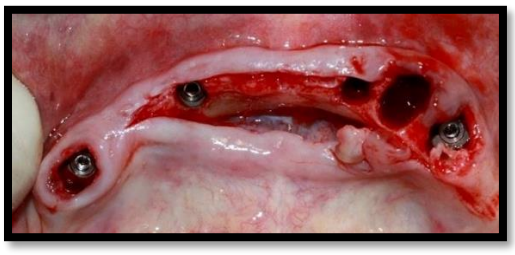


Fig 7a: completion of implant placement in maxilla

Fid 7b: completion of implant placement in mandible

Primary stability of 35 Ncm was achieved. Cover screws were then placed in. Interrupted sutures were placed for primary closure.Immmediate post operative OPG was then ordered(Figure 8)

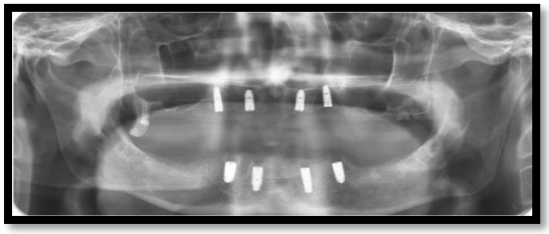


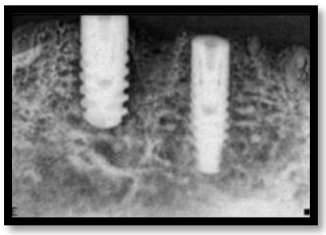
Fig.8 Post operative OPG

Patient was placed on post operative antibiotic regimen and on analgesics along with instructions on maintenance of oral hygiene and was recalled after one week, one month and three months,six months and 1 year for follow up.

Prosthetic phase (three months post implant placement):

Patient was recalled for second stage surgery after three months of implant placement. On radiographic analysis significant crestal bone loss was seen with respect to 45 .(fig 9a)

Cover screws were retrieved non invasively under local anaesthesia.



9a

9b

Fig 9a: implant failure wrt 45 –IOPA

Fig 9b: implant failure wrt 45 –Clinical view

There was failure of the implant placed in the 45 region as suspected(figure 9b). This may be attributed to residual infection in the extraction socket.Implant level impressions were made and casts were poured.(figure 10a & 10 b) .

Fig 10a: final casts showing impression post- maxilla

Fig 10b: final casts showing impression post- mandible

Abutments were selected .(regular abutments for the maxillary arch and LOCATOR abutments for the mandibular arch). Maxillomandibular relations were recorded and transferred to a semi adjustable articulator. Trial of the metal framework and the denture was carried out. The maxillary arch was then rehabilitated with implant supported fixed dental

prosthesis. A LOCATOR attachment denture was planned for the Mandibular ridge due to the loss of an abutment for the fixed prosthesis.For the delivery of the prosthesis following steps were done . The LOCATOR abutments were screwed in with the driver and block out spacers were placed on the heads of the abutments. Female attachments were positioned with the processing inserts (which will later be replaced with the retentive inserts). The Mandibular denture was ground in the region of the subsequent females so that it could be cemented with cold cure acrylic resin. The denture was then finished and polished.An OPG was then ordered for ensuring proper fit(figure 11)

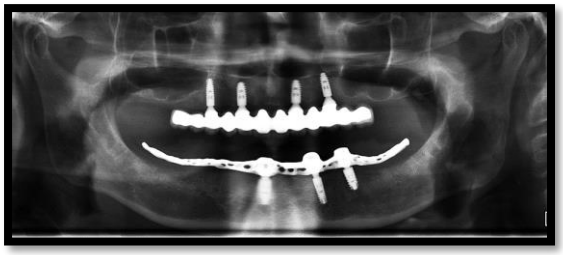


Fig 11: OPG showing locator attachments

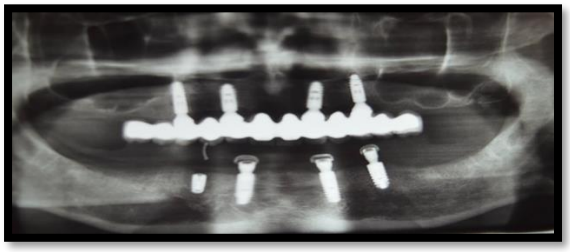


Fig 12:Implant placement in the 45 region-OPG

After three months of wearing removable prosthesis with locator attachment, patient expressed the need for a fixed prosthesis. Ankylos c/x implant was placed in the healed site (45) (figure 12) The patient was then recalled after three months for rehabilitation of the Mandibular ridge with fixed prosthesis. The locator abutments were replaced with regular abutments and implant supported fixed dental prosthesis was cemented in the Mandibular arch.(fig 13 a,13b,13c),

Fig 13 a: left lateral view of the patient (post cementation)Fig 13 b: right lateral view of the patient (post cementation)Fig 13 c: facial view of the patient (post cementation)

The 18 month follow up OPG was then taken and sustained level of crestal bone was seen.(figure 14)

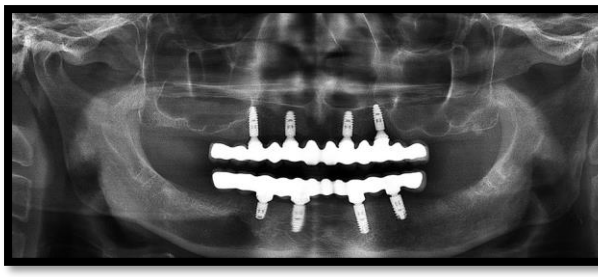


Fig 14: Post cementation of the FDP –OPG

Discussion:

Implant supported overdentures provides retention and good support with the help of the mucosa as well as the implant. Although overdentures have proven to be a successful treatment option which is economic and time saving, multiple pulls of the removable prosthesis can hinder the retentive values of the attachments which would require replacements and multiple visits[3,4,5]. Fixed prosthesis has shown higher stability , the fixed treatment received a higher rating on the ability to chew.[6]

The most common reason for choosing a dental implant prosthesis was to improve eating ability. Most studies reported improved eating ability after a fixed treatment. Patient tend to report function and chewing ability to be more important than esthetics

In this case, a fixed full mouth rehabilitation was planned so four implants were placed in each arch. Unfortunately the implant in the 45 region failed(extraction placement) . This may be due to the fact that there was remnants of infective tissue remaining in the extraction socket.[7,8] Thus a thorough curettage with local antibiotic treatment or planning a different site of implant placement would have been another option .Since we deprived final fixed prosthesis of one abutment support ,the patient was treated with locator overdenture. Locators have shown excellent patient compliance with good retentive and resilient properties . Locator attachments are in different colors (clear, pink, blue, green, orange, red) and each has a different retention value.[9] Since the patient was insistent on fixed treatment we placed a new implant in the region 45(after 4 months of healing)[10,11]

Patient was then rehabilitated with fixed shortened dental arch implant supported prosthesis.

While some patients are comfortable with overdentures ,some patient expects a more stable retentive option such as a fixed dental prosthesis. Treatment options can vary from person to person, a thorough knowledge of the patient history and also,in this case, the patients expectations will help a practitioner to provide the best possible result.

Further studies have to be conducted so as to provide a reduced time span to rehabilitate the edentulous areas.

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Acknowledgement: nil

Conflict of interest declared:nil

EXTRACTION AND IMMEDIATE RESTORATION OF THE MAXILLA USING INTRA ORAL WELDING CONCEPT- A CASE REPORT WITH ONE YEAR FOLLOW UP

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Abstract:

Immediate rehabilitation of full arch ridges has always been challenging due to long time frame and tedious surgical procedures. With the dawn of the intra oral welding concept, clinicians have been able to deliver definitive restorations supported by a titanium bar.Here we have reported a case that presented with failing dentition which was extracted and rehabilitated with immediate provisional with a titanium welded substructure.The provisional was then resored with a screw retained prosthesis. The one year follow up of the case showed sustained crestal bone levels around the implants and dimensional stability of the prosthesis.

Key-words: intra oral welding, immediate loading, maxillary extraction placement

Introduction:

The field of Implantology is in a state of constant metamorphosis, be it surgical concepts ,prosthetic rehabilitation or material science . Although implant rehabilitation shows promising results, laborious two stage procedure and temporary edentulousness for full arch rehabilitations has been a dilemma to the patients as well as the clinicians. Immediate loading and provisionalisation of implants have been recorded as a successful treatment in various studies. 1-5

Evolved from works of Mondani and Hruska, Intra oral welding concept (Degidi et al),enables the clinician to fabricate a provisional prosthesis for full arch rehabilitation ,strong enough, to be functionally loaded the same day of surgery . A provisional prosthesis reinforced with metal bar splinted with immediately loaded abutments would provide rigidity and stress distribution over larger area. This in turn would reduce micro movements and promote faster healing.6-7

Degidi et al recorded immediate loading of threaded implants with a metal reinforced acrylic resin provisional restoration on the day of surgery in 40 consecutive patients.

The results of this study indicated that adequate rigid splinting of multiple immediately loaded implants has reduction of treatment time and provided the patients with immediate temporaries.8

Rehabilitation of maxilla is challenging as the clinician is forced to place implants in sites where bone is more prevalent. This is due to the fact maxillary bone has sinuses that undergoes pnuematization and that extraction of the teeth would further compromise the topography of the bone due to fractures of the cortical plate.So careful preoperative analysis is imperative to plan a treatment .Here we have described a case

of a 45 year old female patient who was rehabilitated immediately with welded prosthesis after the extraction of the failing dentition.

CASE REPORT:

Preoperative Stage:

A female patient aged 45 years, presented with failing FDP in the Maxillary and Mandibular ridges . Preoperative procedures such as facial profile analysis ,intra oral examination(Fig 1a,1b) and radiographic analysis were performed(Fig 2) .The failing FDP was discarded and patient was advised oral prophylaxis to reduce soft tissue inflammation .Diagnostic impressions were made ,occlusion and vertical dimensions were established . A provisional restoration was fabricated with high strength composite and hollowed out (pro shell) to house the metal framework .(Fig 3)

Surgical phase: Antimicrobial prophylaxis was obtained with the use of 500 mg of Amoxicillin thrice daily for 5 days, starting 1 day and 1 hour before surgery. 0.2% Chlorhexidine Gluconate mouth rinse was also prescribed one week and one hour prior surgery. Perioral disinfection of the patient was done with 5% w/v Povidone Iodine solution.

The surgery began with the administration of local anaesthesia (2% lignocaine hydrochloride).Extraction of the teeth was done preserving the buccal and palatal walls . A full thickness flap was elevated and implants were placed(Ankylos C/X Sizes 3.5/ 9.5 -3.5/14) 0.5-1 mm sub- crestally without bone augmentation as the jumping distance was less than 1mm .The implants were immediately loaded with multi unit abutments and titanium welding sleeves were placed (ANKYLOS) in the maxillary ridge(Fig 4a ,4b). However, it was decided that rehabilitation of the mandibular ridge would be done during the final rehabilitation of the maxilla.

Welding : The welding of the sleeves to the titanium wire was performed using the intra oral welding protocol.(Degidi et al). Protective eyewear was used for the entire process. A subtle click confirmed the completion of the weld. A 2.0-mm-diameter titanium (grade 2) bar was welded on to the temporary sleeves intraorally.(Fig 5a) Welding of 1.2 mm titanium wires to the framework was done extraorally for additional retention.(Fig 5b)

Prosthetic phase I :The adaptation of the pro shell was confirmed intraorally so that it could accomodate the metal framework and the relined material .The provisional restoration was trimmed ,polished and placed back into the mouth. The occlusion was adjusted intraorally keeping light contact in centric occlusion .Interferences when performing eccentric movements were eliminated. Immediate Post operative OPG was then taken.(Fig 6)

Post operative care: Postsurgical analgesic treatment was performed using 100 mg of aceclofenac twice daily for five days along with the antibiotics and mouth rinse. Oral hygiene instructions were provided. Patient was advised to be on soft diet for 6 weeks.

Prosthetic phase II :After 3 months, The implants along with the remaining teeth in the mandibular region was restored with metal ceramic crowns. The provisional restoration in the maxillary ridge that housed the temporay sleeves and the bar was replaced with a screw retained PFM substructure and cement retained crowns wrt 11,13,21 and 23 regions.(Fig 7a,7b)

Follow up: X-rays were taken at the time of surgery and after 3 months(Fig 8a) and 1 year post op (Fig 8b). Oral hygiene instructions were given and patient was recalled for oral prophylaxis every six months.

Discussion:

In the past ,the loading of implants was delayed in order to avoid any unfavourable micro movements that were thought to cause fibrous encapsulation and hinder osseointegration. However, Cameron et al reported that osseointegration can be achieved even with micro movements and suggested that a movement of 30µm or less has no adverse effect on integration.9

Splinting multiple implants distributes the stress over a larger area thereby reducing the mechanical strain and micromotion in the implants . In 2006, Degidi et al ,published a protocol for the immediate loading of multiple implants by welding a titanium bar to implant abutments directly in the oral cavity, so as to create a customized metal-reinforced provisional restoration.8 It is known that the peri-implant bone adjusts its architecture according to its capacity to withstand functional

loading, Thus the provisional restoration provides bone training to the ridges during the healing period.10

The provisional restorations used in the intra oral concept are all free of cement, which would reduce the risk of peri-implantitis .A study by Fanali et al concluded that even though there was higher inflammatory and reparative responses in the welded areas, the plaque accumulation was low and there was no visible fractures or radiographically detectable alterations of the welded frameworks.11

In this case, after the extraction of the failed dentition in the maxilla, we immediately rehabilitated the patient with composite provisional, reinforced with welded titanium framework.

A case done by Fogli et al showed that rehabilitation of the maxillary ridge after extraction ,with the welding concept, allowed improved healing and stabilization of the prostheses in the ridge that otherwise could not be rehabilitated immediately.12 Various studies showed same positive outcomes in the rehabilitation of the edentulous ridges on a long term basis.13-14

Unfortunately the patient returned with chipping of the provisionals three months later. Thus a screw retained prosthesis was planned. Although screw retained prosthesis provides better retrievebility and a lesser risk to peri-implantitits , ideal implant position is required to maintain aesthetics which is hard to achieve.15 In order to restore the angulated abutments, we delivered a screw retained PFM substructure with cement retained crowns in 13,11,21,23 regions.

It is possible on the same day of surgery to successfully rehabilitate the edentulous atrophic maxilla with a fixed definitive restoration supported by an intraorally welded titanium framework attached to axial and tilted implants .16 Studies also have recorded few drawbacks that are associated with the prosthesis such as superficial chipping of the resin and fractures of the cantilevered areas due to decreased tensile strength.The need for relining the intaglio surface of the prosthesis has also been recorded in a few studies.17 Nevertheless, Immediate rehabilitation, time saving procedures, higher psychological comfort and high social acceptance make intra oral welding a promising alternative to a delayed loading protocols.

Conclusion:

The immediate rehabilitation of the edentulous patient using the intraoral welding approach is a promising solution for those patients who deter from implant treatment due to delayed rehabilitation or who do not accept conventional complete dentures.However, Further studies on the long term success rates of intra oral welding in xtraction cases would be of great interest and also substantiate this concept.

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Acknowledgement: nil

Figures:

Fig 1a: Pre operative view-maxilla

Fig 1b: Pre operative view-mandible

Fig 3: Proshell for provisonalisation

Fig 4a: Immediate Loading of the implants

with multiunit abutment.

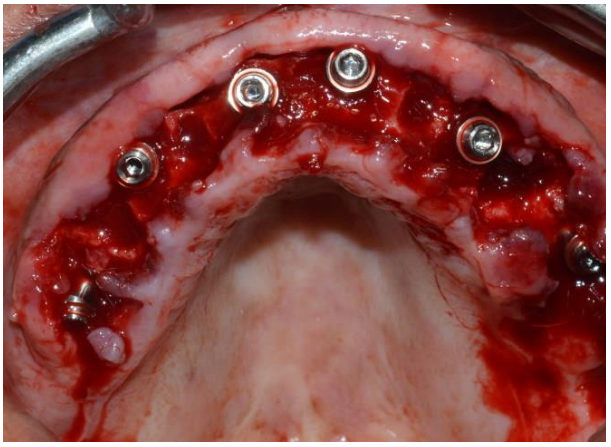


Fig 4b: Fixation of the temporary titanium sleeve

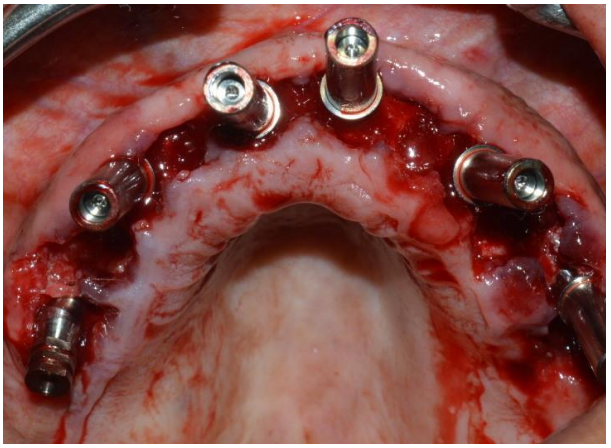


Fig 5a: Intra oral welding of the titanium wire with the sleeves.

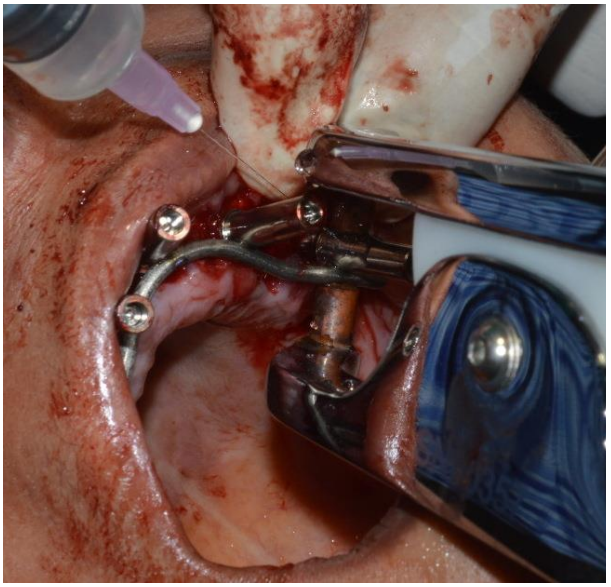


Fig 5b: Extra oral welding of the retention wires.

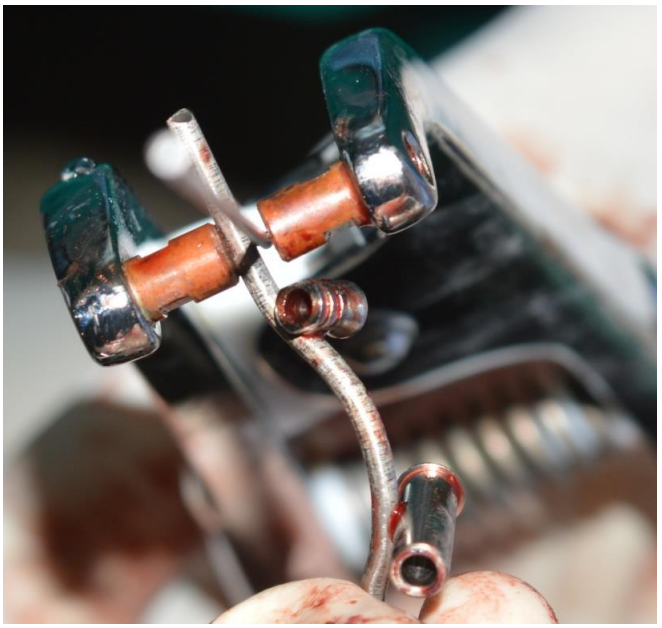


Fig 6: Immediate post operative OPG

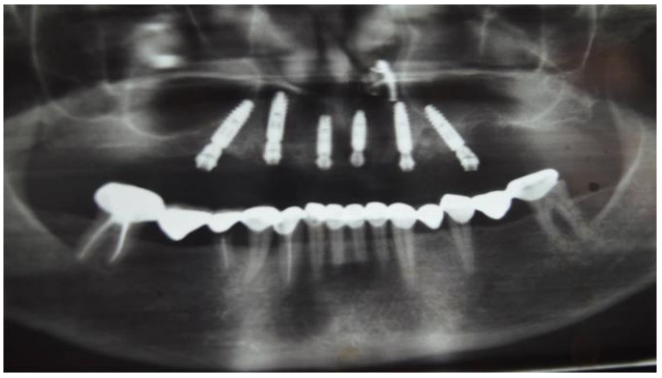


Fig 7a: Final Prosthesis .

Fig 7b: Smile view of the patient.

Fig 8a: Three month post operative OPG.

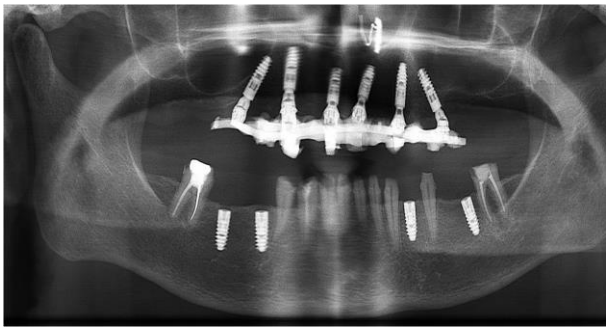
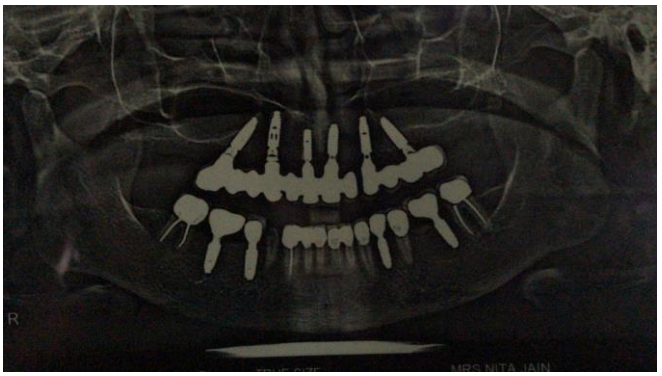


Fig 8b: One year post operative OPG.



BULBOUS RIDGE AND ITS RELEVANCE IN DENTURE ESTHETICS- CASE REPORT

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Abstract
When the patient's intraoral circumstances are not optimal, complete denture fabrication presents a hurdle. In patients with excessive bulky ridges conventional flange extention causes compromised facial esthetics and often flanges of denture to be extended upto height of contour so as to be able to insert and remove but it reduces peripheral seal as well as retention. The ultimate aesthetic result is greatly threatened by labial ridge undercut, which is more frequently observed in maxilla than in mandibular edentulous persons. A labial flange is required for complete dentures in order to complete the denture contours, support the lips, and establish a border seal. A better prognosis might be achieved by avoiding the typical construction of the labial flange, which could limit function, degrade aesthetics, and compromise the facial support and muscles of facial expression. For the fabrication of a successful complete denture, an unusual method is required. The current study addresses a straightforward, affordable, conservative, and non-surgical method of fabricating a denture for a patient with a large maxillary ridge without sacrificing face retention or aesthetics.

Key words: Denture esthetics, apron clasp, bulbous maxilla, flangeless denture

INTRODUCTION

Shape of denture flange plays a major role in determining the facial esthetics. Complete denture fabrication becomes difficult when the optimal biological consideration of both soft and hard tissues is not met.1 A labially proclined maxilla with an accompanying undercut is the most common issue affecting the aesthetics and construction of a complete denture. The maxilla is more likely than the mandible to

have an exceptionally pronounced ridge with a labial undercut due to the differential resorption pattern of the remnant alveolar ridge.[2,3]

Denture esthetics is often determined not only by size, shape, colour, form of teeth. It is also determined by thickness, contour extensions and colour of the denture base. In severly resorbed ridges the lip may appear collapsed and in bulky ridges lip may appear protrude hence suitable considerations in designing labial flange is to be considered. Pre-prosthetic procedures are taken into consideration in these circumstances in order to alter the shape of the bone and create a prosthesis environment that would restore function, be stable and retentive, preserve related structures, and satisfy aesthetics.[4]

When the buccally displaced maxillary anterior teeth are extracted, the remaining ridge can support the upper lip. Two-thirds of the upper lip will be significantly deformed from the base of the nose to the upper lip edge, notably the wet-dry line, if a denture base extension is inserted in the pre-maxilla.[5] A modified flange or flangeless denture should be taken into consideration in this case. Lack of room makes it difficult to arrange prosthetic denture teeth, which ultimately leads to an obviously unsightly swelling lip appearance. In these situations, pre-prosthetic surgery may be a corrective measure; nonetheless, patient permission, mental state, and overall health are important factors for surgical execution. These variables may not always allow for the possibility of surgery in elderly people. Therefore, under such clinical circumstances, a prosthodontist can alter the design of a traditional denture and restore it with the aid of flange adjustments, keeping in mind all the fundamental specifications that the prosthesis must meet in order to produce the best possible outcome.[5,6,7]

This article describes successful rehabilitation of non-surgical treatment modality for proclined pre-maxilla in completely edentulous patient to achieve comprehensive rehabilitation with great regard to esthetics without compromising on retentive ability.

CASE REPORT

A 62 years old male patient reported with chief complaint of missing teeth in upper and lower arches and wants to get it replaced, on intra oral examination patient with completely edentulous and bulged maxillary arch (Fig.1)

Fig.1 Bulbous maxilla intraorally

and edentulous mandibular arch with favorable ridges. On extra oral examination noticed bulky pre-maxillary region, medical history revealed patient to be diabetic since 5years for which he was on hypoglycemic agents, so treatment was planned keeping patient requirements and medical history in mind.

TREATMENT PLAN

Since patient was diabetic and reluctant for surgical treatment of maxillary arch also keeping age factor in mind option for pre prosthetic surgical treatment to reduce maxillary ridge alveoloplasty is terminated and planned for the prosthesis with flange design modification to provide which is pleasing esthetics. Impression compound was used to make the initial impressions of the maxillary and mandibular arches. Low fusing impression compound was used to mould the border, and light body polyvinylsiloxane was used to make the final impression. Dental stone was then poured to create the final cast, and jaw relations and tooth arrangement were carried out. (Fig.2)

Fig. 2 Bulbous maxilla lateral view

During wax up denture try in marked bulky elevation of the upper lip was noticed with complete labial flange extended maxillary denture. Substantial bulky lip noticed. (Fig.3)

Fig 3 Bulging upper lip with full contour denture.

hence decision was made to reduce labial flange by marking upto height of contour in the maxillary arch from canine- to- canine region satisfactory lip contour was noticed which was accepted by the patient appreciable. (Fig.4)

Fig. 4 flangeless denture

Decrease in retention is noticed in flangeless denture, so to utilize the positive undercut, retentive ability of denture and to maintain esthetic 18 guage wrought wire apron clasp been modified and adapted in the sulcus (Fig.5)

Fig.5 Labial wrought wire with apron clasp

attached to the denture base. Second try in was carried out to confirm lip contour and retentive ability of the denture. Utilizing conventional compression moulding acrylization processed dentures were obtained trimming and polishing and final denture insertion done. Happy with appearance and retentive ability was noticed by patient and taught to insert and withdraw maxillary denture with altered labial tilt. Post denture insertion (Fig.6,7)

Fig.6 Post insertion frontal view

Fig.7 Post insertion lateral view- satisfactory lip contour

instructions were given periodic follow-up appointments were scheduled.

DISCUSSION

When the hard and soft tissue requirements of the basal seat are not met. A diagnosis is essential to the best possible treatment strategy. An outstanding prosthesis is made possible by a well-thought-out treatment approach. Most important criteria for better prognosis is to be upto patients desires by offering significance to their request. The anatomy of residual ridges differs in each case hard tissue undercuts when judiciously used provide positive effect on retention of prosthesis, which are most commonly seen

in bucco-lingually or labially as mechanical means of retention in completely edentulous patients.[8]

The aesthetics of the face are frequently impaired by excessively large ridges. The labial fullness is further compromised by the labial flange's thickness, which results in an unsightly maxillary denture. Just as important as prosthodontic restoration of lost teeth is pleasing facial aesthetics.[2,3] In order to avoid this problem been various management technique been tried to eliminate the undercut.. Surgical correction of maxilla with alveoloplasty can be done which was ruled out due to systemic condition of patient. Modifications of labial flanges in maxillary denture can be planned like denture without labial flange which may provide better esthetics but will compromising on retention of denture. To enhance esthetic in such cases any modification of dentures would involve reduction of labial fullness by restraining denture base over bulged maxilla without compromising on denture retention.

Thinning of the denture flange will be inherent disadvantage of perforation and fracture during period of service. Flangeless denture or gum fitting denture or ridge grip esthetic denture in which entire flange is eliminated however leads to decrease in surface area of coverage and compromising in retentive ability.[9] The denture with acrylic spikes or wings are used in labial undercut the main disadvantage of which may impringe the soft tissue and may lead to fracture.[10,11] Stainless steel wire extension with acrylic tags have been reported for use to reduce the fracture of acrylic spikes and to incorporate flexibility and adaptability to labial undercut, however in this cantilever flexible stainless steel wire are prone for positional distortion which may cause soft tissue trauma or recurrent maintenance visit and also flexible terminal acrylic tags entrap food and debris.[4]

In the present case anterior portion from maxillary right canine to left canine portion was removed to avoid over contouring and to improve esthetics a well adapted continuous labial arm apron clasp design with stainless steel clasp was given to obtain maximum undercut engaging gingivally without compromising labial fullness and providing best possible retention and strength to the denture.

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SYNCONE- A NEW DIMENSION IN IMPLANT OVERDENTURE: A CASE REPORT

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Abstract:
Ankylos SynCone concept has become an emerging trend among implantologists inorder to provide rehabilitation of edentulous ridges. With the luxury of friction fit telescoping crowns and the immediate loading concept, SynCone concept thrives to be the next big thing in the implant world.here is a case report on mandibular edentulous rehabilitation with SynCone concept.The telescopic crown technique has benefits such as excellent three dimensional immobilization of the restoration , flexibility of design and optimum access for oral hygiene with cost effective procedures.With these features ,we can foresee a new dimension in rehabilitation of missing natural teeth.
Keywords: SynCone, degunorms, immediate loading, telescopic copings.

INTRODUCTION:

Implants have now become the forefront of modern day dentistry when it comes to rehabilitation of the missing tooth or teeth. Various implant concepts provided by various implant systems gives us a wide range of options for treatment planning.

One such newly trending concept is the SynCone concept used for rehabilitating edentulous ridges. This concept attributes to the placement of implants and immediately loading the prosthesis.

The benefit of SynCone concept is its versatility. They provide fast and cost efficient restorations of edentulous ridges. Minimally invasive treatment makes it possible to load the prosthesis under local anaesthesia on the same day. For delayed restorations it serves as a prefabricated retaining element for the maxillary and mandibular ridge. New abutment angulations provide improved parallelization.[1]

Here is a case report on rehabilitation of the edentulous mandible with implant placements interforaminally using the SynCone concept.

Case report:

A 45 year old female patient(fig 1) reported at the out patient department of Prosthodontics and Implantology ,with periodontally damaged lower teeth(fig 2a) and maxillary ridge was rehabilitated with fixed restorations.(Fig 2b)

Patients chief complaint was poor esthetics and difficulty in chewing due to missing lower back teeth. Patient was in a good health condition. Blood picture showed normal values for the surgical treatment.Intra oral clinical

examination revealed grade II mobility with respect to all the teeth of the mandibular arch. The trabecular pattern was identified using intra oral periapical radiograph. Bone height was analysed using the orthopantomograph (fig 3). Implant selection was done accordingly.

Material and methods:

Treatment plan:

- Extraction of teeth with respect to 43,42,41,31,32 and immediate placement of implants.
- Placement of 4 implants in the mandibular region (44,42,32,34)with-Ankylos SynCone Concept.

The treatment plan was explained to the patient and the consent was taken.

Anti microbial prophylaxis was obtained with the use of Amoxicillin (thrice daily (500mg) for 5 days starting with 1g amoxicillin one hour before surgery).[2]

The Surgical phase:

The patient was prepared and the surgical instruments were sterilized.(fig 4) Atraumatic extraction was carried out with respect to mandibular teeth (43,42,41,31,32) under local anaesthesia.(fig 5)

Implant osteotomies were carried out with recommended sequence of drills. Saline irrigation reduced the heat generated caused due to friction during the preparation of the site. Linderman drill(2mm) was used to perform the osteotomy (Fig 6a). Trispade drill(3.5mm) was used to prepare the osteotomy site for the implant placement(fig 6b) . Paralleling pins were placed in each osteotomy site to indicate their parallelism.(fig 7)Bone reamer was used to modify the implant osteotomy site for the assigned implant size. Ankylos implants (size A9.5,A11,A11,A9.5 with respect to(34,32,42,44) were placed avoiding the mental foramen. (fig 8)

Prefabricated 4^{o} SynCone abutments were then placed.(fig 9) The correct positions of the implant and the SynCone abutments were then checked with four paralleling pins. Vicryl 3.0 sutures were then placed.(fig 10)

The prosthetic phase:

The abutments were then isolated with rubberdam.(fig 11) .Petroleum jelly was applied to the mandibular ridge inorder to protect the mucosa.

SynCone gold degunorms were then inserted (fig 12)

A window was prepared in the mandibular denture(fig 13)that involved the areas with the degunorms which was later picked up by self cure acrylic resin making sure the acrylic avoids contact with the mucosa. (fig14) The denture was then trimmed of the excess material and polished. The fit in of the finished implant supported prosthesis was done immediately.(fig 15)

The post operative radiograph confirmed ideal placement of the implants.(fig 16)

Patient was given instructions on maintenance of oral hygiene and recalled after one week, one month and three months.(fig 17)

Discussion:

SynCone Concept has become an emerging trend in implant dentistry. Mostly because of its unique abutment retainer system. In this system , pre machined titanium abutment is used which is available in a 4 ,5˚or a 6˚ taper. The abutments are also fabricated in a 15 and 22.5˚ and 30˚ angulations when correction of angulations is needed especially in the maxillary arch. The SynCone abutments are available with sulcus heights of 1.5mm , 3 mm, 4.5mm to accommodate variability in sulcus heights and also to sub crestally place implants .[1] Since the implants have Morse taper connection the SynCone abutment retains a full degree of rotational movement, so multiple

units can be easily placed in parallel using different abutment angulations. Marco et al in his studies showed a 98.9 % success rate of implant supported overdenture using SynCone concept.[3]

The long term retentive characteristics of the abutments was assessed by Zhang et al .Authors concluded that inspite of the removal and cleaning of the denture, a constant retentive force was expected for 5yrs. [4] Huan and jhu reported no adverse effects on 12 -24 month follow up of immediately replaced mandibular overdenture .[5]

The precision fit provided by the gold copings and the SynCone abutments in the denture , prevents excessive horizontal forces on the implant which may alter the course of an otherwise uneventful osseointegration. This treatment concept can be applied in significantly non parallel divergent implant placement due to 4 and 6 degree SynCone abutment taper and the use of angled abutments

The Ankylos Syncone provides an immediately functional overdenture , chair side, while the patient is still anesthetized. This is one of the most important characteristics of using Syncone abutments, that the patient can leave the clinic with a fully functional and esthetically pleasing prosthesis .

The Ankylos Syncone Concept is gaining popularity because of the possibility of immediately loading and a new system of telescopic crown technique. The friction fit of the degunorms and the abutments gives it a high end retention. The telescopic design of the coping and its ability to be attached to the SynCone abutment without the use of any cement or a screw gives it a cutting edge among other treatments. These two features enable the prosthodontist to fabricate a restoration that is extremely stable and performs as well as a fixed restoration yet at the same time can be removed by the patient for daily maintenance.

The co operation of patient is of high importance for the success of this treatment, patient has to maintain good oral hygiene and cleanliness of the denture. Patient might have to revisit the clinic for reline appointments of the denture.[2] Although there are some limitations ,the immediate loading concept and the telescopic crown technique has benefits such as excellent three dimensional immobilization of the restoration , flexibility of design and optimum access for oral hygiene with cost effective procedures. With these features ,we can foresee a new dimension in rehabilitation of missing natural teeth.

Conclusion :

The rapid technological advances in the field of dentistry have resulted in the wide use of implants to support and retain fixed and removable prosthesis .One of the options in implant –supported removable prosthesis within the Ankylos Dental Implant system is the Syncone overdenture concept.The excellent immediate functional and esthetic result of SynCone concept marks a turning point in the future of implant dentisty.

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Fig 1 : Pre operative photograph

Fig 2a: fig 2b

Fig 2a: pre operative view of the mandibular teeth

Fig 2b: preoperative view of the maxillary fixed restorations.

PFig 3 :Pre operative OPG

Fig 4: Sterilized armamentarium.

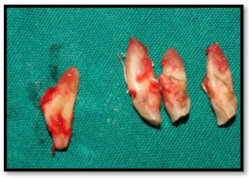

Fig 5a Fig 5b

Fig 5a: extraction site with respect to 43,42,41,31 32

Fig 5b: extracted teeth

fig 6a

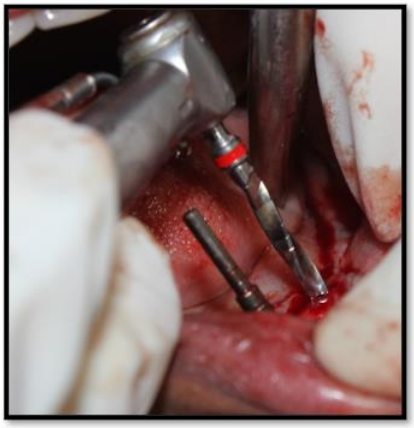

fig 6b

Fig 6a : osteotomy done with linderman drill(2mm)

Fig 6b: osteotomy site prepared with trispade drill(3.5mm)

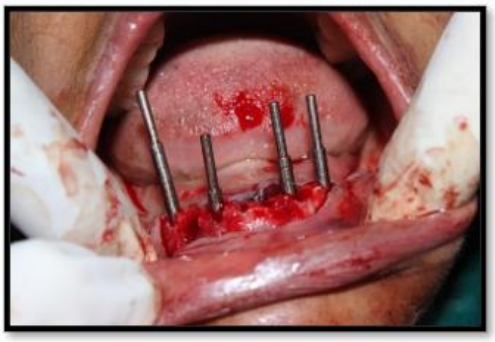

Fig 7:placement of paralleling pins.

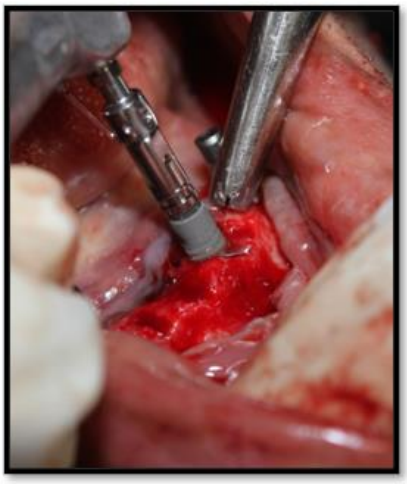

Fig 8 :implants placed with saline irrigation

Fig 8 :implants placed with saline irrigation

Fig 9:syncone abutments placed

Fig 10 :3.0 vicryl sutures placed

Fig 11: rubber dam applied .

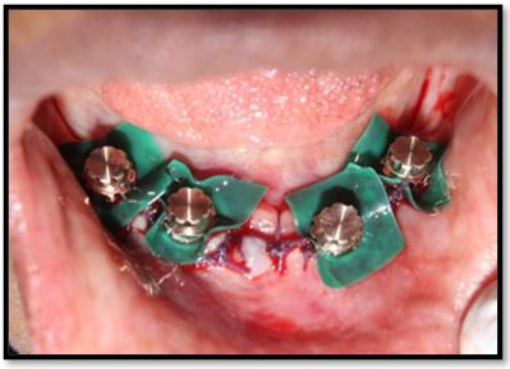

Fig 12: gold degunomes inserted.

Fig 13 : window preparation done in the mandibular denture for the pick up impression.

Fig 14:pick up impression made with self cure acrylic

fig 15 intaglio surface of the finished and polished overdenture.

Fig 16: post operative radiograph depicting the fit of the abutments and degunomes

Fig 17: post operative photograph

BONE AUGMENTATION USING CGF-A CASE REPORT WITH TWO YEAR FOLLOW UP

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Abstract:
Successful implant treatment requires: Primary stability at placement Integration in a prosthodontically driven position Careful management of the living bone. Bone volume may be inadequate to completely embed the implant Incompletely covered implants may result in complication soft tissue recession inflammation and infection and eventual loss of implant .Bone augmentation with barrier membrane technique has proven to successful to regenerate the bone volume.Concentrated growth factors have shown promising results when used with combination of grafting materials.This case report presents a case wherein the site of implant placement has been incorporated with a mixture of cgf and allograft. A two year follow up shows good tissue thickness and volume.

Keywords: Cgf,allograft,implants

Introduction

Bone augmentation with barrier membrane technique ,the concept of GBR was first described in 1959 when cell occlusive membranes were employed for spinal fusions.[1] A variety of non resorbable and resorbable bone grafting materials have been used in bone augmentation with GBR concept Oral Implantology. From a manufacturing aspect what we should look for is material biocompatibility ,stability over the required duration of barrier function, space maintenance ,exclusion of undesired cell ingrowth and ease of use[2,3,4,5]

The size of the defect also influences the bone healing capacity .In large defects the bone formation is limited to the marginal stable zone with a central zone of disorganized loose connective tissue,thus combined use of bone grafts or bone replacements substitute with cell occlusive barrier membranes are advocated in bone regeneration of larger defects.One such example is eptfe membranes which is considered a standard for bone augmentation. However soft tissue dehiscence is a common complication.[6,7]

Thus bio resorbable membranes were developed. Although these membranes also elicit soft tissue inflammation and soft tissue dehiscence, the communication with the oral cavity accelerates resorption rate thus reduces the contamination of the regenerated bone matrix.[8,9]

Variety and contemporary surgical procedures and dental materials available for reconstruction of body defects and concentrated growth factors is one of the risk-free procedures. Growth Factors are mediators which regulate key processes like tissue regeneration, including cell proliferation and differentiation, synthesis of extracellular matrix, chemotaxis and angiogenesis. Thrombocytes play a major role in repairing of mineralized and soft tissues. The latest approach to Guided Bone Regeneration and Augmentation of the lost bony structures of alveolar ridge is application of the fibrin rich block with concentrated growth factor.[10]

The following case report depicts a case with

anterior missing teeth and was rehabilitated with hard tissue augmentation using CGF mixed allograft and immediate implant placement.

Case report:

A young patient presented with missing upper front teeth to the department of Oral Implantology. The history revealed that the cause of loss of teeth was traumatic injury. After Oral prophylaxis and endodontic scaling, patient was adviced oral implants with lateral augmentation.(figure 1,2)

The patient was pharmacologically managed with prophylactic and therapeutic dose of antibiotics.(amoxicillin 500mg).

On the day of surgery,collection of venous blood (saccos protocol) was done from superficial vein with a 21-gauge needle with all the blood counts in normal range. 9 mL of blood was drawn into each sterile Vacutainer blood collection tube (Greiner Bio-One, GmbH, Kremsmunster, Austria) silicon coated as a serum clot activator. These tubes were then immediately centrifuged in a special machine (Medifuge MF200, Silfradent srl, Forlì, Italy) using a program with the following characteristics: 30 seconds acceleration, 2 minutes at 2,700 rpm, 4 minutes at 2,400 rpm, 4 minutes 2,700 rpm, 3 minutes at 3,000 rpm and 36 seconds deceleration and stopped.

At the end of the process, three blood fractions were identified(figure 3): (1) the upper layer, representing the liquid phase of plasma named platelet poor plasma (PPP), (2) the lower layer, at the bottom of the tube, consisting in free red blood cells (RBC); (3) the middle layer, representing the solid CGF [10]

The placement of implant was conducted in a sterile operating theatre.

Disinfection of the facial skin was done using Povidone – Iodine Solution IP (Betadine) paint. Patient was given an oral mouth rinse,Induction of local anaesthesia was carried out using Lignospan special (2% lidocaine with 1:80,000 Adrenaline) .

After a full thickness flap elevation (Figure 4). A 2 mm pilot drill was used to mark the initial osteotomy sites. Paralleling pin was used to check the parallelism and depth of the osteotomy site. A 3.2mm twist drill was used next and the osteotomy widened . After the preparation of the osteotomy site, a 3.5 x 11 mm implant was placed with the help of physio-dispenser .All the implants were placed at a minimum insertion torque of 25 Ncm assessed by the physio-dispensor(Figure 5).

CGF was removed from test tube, using sterile tweezers and was mixed with the allograft (figure 6a,6b) and then placed into the site and closure was attained using vicryl sutures.

Patient was requested to revisit for suture removal and follow up check ups. Prosthetic phase began with implant level impression procedures. During the waiting period of 6 months (figure 7)sulcus former were placed to attain the gingival silhouette .At the time of fit in,the sulcus formers were removed and impression was made(figure 8) .Customised abutments were placed and torqued at 25 Ncm which is the recommended torque for implant abutment connection for Ankylos ® system A metal-ceramic bridge was fabricated which was autoclaved before cementing and was cemented using zinc-phosphate cement.(Figure 9,10a,10b) Post operative radiographs(Two year follow up) revealed well seated abutment and a stable crestal bone level.(figure 11)

Discussion

When comparing the various available graft materials used with or without a membrane, Giorgio Pagni et al. In his study concluded that biomaterials such as bio-OSS and hydroxyapatite when placed in submerged situations resulted in better healing. Thus, synthetic bone graft materials are being preferred by more clinicians.

CGF, first introduced by Sacco, has recently become popular. CGF is produced by the centrifugation of venous blood as same as PRF. However, the technique is different on centrifugation speed. Unlike PRF, CGF use variable rpm from 2400- 2700 rpm to separate cells in the venous blood, therefore, results in fibrin rich blocks that are much larger, denser and richer in GF than common PRF. This shows better regenerative capacity and higher versatility when using the fibrin rich block.

CGF also shows higher tensile strength, more growth factors, higher viscosity and higher adhesive strength than PRF. CGF can act as barrier membrane to accelerate soft tissue healing or be mixed with bone graft to accelerate new bone formation. [10,11]

In the above mentioned patient it was decided to mix the allograft with CGF and place the graft and then further cover it up with a slow resorbable barrier membrane. Geistlich Bio-Gide® integrates with surrounding tissues to

protect the initial coagulum. The bilayer structure helps in preventing ingrowth of soft tissue into the augmented site, and optimally degrades to allow for the cascade of biologic events leading to regeneration.[12,13]

The post operative radiographs revealed a stable crestal bone level.Patients estheti demands were met,inspite of the excessive axiocoronal length of the bridge which was compensated by the patients thick lips and low smile line,however,it is adviced to strictly follow a prostheticaly driven implant placement irresepctive of the bone architecture.

Conclusion:

This case report presented with a dental trauma that caused an edentulos anterior area. Extensive care must be taken to rehabilitate these sites especially when we suspect fractures and poor density bone. CGF provides a safe ,cost effective alternative to autografts during grafting procedures. CGF can used in other implant case scenarios that include sinus augmentation and ridge preservation. More studies about the effeciency of CGF can validate its use in the future.

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List of figures:

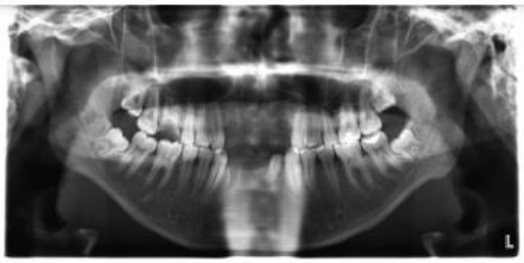

Figure 1:PRE OPERATIVE OPG

figure 2:PREOPERATIVE INTEROCCLUSAL VIEW

figure 3: CGF collection from patient venous blood

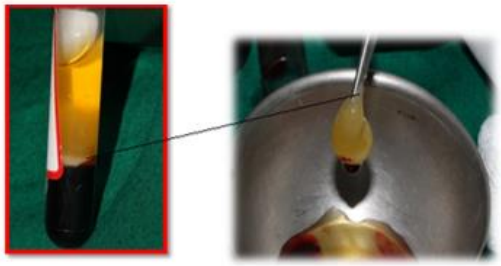

Figure 4:flap elevation

Figure 5: implant placement

Figure 6a :graft placement

Figure 6b: membrane placement

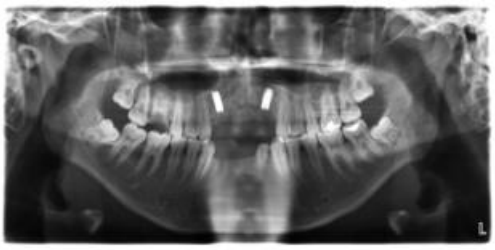

Figure 7: 6 month post operative radiographic view

Figure 8: impression coping in place

Figure 9: prosthesis

Figure 10a: fit in of the prosthesis

Figure 10b: smile view post cementation

Figure 11: two year follow up

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