Review On Implant Based Over-Dentures Versus Conventional Dentures In Severely Resorbed Mandibular Arch: Report Of Two Cases

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Background: Replacement of missing teeth has become a successful option ever since the discovery of Osseo-integration and introduction of implants in the dental field. It has proved to be a therapeutic breakthrough especially for edentulous people. Implants supported over dentures are becoming the first choice of treatment for edentulous patients as they provide various advantages over the conventional dentures most importantly enhancing the denture retention and stability. This article discusses the rehabilitation of a completely edentulous patient with a mandibular implant supported over-denture which drastically improved the oral health related quality of life. [Patil R, NJIRM 2016; 7(3):124-127]

Key Words: Implant based over-denture, Conventional denture, Mandibular severely resorbed ridges.

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Introduction:A severely resorbed mandible poses a true challenge to the clinician while fabricating complete dentures.With removable denture wearers, bone loss continues over the years. The absence of the alveolar ridge compromises the retention and stability of the dentures. Implants supported over dentures have proven to be a viable option to treat such patients. Implants not only provide continuous stimulation to the bone, leading to minimal bone loss, they also improve the overall retention and stability of the prosthesis. Implants supported over dentures are predictably and significantly better than conventional complete dentures[1].

It is even considered to be the standard of care in cases of mandibular edentulism.Two implant retained mandibular overdentures gained more benefits,and clinically demonstrated two-implant overdentures provide superior function and satisfaction,when compared to conventional dentures and preprosthetic surgery in patients with persistent denture complaints[2].A wide variety of commercially available attachment systems are used to connect implants to overdentures either by splinting or unsplinting implants, most commonly used include ball and socket, stud, bar, magnetic, and telescopic attachments[3].With the advent of dental implants there is now more than one available treatment for edentulous patients.

Current evidence suggests that the restoration of the edentulous mandible with a conventional denture is a much poorer alternative than the use of an implant-supported prosthesis. There is now a large body of evidence that supports the proposal that a two-implant supported mandibular overdenture should be the minimum offered to edentulous patients as a first choice of treatment[4].

Case report:*Case I*-A sixty five year old male patient visited to our unit with complaint of loose dentures of maxilla and mandibular jaws since two years. Patient informed of wearing two existing dentures past four years with changing simultaneously one after one which is comfort on that day. Later, slowly started of loosening of both the denturesespecially mandibular jaw denture with difficulty in speech and mastication.

Case II- A sixty two year old male patient consulted to our unit with complaint of loose mandibular complete denture. History of wearing conventional dentures past 3 years and comfort with maxillary denture and more complains of mandibular denture regarding stability, retention and its function.

On examination, in both cases facial appearance front and profile view appeared normal with dentures and showed maxillary and mandibular dentures with severely resorbed mandibular alveolar bone, ridge and crest in posterior region. In both of the caseswe found ill-fitting conventional dentures with unwanted masticatory forces resulted to severe resorption of mandibular alveolar ridges and outcome with reduced function efficiency.

Orthopantamogram advised to rule out existing pathology, bone width andheight status, approximation of vital structures in relation to alveolar crestand ridges**(Fig. 1a and Fig. 1b)**.

Figure 1a: Case I, Orthopantamogram X rays showing severely resorbed mandibular ridge.

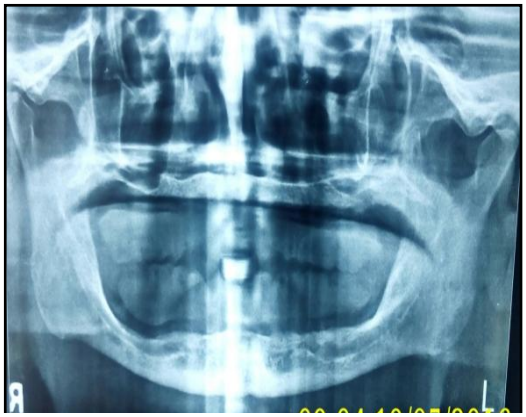
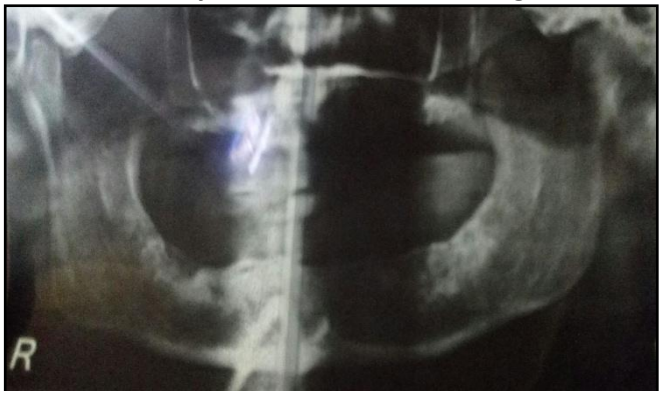


Figure 1 b: Case II, Orthopantamogram X rays showing severely resorbed mandibular ridge.



Cases was planned for two stage intervention implant based completeover-denture with mandibular jaw and new complete denture in relation to maxilla for more retention, stability and support of dentures. Surgical profile blood investigations showed no existing medical diseases and got consent for placement of implants under local anaesthesia.Implants 11.5L and 3.50D with ball and socket attachments system was selected.

Procedure:Stage I, surgical preparation was carried out followed by performing inferior alveolar, lingual and long buccal nerve block with 2% lignocaine with 1:80,000 adrenaline.After confirming the act of local anaesthesia crestal incision was placed from premolar to premolar from right to left side. Subperiosteal envelop flap was raised and crestal ridge was isolated and two implants are placed at canine region bilaterally and implant cap was closed followed by wound closure with simple interrupted suture after confirming accurate implant placement with OPG X ray**(Fig.2a and Fig. 2b)**.Patient was advised antibiotics and analgesics for 5 days followed by consult our unit on seventh day for removal of sutures and placement of healing cap. After placing the healing cap patient was advised to maintain the oral hygieneand visit to the hospital once in every 15 days for followup.

After 2 months of followup prosthetic procedures was initiated for the new dentures and advised patient to wear the dentures till we place the implant components.*Stage II,* placement of ball units on implants and sockets placement in mandibular basal denture placed on third month after reviewing the oral cavity **(Fig. 3a, Fig. 3b and Fig.3c).**Patient started using the dentures effectively immediate after incorporating the implant components in oral (ball a male component) and denture basal part (socket a female component) and observed adequate esthetic, retention and stability of dentures maintained**(Fig. 4a and Fig. 4b)**. Case was followed up for another 2 months and advised to maintain the oral hygiene forever**(Fig. 5a and Fig. 5b)**.

Figure 2 a: Case I, Orthopantamogram X rays showingtwo-implants in anterior mandible.

Figure 2 b: Case II,Orthopantamogram X rays showingtwo-implants in anterior mandible.

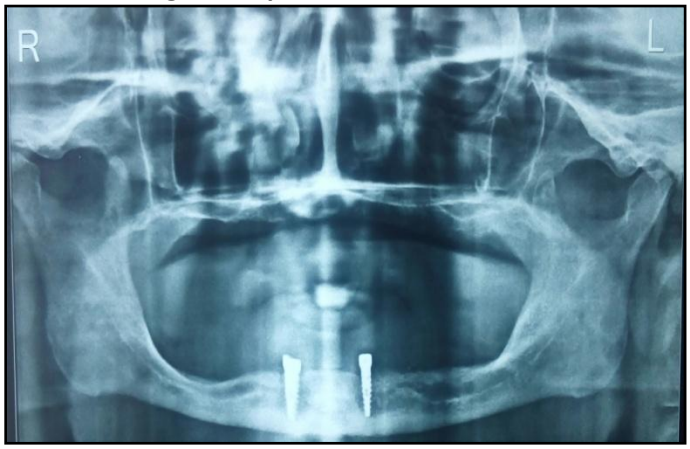


Figure 3 a: Case I,Intraoral image showing two-implants with ball (Male component over implant) attachment.

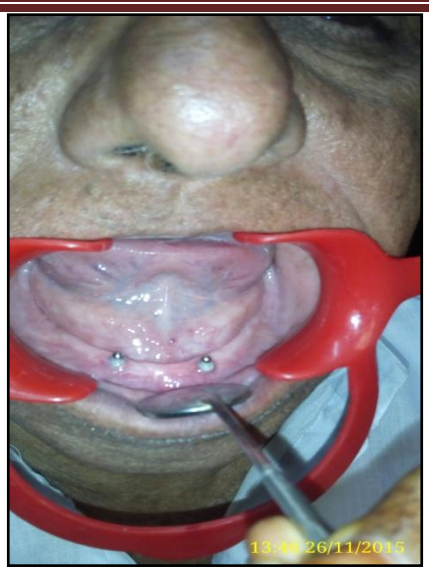


Figure 3 b: Case II, Intraoral image showing two-implants with ball (Male component over implant) attachment.

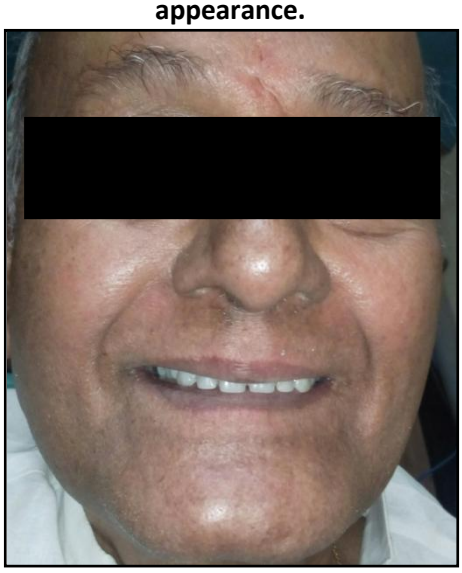
Figure 3 c: New denture with incorporating socket (Female component in lower basal denture) attachment.

Figure 4 a: Case I, Implant based over denture in mandible.

Figure 4 b: Case II,Implant based over denture in mandible.

Figure 5 a: Case I, Complete rehabilitation and cosmetic appearance.

Figure 5 b: Case I, complete rehabilitation and cosmetic appearance.



Results: Implant based overdenture with attachment of components is defined asa mechanical device for the fixation, retention, and stabilization of the prosthesis. Attachments used in conjunction with implants were found to enhance the retention, the stability and the support of overdentures together with the implants, thus extending their longevity.The selection of the attaching mechanism for an implantretained over denture depend on : cost effectiveness, amount of retention needed, expected level of oral hygiene, amount of available bone, patient's social status, patient's expectation, maxilla mandibular relationship, inter-implant distance, and the status of the antagonistic jaw[3].

A severely resorbed mandible poses a true challenge to the clinician while fabricating complete dentures. Tooth extraction is followed by a loss of bone width by 25% and a loss in bone height of 4 mm during the first year. With removable denture wearers, bone loss continues over the years[1].Conventional complete dentures are supported by the edentulous ridges and the mucosa that overlies them. There is close contact, but no direct attachment between the prosthesis and the ridges, and the prostheses are constructed to maximize any potential retentive forces whilst attempting to minimize those that displace them. In such an active, muscularly-controlled environment this is problematic, and many patients have difficulties adapting to their dentures, particularly the lower denture. Edentulism is also associated with a less healthy diet[4].Information available from various research groups to indicate the effectiveness of implant based overdentures when compared with conventional dentures, both with respect to patient's appreciation of treatment and improvement in oral function practically considerable[2].Subjects who underwent two implant mandibular overdenture treatment with ball and socket attached components were satisfied with their previous conventional dentures experience.

Conclusion: The attachment retained implant overdentures solves the problems inherited with conventional dentures. Although implant based overdentures are more expensive than conventional dentures, just use of two-implant based overdentures can reduce the initial cost to a minimum.On review, we can conclude cases with conventional denture with severely resorbed mandibular ridge resulting in to inefficiency of function and unsatisfactory towards comfort, which can restore by placing implant-based overdenture over conventional one.

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