# Management of Lose Mandibular Denture: A Case Report

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## Abstract

A lose mandibular denture is the most common problem reported by complete denture patients. So to improve retention and stability we support the denture by placing two implants. In this case report,a patient with a lose mandibular denture is rehabilitated with two mandibular implants. The final prosthesis was stable well retained and esthetically pleasing.

***Keywords:*** *Overdenture, Implant, O ring attachment.*

## Introduction

For a complete denture to be a successful prosthesis is dependent on various factors like denture bearing area, psychological assessment of patient and previous experience with dentist[1,2]. So the challenge for prosthodontists is that it not only replaces teeth but also the soft tissue. The usual problem with complete denture patients is retention of mandibular denture, so treatment option for it is implant-supported overdenture. So in this era of implant dentistry mandibular implant overdenture has become the new standard for the treatment of edentulous mandible. So for practitioners this treatment option is the most reliable definite treatment option. Advantage of implant-supported denture is maintenance of bone volume and increased retention and stability.

The most popular attachment used for overdentures are locators and ball and socket overdenture. In this case report three implants are placed with ball and socket attachment which support a mandibular overdenture.

**Case Report:** A 68-year-old male patient reported to the department of prosthodontics with a chief complaint of ill-fitting mandibular denture. The patient had no significant medical history and his dental history included extraction of teeth due to periodontitis. The patient was using a conventional denture for the past five years and due to non-retention of mandibular denture the patient wants a new prosthesis. On clinical examination the mandibular ridge exhibited a significant degree of resorption and all other parameters like size shape of maxillary ridge and condition of mucosa were found to be normal & healthy (Figure 1). But on evaluation of denture it was found that extension of denture flange was inadequate, retention & stability was poor. Orthopantomograph was advised to evaluate bone availability and architecture (Figure 2). The inter ridge distance was assessed and it was decided to give stud attachment. So for this patient a treatment plan of conventional complete denture for the maxillary arch and 3 implant-supported overdenture for mandibular arch[5]. This treatment plan was explained to the patient and approved by him.

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**Figure 1. Mandibular ridge of paitent**

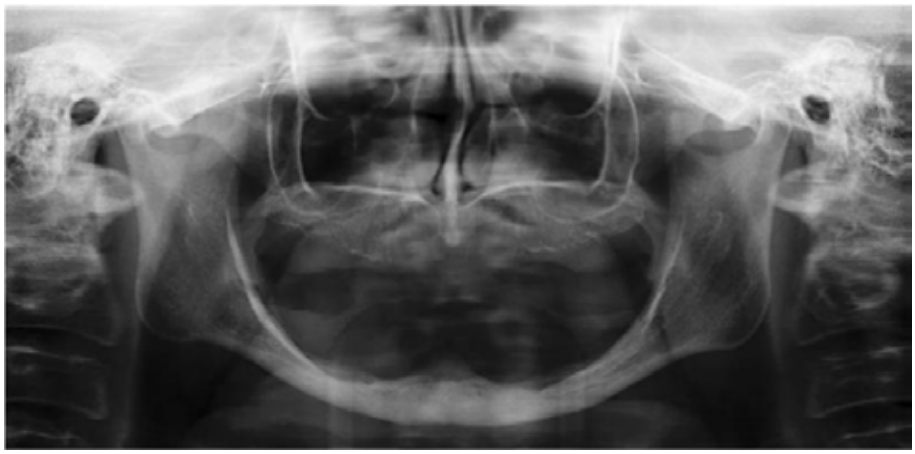

**Figure 2. Orthopantomograph**

**Figure 3. Clear auto polymerizing acrylic resin surgical template**

**Treatment procedure:** Conventional maxillary and mandibular dentures with bilateral balanced occlusal schemes were fabricated for the patient. The mandibular denture was duplicated by using laboratory-grade silicon, using clear auto polymerizing acrylic resin to be used as a surgical template (Figure 3). The vertical space

analysis was done and it was found to be 12 mm which falls in class II category[6] (Ahuja S & Cagna DR). So stud with ball and socket attachment was decided for the patient. Adin (TouregNP) implants of 11.5mm length and 3.75 mm diameter were selected. Implant surgery was carried out in two-stage protocol, first implants were placed with the help of a surgical guide in B, D, E region and loading of the implant was done after three months. Two implant-retained overdenture is a very reliable therapy for patients with edentulous mandible[7]. But in the present case as the ridge is resorbed in the posterior region and space is not adequate for the bar prosthesis, three stud attachments were planned.

Implants should be placed as parallel to each other as possible to increase the prognosis of the prosthesis. For this the surgical stent was used to do the initial drilling and all the osteotomy sites were checked with paralleling pins. After completion of prescribed drilling sequence implants were placed in prepared sites. Surgical cover screw was placed and primary closure of flaps was done. The patient was told not to wear the lower denture for two weeks after surgery and cleanse the mouth with disinfectant mouthwash. After removal of suture the intaglio surface of denture was relieved and tissue conditioners were applied. The conditioner distributed the occlusal forces to the denture bearing area without transmitting it to the surgical sites. Three months later the second stage surgery was done and healing abutments were placed and left for 15 days to help in maturation of gingival tissue. At this procedure the denture is again relined. After completion of 15 days the ball and socket overdenture abutments of 2mm diameter & 2 mm height were placed.(Figure 4) For blockout of the stud attachment a rubber dam was placed and then O rings (RS-2664, yellow) were placed. The second mandibular denture which was prepared previously was loaded with pressure indicating paste and placed on abutments to check the position of implant abutments. The number 6 bur was used to relieve the intaglio surface to accommodate the metal housing of the O ring. The complete passive seating of the denture was verified and then only GC pattern resin is loaded in prepared surface and the patient was asked to bite on the lower denture with the upper denture in centric relation position with a very light occlusal pressure. The pick up once fully cured was removed and trimmed and polished. (Figure 5).

**Figure 4. Secondary stage surgery**

**Figure 5. Polished & trimmed pick up**

**Figure 6. Postoperative photograph**

First the patient was trained on how to place and remove the denture followed by home care instructions. The patient was recalled after 24 hours and then after six month and radiographs were taken. The patients were advised to clean the attachment with the unituft brush. And it was found that the patient was comfortably using the overdenture for the last 3 years.

## Discussion

Full mouth rehabilitation of an edentulous patient can be with fixed with 6 to 8 implant for a normal ridge, and all on 4 in compromised ridge condition. And for removable it can be hybrid prosthesis with 4 implants and overdenture with 3 or 2 implants in place. Ideally

for overdenture when adequate interocclusalspace of 15 mm (class I[6]) is present then implants splinted by bar and held by clip is the treatment of choice[8]. As bar has proven to be a longterm successful treatment option for patients who require a high degree of retention and have no undercuts[9]. Recent articles have shown that even if bar attachments allow rotational movement, a higher load is transferred to the implants, as it is difficult to anatomically place the implants in a position to get pure rotational movement[11]. And bar and clip is an expensive restoration with the additional challenge of maintenance of hygiene.

The study on stress distribution between stud attachment and resilient bar and clip attachment has shown no significance difference[9]. And stud type of attachment can be used with existing dentures and also it offers off-axis or angles nylon inserts to accommodate non-ideal implant position[12]. So in this case three free-standing implants were placed in B,D,E position. Two implants supported overdenture was avoided to restrict the PM6 type movement, as the posterior residual ridge was resorbed. And due to financial constrain the patient was not ready for a fixed implant bridge. Overdenture patients have been studied to have a masticatory efficiency in chewing cycles similar to natural teeth[13]. And it already a proven fact that in comparison to conventional overdenture the comfort and satisfaction of patients is quite high[14]. So the success of mandibular overdenture is quite high even after 10 years of function[14].

## Conclusion

Treatment option will vary from individual patients but considering the anatomical condition and financial constrain the treatment options has to be devised to give a predictable result. Implant-supported overdenture has become a standard treatment option with edentulous patients. As long term clinical studies have shown that with conventional loading it gives a positive outcome.

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**Ethical Permission:** Approved

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