

**Transforming Implant Dentistry: An Analysis of Basal Implant Case series**

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**Abstract**

With the instantaneous loading technique, basal implants were created to address the shortcomings of traditional implantology, mainly in the areas of atrophied ridges or insufficient bone. When it comes to atrophic maxillary and mandibular ridges, conventional implants have significant limitations. As long as traditional implants are seen as the preferred option, patients with severely atrophied jawbones ironically receive little to no therapy. The current case series demonstrates how basal implants can be used to treat severely atrophic maxillary and mandibular ridges.

**Keywords:** Atrophied Ridges, Amoxicillin, Bone Loss Phonation, Resorption.

**Introduction**

Mastication, phonation, appearance, and psychological health are all significantly influenced by our teeth. The functions may suffer if one or more teeth are lost. The most current development for replacing a natural tooth without harming neighboring teeth is dental implants.<sup>1</sup>

Conventional implants are a lengthy process that can take up to four to six months to complete and involves bone growth and/or bone transplants. For some procedures, including as direct or indirect sinus lifts, bone augmentation, and nerve lateralization, additional surgical treatments can be required in addition to implant installation. These processes depend on specific techniques and are not always practical<sup>2</sup>.

However, the purpose of basal implants was to address the drawbacks of traditional implants.

Today, using implants to restore an edentulous maxilla or mandible is a common and predictable procedure. For trouble-free and effective implant implantation, adequate bone is required (at least 13-15mm length and five-seven mm breadth). If this requirement is not met, then treatment planning for implant placement becomes robust.<sup>3</sup>

Basal implants are dental implants that contact the very dense cortical bone, which has the lowest propensity for resorption, allowing for implant retention. These

implants are matchless and engineered to get anchoring from the basal cortical bone.<sup>4</sup>

The basal bone is constantly there throughout life; it is extremely robust and forms the stress-bearing component of our skeleton<sup>5</sup>

Ridge augmentation techniques come with hazards, high costs, several operations, and little patient motivation. In contrast, basal implants pose no danger of moderate loading after immediate insertion.

Modern basal implants feature smooth and polished surfaces to reduce inflammation (mucositis and periimplantitis) compared to rough surfaces of conventional implants.

### Case Series

#### Case 1

A 60-year-old female with normal gait and stature reported to the Department of Prosthodontics, with a chief complaint of missing teeth in the upper arch and lower arch and inability to eat properly. Intraoral examination revealed severely resorbed maxillary and mandibular ridges, with grade III mobility with canine and first premolar of maxillary arch.

Several treatment options were proposed, including a removable denture following complete extraction, conventional implant-supported fixed prostheses, and basal implant-supported fixed prosthesis. The patient preferred a permanent alternative for therapy since he felt uncomfortable with detachable prosthetics.

On the day of surgery, the patient underwent a routine blood check, and the findings were confirmed to be normal. Patient preparation followed the normal routine. Local anesthetic was administered (2% lidocaine with epinephrine 1:100000). After obtaining anesthesia, the canine and premolar teeth were extracted initially. Implant surgery was carried out under aseptic

circumstances. Implant osteotomy was accomplished using physio dispenser and drills, and nine basal implants in the maxilla and seven in the mandible of appropriate lengths and diameters were implanted without elevating the flap using insertion tools, adapters, racquet and handle.

Antibiotics and analgesics were provided following surgery, including amoxicillin (1 g), metronidazole (500 mg), and diclofenac potassium (50 mg Rapidus). The impression was made using a light body and putty after connecting copings 24 hours, all implants were functionally loaded with temporary self-cure acrylic resin crowns. After 72 hours a fixed prosthesis was delivered, the aesthetic and functional parameters were satisfactory. The patient received postoperative instructions.

#### Case 2

A 55-year-old female reported to the Department of Prosthodontics, Crown, and Bridge and Oral Implantology with the chief complain of missing teeth. The clinical and radiographical examinations revealed missing teeth with 15, 16, 17, 26, 27, 31 -37, 46 and extensive vertical and horizontal bone loss.

Patient was explained about the treatment options and its complication. Patient agreed for basal implant treatment and her consent was obtained. The treatment plan included extraction of the remaining teeth and placing 10 basal implants in the maxillary arch and eight in the mandibular arch.

Implant osteotomy was carried out by inserting eight basal implants in the mandible and ten in the maxilla, in accordance with the surgical procedure outlined in case 1. The precision of implant placement was validated by postoperative panoramic radiography. The patient received postoperative instructions and prescriptions for

analgesic and antibacterial drugs. The self-curing acrylic was used for provisionalization process.

On the third day, occlusion was corrected and a fixed prosthesis was placed using the same prosthetic procedure. A follow-up appointment was set up after the patient expressed satisfaction with the treatment's outcomes.

### **Case 3**

A 50-year-old female reported to the Department of Prosthodontics, Crown, and Bridge and Oral Implantology with the chief complain of missing teeth and wants replacement. The clinical and radiographical examinations revealed missing teeth with 15 ,26, 36 ,46 ,47 and root piece with 22 , 24 ,27 and fractured tooth with 45 . The treatment plan included extraction of the root piece with 22 and 24 and placing basal implant with 16 , 22 , 24, 36 ,46 , 47

Under local anesthesia, osteotomy sites were prepared by drilling in a sequential fashion. Single piece basal implants were inserted into the prepared sites, and main stability was attained. Postoperative panoramic radiography verified the correct placement of implants. Provisionalization was done using self-curing acrylic. A fixed prosthesis was inserted. Analgesic and antibacterial drugs were administered, and the patient received postoperative instructions.

### **Case 4**

A 60-year-old male reported to the Department of Prosthodontics, Crown, and Bridge and Oral Implantology with the chief complain of missing teeth. The clinical and radiographical examinations revealed missing teeth with 31 and 41 and mobility with 32 and 42 . The treatment plan included extraction of the mobile teeth with 32 and 42 and placing three basal implant. Following the surgical protocol described in case one,

implant osteotomy was accomplished with the insertion of three basal implants in mandibular anterior region. Postoperative panoramic radiographs confirmed the accuracy of placement of implants. Provisionalization was done using selfcure-acrylic. Fixed prosthesis was placed within 72 hours. Analgesic and antibiotic medications were prescribed and postoperative instructions were given to the patient.

### **Discussion**

In the reported cases, the chosen therapy avoided the requirement for bone grafting while reducing procedure complexity, time required, and post-operative complications risk. Furthermore, it offered patients instant loading therapy to enable prompt prosthesis treatment.

Most edentulous individuals choose fixed implant treatment over removable dentures. However, persistent ridge resorption following tooth loss frequently results in significantly atrophied maxilla and mandible, making rehabilitation difficult.

Basal bone that remains after resorption might be difficult to place conventional implants in. Basal implants are appropriate for individuals with compromised bone, eliminating the need for a morbid bone augmentation treatment.

Basal implant insertion is often a less invasive technique, with many patients reporting less discomfort and quicker recovery times than standard implant treatments. Basal implants have a high success rate, and the long-term results are equivalent to regular implants.

Basal implants provide several advantages. They can be put in extremely thin, resorbed areas, such as the cortical bone of the mandibular anterior region (as in the four examples reported in our case report). When compared to traditional implants, the treatment time is significantly

reduced. Basal implants also reduce the requirement for bone grafting and expansion. They can be promptly fitted into extraction sockets and loaded; these capabilities come in helpful when aesthetics and speed are crucial things to consider.

### Conclusion

Finally, the case series reports given herein indicate effective insertion and recovery using a basal implant. Basal implants are one-piece implants that lessen the risk of failure owing to abutment fixture interface issues that present in traditional two-piece systems.<sup>6</sup> Traditional implant insertion procedures can provide difficulties in situations of bone insufficiency, damage, or an urgent need for repair. Basal implantology is a novel therapy approach with numerous applications and few limits. Furthermore, it provides advantages such as the flapless method with less surgical effort (thin mucosal penetration), reduced post-operative pain, no swelling, and less discomfort.

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Figure 2:



Figure 3:



Figure 4:



Figure 5:



Figure 6:



## Legend Figures

Figure 1:





Figure 7:



Figure 8:



Figure 9:



Figure 10:



Figure 11:



Figure 12:

