

## USE OF BASAL IMPLANT IN MANDIBULAR ANTERIOR REGION AS AN ALTERNATE TO CONVENTIONAL IMPLANT: A CASE REPORT

Ravi Shekhar Gahalot <sup>1</sup>, K.V. Arunkumar <sup>2</sup>, D.S Gupta <sup>3</sup>, Nimish Agarwal <sup>4</sup>, Gaurav Verma <sup>5</sup>

*Post Graduate Student <sup>1</sup>, Professor & Head <sup>2</sup>, Professor <sup>3</sup>, Reader <sup>4</sup>, Senior lecturer <sup>5</sup>*

*1-5- Department of Oral and Maxillofacial Surgery, TeerthankerMahaveerDental College and Research Centre, Moradabad*

### Abstract

Restoration of partially dentate and completely edentulous patients with implant supported prosthesis has become a widely accepted treatment option. The conventional Branemark implant system believes in osseointegration and involves loading after 4 to 6 months of placement. It has many disadvantages as patient has to live without teeth till that period or opt for removable temporary prosthesis and hence many patients, at times, do not choose this option at all. The newer concepts of BOI, the dental implants are placed in the basal bone and achieve enough strength so that immediate prosthesis can be made with full functional restoration possible. Here we discuss the newer technique in detail with their pros and cons.

**Conclusions:** Old theories in oral implantology mostly needed bone augmentation procedures for the subsequent installation of implants whereas basal implantology does not include any augmentation. Basal implants, through has its own advantage and disadvantage, the one which is common complication noted is fracture of implant itself.

**Key words:** Basal Osseointegrated Implant, Screwable implant, Immediate Implant

### Introduction

Since decades Implants are been used to sustain dental prostheses, despite that they have failed to gain favourable reputation. This scenario has changed intensively as the innovation of endosseous osseointegrated dental implants. They hold the nearest replica to that of the the natural tooth and therefore is beneficial for managing patients with missing teeth which could be due to trauma, disease or developmental anomalies.<sup>1</sup>

The first evidence of dental implants is attributed to the Mayan population approximately nearby 600 AD where they mastered in applying shells pieces as implants for replacing mandibular teeth.<sup>2</sup>

Schroeder, who was one of the early pioneers, worked with a company which manufactured swiss watch components in 1960s and 1970s. He developed a “hollow basket titanium implant” which is simple and one step implant surgery and is preferred now a days. It is considered as a result of the use of titanium implant and “Schroeder’s concept of functional ankylosis” (which was later called osseointegration).<sup>3</sup>

Dr. Per Ingvar Branemark, an anatomist is recognized as the person who has invented the term osseointegration and he defined it as a “direct contact between the bone and metallic implants without interposed soft tissue layer”. Later it was changed in 1977 “Direct structural and functional connection between ordered, living bone and the surface of a load carrying implant”.<sup>4</sup>

As per the traditional rule of implant after the extraction of tooth patients had to wait for many months for implant placement to allow alveolar bone healing. This protocols has been challenged the last few years by decreasing the time between extractions of a tooth and placing and/or loading of the implants.<sup>5</sup>

In conventional implantology implants are referred to as crestal-type implants if they are placed into arch, approaching from the crestal alveoli with vertical main

load transmitting surface. As per standard rules screw should be placed in length of 10-13 mm in mandibular anterior segment as it has adequate vertical bone support. But it is disadvantage for patients with inadequate vertical bone.<sup>6</sup>

Basal implantology which is also called as a bicortical implantology\ cortical implantology is an advanced implantology system which uses the basal cortical bone of the jaw to provide retention for the dental implants which are exclusively made to be sustained in basal cortical bone. Whereas the old implants system utilizes the alveolar bone, which vanishes once tooth is removed. While the basal bone which is strong and forms the load bearing area and continuously available throughout life. Therefore implants can be restored immediately which is placed in this area.<sup>7</sup>

### Indications of Basal Implants

1. In multiple missing teeth or tooth to be extracted.
2. Failure of bone augmentation cases.
3. Thin alveolar ridges – (That is deficiency of bone in buccolingual thickness).
4. Insufficient bone height.

### Contraindications of Implants:

1. Medical conditions: A recent history of myocardial infarction (cardiac arrest) would preclude the placement of dental implants. Cerebrovascular stroke, Immunosuppression also lead to the reduction in the efficacy of the immune system.
2. Medicines: An implantologist would require a complete details of all of the medicines and supplements that their patient takes. Drugs of concern are those that are utilized in the treatment of cancer and drugs that inhibit blood clotting.

**Case report-**

A 40 year-old male patient reported to department of Oral and maxillofacial surgery for replacement of his lower front missing teeth. His medical and family history was noncontributory and there was no history of tooth related trauma in maxillofacial region. His past dental history revealed extraction of 41, 42 and 35 one month back.

Clinical and radiographic examination revealed generalized periodontitis and grade II mobility and poor bony support in 31&32.

Due to esthetic concern patients wished for an early prosthesis. On evaluating local and systemic conditions, he was advised to go for extraction of 31&32, followed by basal implant placement in 31, 41 followed by prosthetic replacement of 31,32,41,42.

**Clinical Case-**



Extraction of 41, 42 and crestal incision placed



Implant placed i.r.t. 31&41



Preoperative clinical picture showing edentulous span



Post-operative OPG



Preoperative Orthopantomogram



Postoperative clinical pic

## Discussion-

Throughout the time history and development of dental implants has been rich and captivating. Human used dental implant from the very starting of humankind for the replacement of missing tooth.<sup>2</sup>

The hallmark of all the surgeries is the early possible restoration in order to achieve the proper form and function. According to Misch et al (2004), there are several classifications of implant loading which are as follows:

- a. Immediate occlusal loading – full functional occlusal of implant is done within 2 weeks of implant placement
- b. Early occlusal loading – occlusal loading is done within 2 weeks and 3 months of placement of implants
- c. Nonfunctional immediate restoration – implant prosthesis is placed within 2 weeks of implant placement but there is no functional occlusal loading
- d. Nonfunctional early restoration – implant prosthesis is provided within 2 weeks and 3 months of implant placement
- e. Delayed occlusal loading – implant restoration is done after 3 months of placement

The crestal-type implants are inserted into the jaw bone coming from the crestal alveoli and the load transmitting surfaces are vertical. According to the standard practice, the implant to be inserted in the anterior mandibular region should be at least of length 10 to 13mm. The reason for the same is that the mandibular anterior segment has sufficient vertical bone. But in case of severely atrophied mandible or in patients who have very little available bone are at a disadvantage.<sup>6</sup>

The drawbacks or the limitations of the conventional or the traditional implants were overcome by the introduction of the basal implantology. It is also known as the bicortical implantology or cortical implantology. It makes use of the basal cortical structure of the jaw for the retention of the dental implants. It works on the rules of the orthopedic surgery due to which it is also termed as the “orthopedic implant”. It is so called in order to create a clear demarcation between them and the “dental implants”. These basal implants are also known as the lateral implants or the disk implants.<sup>6</sup>

## Conclusions-

Old theories in oral implantology mostly needed bone augmentation procedures for the subsequent installation of implants whereas basal implantology does not include any augmentation. Basal implants, through has its own advantage and disadvantage, the one which is common complication noted is fracture of implant itself.

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## Corresponding Author

Dr. Ravi Shekhar Gahalot  
Post Graduate Student  
Department of Oral and Maxillofacial Surgery  
TMDCRC, Moradabad  
Email:ravishekhargahalot@gmail.com