

## Two Implants in a Severely Resorbed Mandible: A Case Report of Early Loading

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### Abstract

Bone resorption often prevents elderly patients from wearing complete mandibular over dentures. This has a negative impact on the quality of life of patients, since it affects their speech, chewing ability and social relationships. Implant-supported over dentures have been proven to be superior to conventional dentures, both in terms of retention and stability.

We report the case of an 82 year-old woman with a severely resorbed mandible that was rehabilitated with a 2-implant supported mandibular over denture.

According to the reviewed literature, 2-implant over dentures is the preferred treatment for elderly patients with bone resorption due to its simplicity and reliability in the long-term.

**Keywords:** Dental implants; Over denture; Early loading; Elderly

### Introduction

The increase in life expectancy has caused that many elderly patients have retention problems with their conventional dentures due to severe bone resorption. This has deleterious effects on their quality of life, as patients have difficulties in eating and speaking.

Two-implant-supported mandibular over dentures show good acceptance among elderly patients, since it is a minimally invasive intervention with lower risks than more complex therapies and it may be the only option in case of severe bone resorption [1].

A mandibular over denture retained by two splinted implants with bar improves retention, chewing experience and patient satisfaction [2].

A thorough clinical and radiographic study is performed to learn about the health status of the patient and the state of the bone.

### Case Presentation

An 82-year old healthy female patient, with no medical history of interest. The patient, who wears a complete upper and lower denture, reports lack of retention, pain, eating and speech difficulties (Figure 1).

Extra oral exploration reveals reduced facial height, relative prognathism and collapse of lower facial soft tissue with the consequential altered appearance. Intraoral examination shows complete edentulism.

A CT scan of the mandible was ordered in order to measure the inter foraminal bone. The CT scan shows the height, width and bone density of the mandible (Figure 2). Treatment plan: Informed consent. Implant surgery, six-week loading.



Figure 1: Old complete denture.

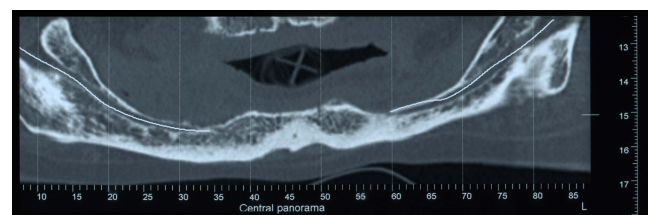


Figure 2: CT scan.

The implants were inserted using the following procedure: Local anaesthesia (articain 40/0.005 mg/ml). Supracrestal reduced incisions with buccal flap (Figure 3). Preparation of the bone at the level of the canines using the surgical guide with implant drills: Pointed Starter Drill, Twist Drill 2 mm and Twist Drill 2.75 mm using direction indicators (Figure 4) and the two 11.5 × 3.75 Biomed 3i implants insertion, with primary stability (45 Nc) (Figure 5). Healing abutments were mounted in order to avoid a second surgery (Figure 6).

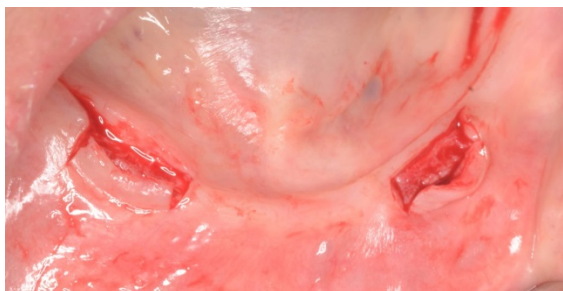


Figure 3: Supracrestal incisions.

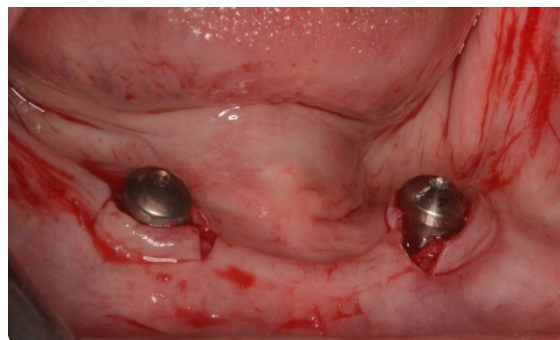


Figure 6: Healing abutment.



Figure 4: Preparation of the bone.

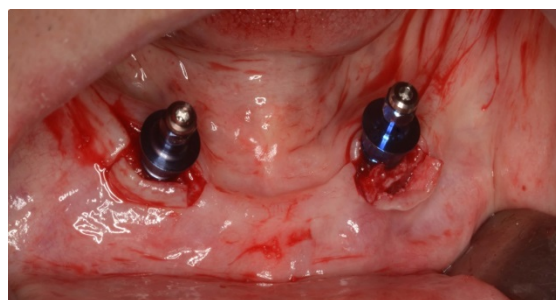


Figure 5: 11.5 X 3.75 Biomed 3i implants positioned.

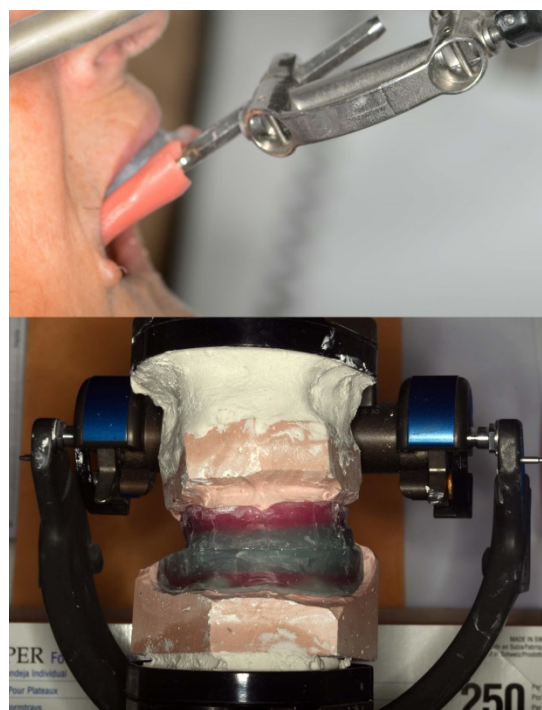


Figure 7: Prosthetic treatment.

The patient was prescribed with antibiotics for one week (oral amoxicillin 750 mg, 1/8 h), antiinflammatory drugs (ibuprofen 600 mg, 1/8 h for 2-4 days) and analgesics if needed (paracetamol).

Four weeks later the prosthetic treatment is initiated. Models were mounted using the face bow and semi adjustable articulator (Kavo ®). The wax try-in was delivered by the laboratory (Figure 7). Once the wax try-in was approved, implant impressions were taken using an open-tray technique and fluid silicone to make the bar (Figure 8). The bar attachment and over denture were placed at 6 weeks after implant insertion (Figure 9). A bilaterally balanced occlusal model was used to better distribute stress and get better stability. The patient was shown how to insert and remove it, with special focus on hygiene. Follow-up visits were performed at one week, one month, six months and 12 months.

## Discussion

In 2002 the expert committee that conducted the McGill Consensus statement established the two-implant-supported over denture as the treatment of choice for edentulous mandibles [3]. In 2009, The York Consensus validated this statement [4,5].

From the cost-benefit standpoint, the over denture supported on two interforaminal implants option is a reliable treatment option and is the treatment of choice for many surgeons [6].

There is no consensus about the different attachment systems. The choice of the attachment system depends on the experience of the clinician [7]. The bar can be used for primary splinting of the implants to minimize axial loads on implants [8]. The bar attachment could be preferable for cases with short implants or low bone quality [7]. Some

authors have reported that the bar attachment needs less prosthetic maintenance and even patients are more satisfied with the retention achieved by the bar [9].



Figure 8: Impressions.



Figure 9: Bar attachment and over denture at 6 weeks.

The locator system yields excellent clinical outcomes [10], although it may be difficult to use it in very elderly patients [11].

Elderly patients are more likely to agree to undergo this kind of surgery because it is simple; it improves their overall function and quality of life.

Many studies have reported an overall implant survival rate close to 100% for conventional, early and immediate protocols [12,13] and no differences were either observed as to the attachment system [14]. And the implant survival rate is not depending on the number of implants [15].

## Conclusion

The use of two interforaminal implants to retain a mandibular over denture is a cost-effective treatment option for the completely edentulous patient.

## Conflict of Interest

The author declares that she has no competing interests.

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