



Combination Syndrome Preventable – A Proactive Approach

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ABSTRACT

Residual ridge resorption after extraction of all the teeth is a progressive and inevitable entity. By implementation of certain preventive measures this condition can be slowed down if cannot be eliminated completely. Among these are the fabrications of tooth or implant supported overdentures. It is well documented fact that a maxillary complete denture opposing only mandibular anterior teeth and a distal extension partial denture can lead to certain cyclic and sequential deleterious changes in relation to intraoral hard and soft tissues termed as combination syndrome. Same set of clinical features are seen in two implant supported mandibular overdenture opposing tissue supported maxillary complete dentures. The present case report presents a simple and cost effective measure to prevent this condition.

KEYWORDS : Combination syndrome, Overdentures, Residual ridge resorption**INTRODUCTION**

Subsequent to extraction of teeth, remodelling process of the alveolar bone occurs, with progressive bone resorption and change in contour. The process is inevitable and has been addressed as "a major oral disease entity"¹. As rightly put forward by Muller M De Van², preservation of remaining oral soft and hard tissues is much more important than the meticulous replacement of what is lost. Some possible solutions to prevent or reduce bone loss of residual ridges if not completely but to a major extent provided proper treatment plan is made in advance before carrying out any irreversible procedures. Some of these preventive measures include preservation of a few teeth for fabrication of tooth- supported overdentures or provide an implant-supported prosthesis, optimize patient health and nutrition. The simplest & most cost-effective of these measures is the preservation of some teeth and utilize them as abutments for tooth supported overdentures. There are many advantages to this treatment modality compared to conventional complete dentures such as preservation of alveolar bone, proprioception, increased stability, retention, improved masticatory ability and reduced tooth mobility of remaining teeth due to reduction in crown: root ratio. Also the dentures can be used as training dentures in case there is subsequent loss of the remaining teeth abutments. However, when the removal of all teeth is inevitable one can plan for implant supported overdentures.

The major concern of the completely edentulous patients is the stability and retention of the prosthesis which is more difficult to achieve with conventional mandibular complete dentures as compared to maxillary dentures. Hence the most common treatment scenario observed for these patients nowadays is the two implant supported mandibular denture opposing a conventional maxillary complete denture³.

"Combination Syndrome" term coined by Kelly⁴ described the condition where loss of bone of the anterior edentulous maxilla occurs when opposed by natural mandibular anterior teeth. Several authors have reported the response of supporting soft tissues for implant supported overdentures and opposing prostheses⁵ and concluded that when a mandibular implant overdentures oppose maxillary complete dentures, a similar set of biomechanical relationship may exist similar to a maxillary complete denture is opposed by natural mandibular anterior teeth along with a distal extension partial denture. This situation can lead to the transference of significant occlusal forces into the anterior maxilla with subsequent maxillary alveolar bone resorption and soft tissue inflammation. Also with mandibular implant overdenture treatment, reduced posterior prosthesis support caused by alveolar bone resorption could set the stage for pathological complications similar to combination syndrome⁶. The present case report has put

forwarded a treatment modality which would prevent development of combination syndrome in a nearly completely edentulous patient.

CASE REPORT

A 46 year old female patient presented with the chief complaint of difficulty in chewing & speech due to progressive loss of her teeth over a period of 7-8 years due to loosening of teeth. The patient desired restoration of her teeth within her budgetary limits, with a preference for a non-removable prosthesis.

On intraoral examination teeth number 13,17,23,27,31,32,41 and 42 were present. All teeth were supraerupted with simultaneous overgrowth of associated alveolar bone. Remaining regions of both maxillary and mandibular ridges were highly resorbed especially the mandibular ridge. All the remaining maxillary teeth were having prominent root eminences. Interocclusal space was highly obliterated by supraerupted teeth and was a limiting factor for any kind of Esthetic and functional rehabilitating prosthesis (Fig1a). To assess the remaining amount of bone in both the arches an ortho-pantomogram was taken and it was observed that in relation to 13, 17, 23 and 27 sufficient amount of bone support was present whereas 31, 32, 41 and 42 had minimal support (Fig.1b). Diagnostic impressions were made and casts were mounted on a semi-adjustable articulator.

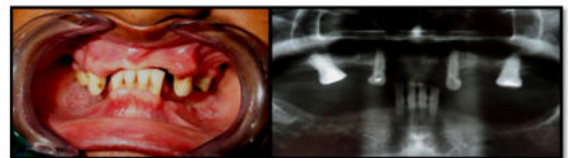


Fig 1a

Fig 1b

After complete assessment of the case and obtaining patient consent, the treatment plan was formulated to extract tooth no 31,32,41 and 42, fabrication of two implant supported mandibular overdenture and tooth supported maxillary overdenture utilizing 13,17,23 & 27 as abutments

Treatment was carried out in three phases. In the phase one, endodontic treatment of 13, 17, 23 & 27 was done. In phase two, tooth no 31, 32, 41 and 42 were extracted and two endosseous implants (MIS 13mm x 3.75 mm) were placed in 33 and 43 regions (Fig 2a). After healing of the extraction sites and ascertaining the osseointegration of implants, third or prosthodontic phase was started. The overdenture abutments for maxillary denture were prepared in a dome shape to receive a metal coping (Fig 2b). Primary impressions followed



Fig 2a



Fig 2b

by secondary impressions were made and master casts retrieved. Following this, facebow records and jaw relation records were mounted on semi-adjustable articulator. After teeth selection and arrangement, denture try-in was carried out and patient approval was obtained. Dentures were processed in a conventional manner using heat cured polymethyl methacrylate resin. Selective grinding was performed after remounting the cured dentures to remove any occlusal pre-maturities. Dentures were finished and polished. Clinically, maxillary denture flanges were relieved in the regions of prominent root eminences to avoid traumatic insertion of denture.

Using window technique, metal housings with 'O'-ring attachments were picked up into the mandibular denture (Fig 3a). Dentures were finished, polished and inserted (Fig 3b).



Fig 3a



Fig 3b

Subsequently patient was followed after 24 hours, 3 months, 6 months and 1 year. During these follow up visits it was observed that underlying soft tissues were completely healthy, there was no significant bone loss observed on OPG in relation to overdenture abutments and two implants (Fig.4). The patient was completely satisfied with the esthetics, stability and retention of the prosthesis and was able to chew efficiently.

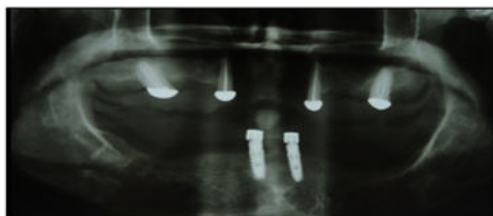


Fig 4

DISCUSSION

Making the right assessment for the patient is crucial in denture provision. The treatment plan should be directed towards preservation of remaining soft and hard tissues. A 6 years long randomized control trial had shown that the width of maxillary residual ridge decreases with time due to loss of teeth. Hence, it is important to ensure that whenever an implant-supported mandibular overdenture is planned for the edentulous patient, some form of stabilization of the maxillary arch should also be considered⁷. Every effort should be made to retain as many natural teeth as possible so that they can be utilized for fabrication of tooth-supported overdentures.

In the present case report maxillary arch is rehabilitated with a tooth-supported overdenture opposing a mandibular implant supported overdenture, after retaining four adequately spaced teeth and utilizing them as abutments. The treatment modality is the one of the simplest and economical one while at the same time provides the patient with almost all the benefits of an implant supported overdenture.

CONCLUSION

Prevention is better than cure. The same applies to the cases of

edentulous or nearly edentulous patients. The ultimate goal of every treatment plan should be directed towards this motto. Whenever possible, natural teeth of the patient should be retained to eliminate future problems of residual bone resorption and its further consequences.

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