

Implant Supported Over Denture: Case Report.

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Abstract: *The prosthetic management of the edentulous patient has long been a major challenge. Complete maxillary and mandibular dentures have been the traditional standard of care. However, most of the patients report problems adapting to their mandibular denture due to a lack of comfort, retention, stability and inability to masticate. Implant-supported overdentures have been a common treatment for edentulous patients for the past 20 years and predictably achieve good clinical results. Implant supported overdentures offer many practical advantages over conventional complete dentures and removable partial dentures. These include decreased bone resorption, reduced prosthesis movement, better esthetics, improved tooth position, better occlusion, increased occlusal function and maintenance of the occlusal vertical dimension. This article presents a design and fabrication technique of the implant-retained overdenture that uses four freestanding mandibular implants.*

Keywords: *Overdenture, Implant supported mandibular overdenture, Conventional denture*

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I. Introduction:

Rehabilitating edentulous patients with residual ridge resorption has improved tremendously because of implant dentistry. Implant supported overdentures have expanded rapidly as a successful treatment modality to rehabilitate completely edentulous patients. It improves retention, stability, function and esthetics as well as preserves the residual bone, especially in the mandible.[1] Many denture related complaints associated with conventional dentures can be addressed when dental implants are used to retain conventional dentures.[2] Overdentures are simply conventional dentures attached to the remaining teeth or dental implants.[3] Several studies have indicated that the use of implant supported overdentures in the mandible is an effective treatment modality,[4,5] especially in patients with excessive loss of residual bone.[6] The survival rate of implants in the front region of the mandible is excellent, and the rate of surgical complications is very low. Moreover, implants demonstrate a reduced rate of residual ridge reduction in the anterior mandibular area.[7] The treatment decisions depend on the patient's individual needs and treatment modalities together with their economic realities. The treatment of choice between fixed and removable implant supported overdentures varies across cultures and countries. The literature suggests that patients who receive removable implant supported overdentures have significantly higher satisfaction with their overdenture than those treated with fixed implant supported prostheses.[8] Elderly people may have increased bone resorption, especially women after the age of menopause, and thus may have problems with denture use.[9] In conventional complete dentures, continuous residual ridge resorption causes many problems including reduced retention, instability of dentures and soreness in the supporting mucosa owing to reduced denture bearing area. The masticatory muscles in edentulous patients have diminished electromyographic activity and atrophy, which leads to weakened masticatory functional forces and reduced chewing.[10] The maximum biting force of complete denture wearers is reduced to approximately 20% of dentate patients' biting forces. The reduced biting force alters masticatory functions because of inferior retention and stability of complete dentures. This will eventually lead to poor chewing ability in edentulous subjects.[11,12]

II. Case Report:

A 45-year-old female patient without any medical contraindication for implant therapy presented with a broke and ill-fitting mandibular denture. Patient was not having any complaints with maxillary denture. The clinical and radiographic findings revealed slight to moderate mandibular ridge resorption. The patient was given the option of placing two implants with a new lower denture. The treatment plan was accepted and included an immediate functional loading using a locator attachments supported mandibular overdenture. At the surgical appointment, following the administration of local anesthetic, a mid-crestal incision was performed, and a full-thickness flap was reflected. In addition, osteotomies were prepared in type II bone. Bone taps were used to countersink the sites, after which two implants were placed with the hand piece and hand ratchet. The implants were torqued to 35 N. (Figure 1 & 2) Immediately after implant surgery, the mandibular denture was seated in the patient's mouth and adjusted to provide clearance in the area of the locator(s). (Figure 3) Two locators (4 mm in length) were torqued to 30 N. Following the suture of the flap with 3-0 vicryl, the processing rings were placed over the locators and were picked up directly in the mouth using hard self-curing acrylic. The patient was given postoperative instructions, including the use of 0.12% chlorhexidine mouthwash 3 times a day. She was furthermore prescribed 500 mg of amoxicillin (to be taken every 8 h for 5 days). The patient was then informed that the implant-supported overdenture was to be left in place for 48 h. Two days later, she was seen for a follow-up visit, and the healing process was uneventful. (Figure 4) After 6 months, the patient returned for another follow-up visit. It was determined that all two implants had achieved full integration. Currently, the patient is on 6 months recall to ensure the proper maintenance of the implants and the prosthesis. All implants have maintained healthy soft tissue and a stable bone level.

Figure 1: Implants placed in mandibular arch

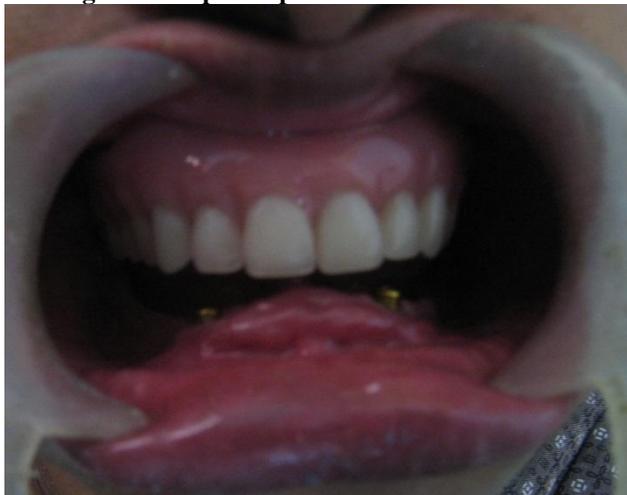


Figure 2: Postoperative Orthopantomograph.

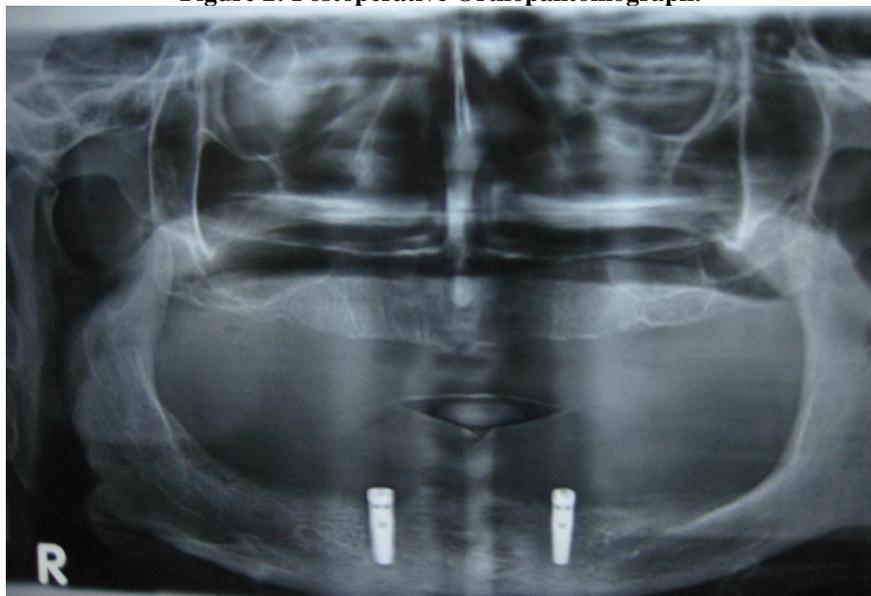
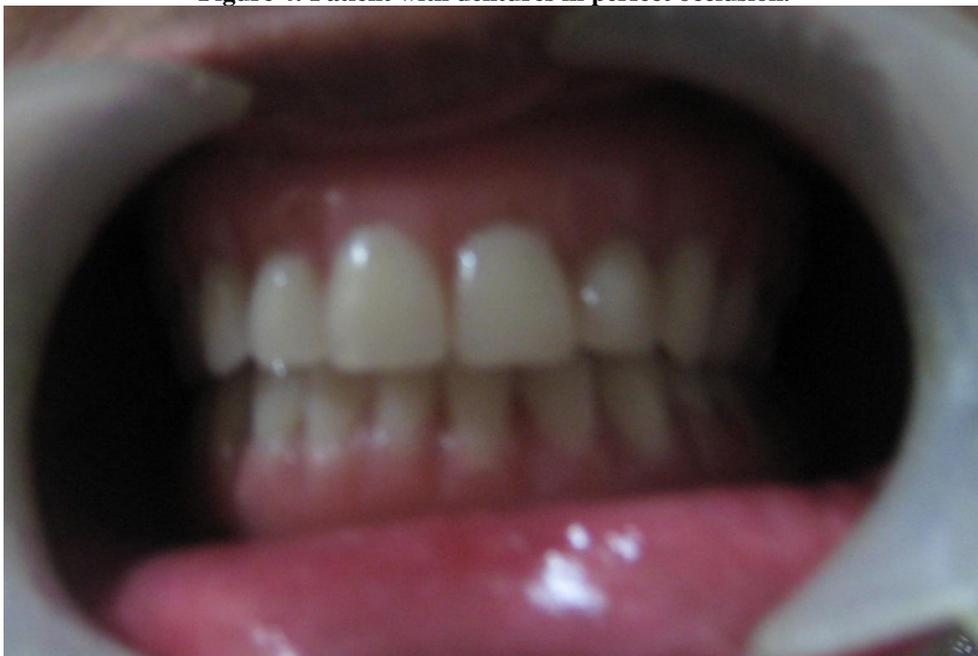


Figure 3: Mandibular Overdenture



Figure 4: Patient with dentures in perfect occlusion.



III. Conclusion:

Implant overdenture (OD) is the common treatment modality for the rehabilitation of completely mandibular edentulism with dental implants. The retention and stability of conventional complete dentures is more of a concern in the mandible than in the maxilla. This is primarily attributed to the reduced surface area for support and retention in the mandibular arch. Therefore, implant supported overdentures are a predictable treatment option for completely edentulous mandibles. This treatment modality improves the quality of life in edentulous patients. Although dental implants can be immediately loaded if attachment points

are stable, the conventional loading protocol is more commonly used. Two dental implants to support the mandibular overdenture are considered sufficient to provide the required stability and retention of the denture. It is imperative that the overdenture has a passive fit without any occlusal interferences to avoid overloading the dental implants, which could cause clinical complications such as overdenture fracture, implant fracture or implant loss. Restoration of the edentulous mandible is a challenge. Among different treatment options, an implant-retained overdenture is a simple, cost-effective solution in the rehabilitation of the edentulous mandible. Despite widespread acceptance of this treatment, some controversies still exist with regard to the design of the overdenture, selection of the appropriate attachment system, and the most optimal techniques for the overdenture fabrication. Clinicians and dental technicians have to adhere to sound design principles such as simplicity in fabrication, ease of maintenance and repair and cost control.

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