Case study

A Full Mouth Rehabilitation With Maxillary Immediate Denture & Mandibular Tooth Supported Magnet Retained Over-denture :- A Case Report

Abstract

The stability and retention of mandibular complete dentures have been a continuing problem. So, increment occur in the provision of implant-supported prosthesis in patients who are not able to tolerate conventional dentures. In this case report presents a simple and efficient method of fabrication of mandibular over denture retained by magnets in a patient in which mandibular residual ridge is severely resorbed with few remaining teeth and maxillary immediate denture. Mandibular over denture retained by magnets assembly consist of magnet and coping with keeper on remaining tooth structure since magnetic attachments can provide support, stability and retention.

KEYWORDS:- Tooth supported overdenture, Magnetic attachment, Surgical stent, Immediate denture.

INTRODUCTION

Patients with limited previous denture-wearing experience may not tolerate conventional partial or complete dentures for functional or psychosocial reasons.[1]

The ultimate objective of prosthodontic service is to make the patient as nearly normal function as possible. Basically overdenture concept is for preservation of residual soft and hard tissues. Dental magnetic attachment have been utilized in prosthodontics to improve the retention of overdenture.

Use of attachments and adherence to basic principles of complete denture design can improve both retention and stability of overdentures.[2] Early magnets were composed of cobalt-platinum or alloys based on aluminium, nickel and cobalt (Alnico).These have been superseded by rare earth materials: samarium cobalt (Sm-Co) and neodymium iron boron (Nd-Fe-B).[3] It can be manufactured much smaller and provides a greater retentive force than earlier magnets.[4] Conventional overdenture placement involves the magnetic assembly which is embedded in the denture base and inserting its corresponding keeper into the abutment root. The magnetic assembly holds the keeper with a retentive force.[5]

This clinical tip describes fabrication of mandibular overdenture which is retained by magnets to highlights its benefits and maxillary conventional immediate denture to rehabilitate the patient.

CLINICAL REPORT

A 43 years old non-smoker, female patient presented at out patient department, department of prosthodontics I.T.S Dental College & Hospital with the chief complaint of missing teeth in upper back region and multiple missing teeth in lower arch since 6 years. On intraoral examination (fig 1) it was found that only maxillary centrals and lateral was present with poor periodontal support and mandibular 33,34,35,44,45 was present. Patient was apparently healthy with no medical history.. Patient was made aware of the clinical condition and he was willing to preserve the remaining teeth as long as possible. Patient was explained about different treatment options As patient was willing for maxillary immediate denture and expecting better retention for mandibular arch so attachment retained overdenture was planned. Diagnostic impression was made and model was poured in dental stone. On maxillary model mock surgery was done to

prepare the radiographic stent. jaw relation was recorded to evaluate the prosthetic space. Intraorally 33,35,43 abutment was prepared for coping and 34 and 44 was prepared to receive magnet attachment. Try in was done (fig 2) to check the aesthetics and phonetics of the patient, denture was processed in heat cure acrylic resin. On the day of insertion 11,12,21,22 was extracted (fig 3)(fig 4) and bony undercut was removed with the help of radiographic stent (fig 5). At the time of insertion maxillary denture was relined by soft liner to avoid tissue impingement. In mandibular arch post space was prepared on abutment 34, 44 to receive magnet attachment and luted with glass ionomer cement (fig 6). Attachment incorporation was done by direct technique (fig 7) . All magnets were kept on the top of keeper so as to coincide with both central axes, and autopolymerizing cure resin (DPI‑RR; Dental Product of India, Wallace Street, Mumbai, India) was filled into the space left for magnetic assembly in the impression surface of mandibular overdenture. Patient was asked to occlude till curing of the resin. Excess of resin was removed the occlusion was checked to remove interceptive occlusal contacts, and the denture was inserted(fig 8). The patient was satisfied with masticatory performance and appearance with the magnet-retained tooth overdenture.

DISCUSSION

Edentulism or the prospect of losing all the teeth can be very disturbing for any individual. It has a direct influence on the patents' quality of life. Such conditions provide an option of overdenture concept as a preventive prosthodontic measure because of its' several advantages. Crum and Rooney in a 5 year study concluded about 0.6mm of vertical bone loss in the anterior mandible of patients using overdentures as compared to 5.2mm loss in patients using complete dentures.[6]

Overdenture prosthesis largely maintains the proprioception, and the presence of dimensional discrimination, directional sensitivity, canine response and tactile sensitivity are few of the other reasons in support of overdenture prosthesis.[7]

Attachment retained overdentures redirect occlusal forces away from the weak supporting abutments or redirect the occlusal forces towards stronger abutment thus improving the retention.[8]

An overdenture with a magnetic attachment is useful in periodontally compromised cases as it helps to dissipate the lateral stresses onto the abutment teeth and improves the crown to root ratio.[9] Dental magnetic assembly are available in various types and sizes . These systems, consisting of a magnet and a keeper, help in retaining removable partial dentures and maxillofacial prostheses. The magnetic system used to retain dentures is usually an open-field or a closed-field system. Closed-field systems work by eliminating the external magnetic flux fields by placing the magnetic components in a series, called an assembly.[10]

The reasons for the frequent use of magnet retained overdentures can be attributed to the facts that magnets can be easily incorporated into a denture with simple clinical and technical procedures, easily cleaned, easily placed in patients (physically disabled or neuromuscular compromised), automatic re-seating, and constant retention with number of cycles.[11] They are also preferred in patients with restricted inter-occlusal space and challenging esthetic demands and can accommodate a moderate divergence of alignment between two or more abutments,[12] and dissipate lateral functional stresses. Within the limitations of this retrospective study, magnetic attachment on natural tooth abutments provided a viable and long-term treatment

option. However, such treatment might require regular maintenance for the benefits to be maintained.[13]

CONCLUSION

This clinical report emphasizes the relevance of overdenture treatment option in present day dentistry retained by magnetic assembly for better retention, stability and support. Tooth supported overdenture retained by various attachments have shown better results as compared to implant retained overdentures due to better proprioception and have proven to be advantageous considering the time and cost factors.

Disclaimer regarding Consent and Ethical Approval:

As per university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

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Fig 1 – Pre-Operative Photograph

Fig 2- Wax Try In

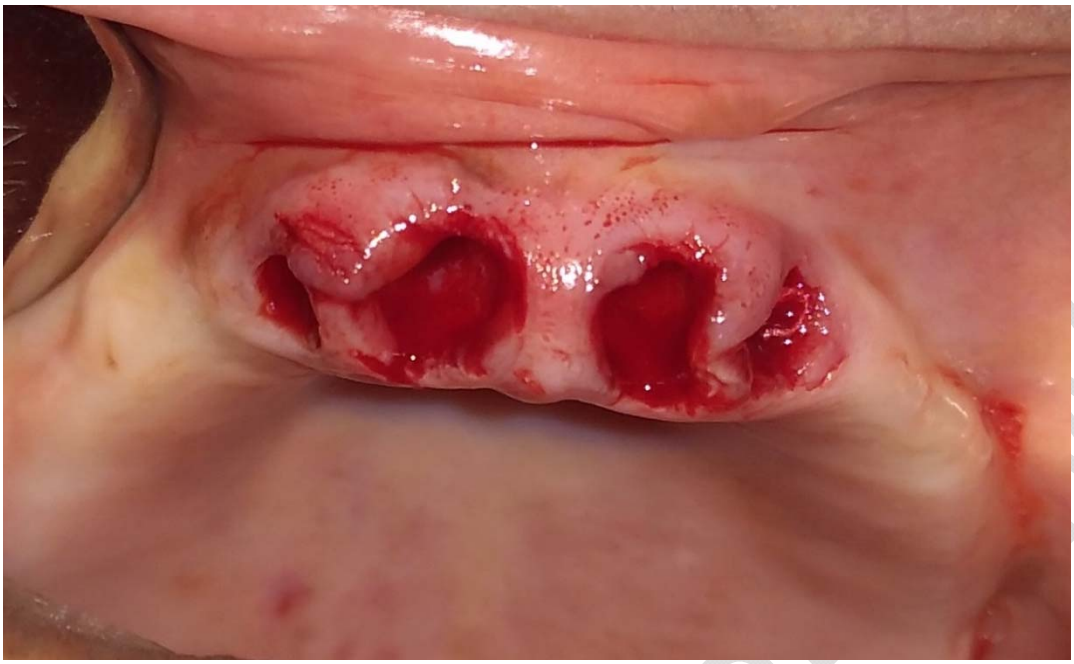

Fig 3 - Extracted Socket

Fig 4 - Extracted Teeth

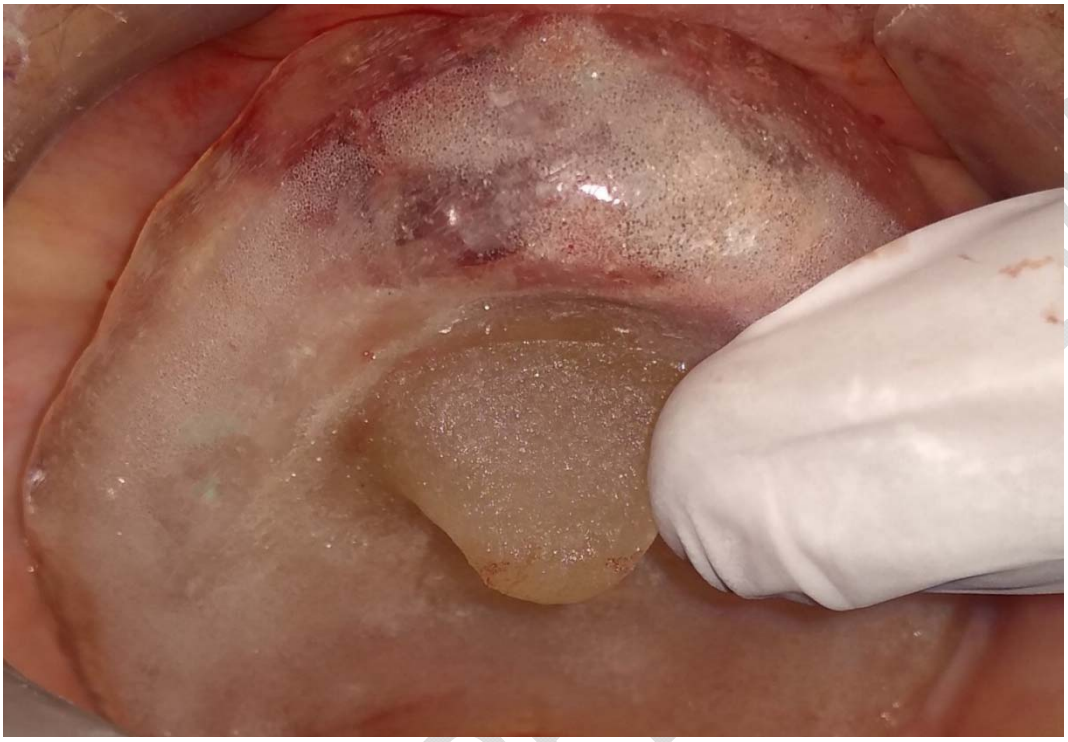

Fig 5 – Radiografic Stent

Fig 6 - Magnet Attachment and Copings

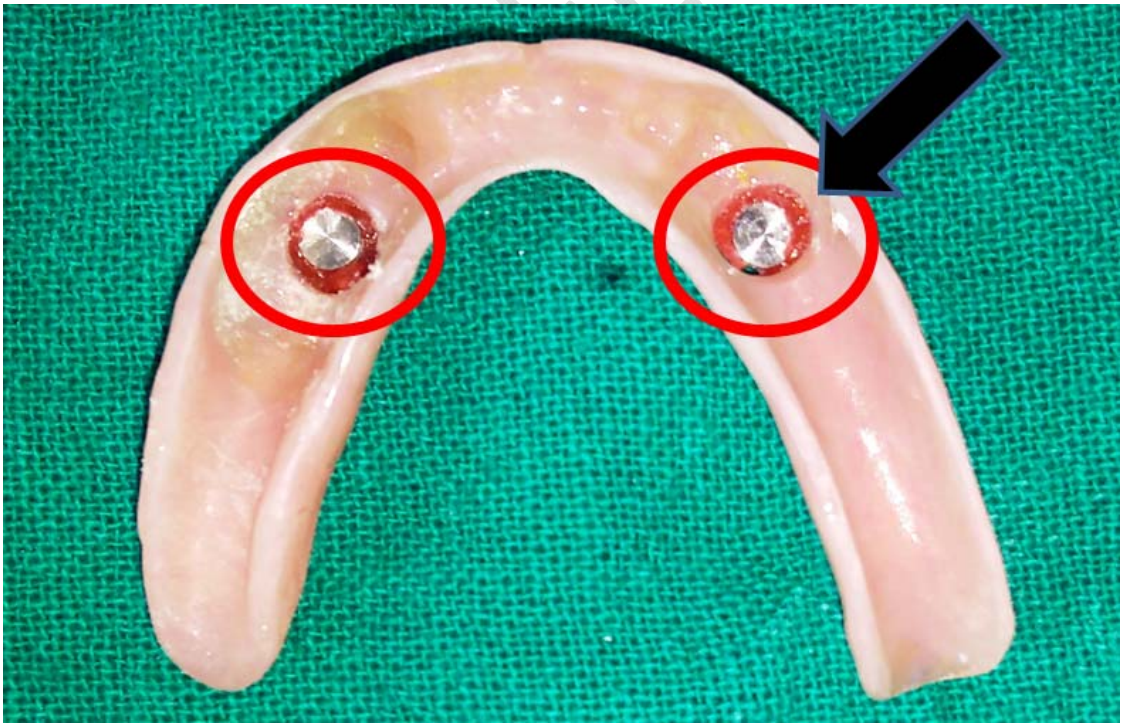

Fig 7 - Magnet Attachment Keepers

Fig 8 - Final Prosthesis