

# ORAL IMPLANTOLOGY – BRINGING CLOSER A DISTANT DREAM OF HORIZON

---

Dr. Vipin K. Dabas

BDS (Gold Medalist), MDS, FIAID, PG Dip. MLS

Visiting Faculty & Head, Dental Implant Research Centre,  
K.M. Shah Dental College & Hosp., Vadodara, India.

Dental Officer, Ministry of Health, Rep. Of Seychelles

---

Dental Implant history dates back thousands of years and includes civilizations such as the ancient Chinese, who, 4000 years ago inserted small bamboo sticks into the jawbone for fixed tooth replacement. The Egyptians and later physicians from Europe used ferrous and precious metals for implants over 2000 years ago, and the Incas used pieces of sea shells, inserted into the jaw bones to replace missing teeth. The United States began its involvement in Implant Dentistry with Greenfield and his iridioplatinum cage in 1909. However the latest Dental Implants, invented on the basis of scientific researches, have been around in various forms since 1952.

Loosing teeth, either through old age or accident, is a cause of untold agony and depression for most of the patients. Even when elderly people start to lose their natural teeth and switch to dentures, the transition is not simple as they lose their sense of taste, resulting in less intake of food & subsequent weight loss, besides suffering discomfort such as nausea and vomiting. On the other hand for the young, the loss of teeth causes an acute crisis of self-confidence. To give full satisfaction to the patient, with fixed restoration, artificial replacement of the roots of the teeth has always been the dream of the dental surgeon, which in turn led to the invention of Dental Implants. The technique of Dental Implantology promises a new quality of life to such persons having missing teeth, as it gives a person an opportunity to have an entirely new set of permanent teeth, fixed into the jawbone.

There are various anatomic and esthetic consequences of edentulism, which can be broadly grouped as follows:

## **ANATOMIC PROBLEM AND CONSEQUENCES ASSOCIATED WITH EDENTULISM**

1. Decreased width of supporting bone
2. Decreased height of supporting bone
3. Prominent mylohyoid and internal oblique ridges
4. Progressive decrease in Keratinized mucosa
5. Prominent superior genial tubercles
6. Elevation of prosthesis with contraction of mylohyoid and buccinator muscles serving as posterior support
7. Forward movement of prosthesis from anatomic inclination
8. Thinning of mucosa, with susceptibility to abrasion
9. Loss of basal bone
10. Paresthesia from dehiscence mandibular canal
11. Increase in size of tongue
12. More active role of tongue in mastication
13. Decrease of neuromuscular control with aging
14. Effect of bone loss on esthetic appearance of lower 1/3 face

## **ESTHETIC CONSEQUENCES OF EDENTULISM**

1. Prognathic appearance
2. Decrease in horizontal labial angle

3. Thinning of lips (especially of maxilla)
4. Deepening of nasolabial groove
5. Increase in facial height
6. Loss of tone in muscles of facial expression
7. Increased length of maxillary lip
8. Less teeth shown at rest position and lower high lip-line position (aged smile)

Dental Implant is the latest and most permanent tooth replacement option available today. The procedure of inserting of latest variety of Dental Implants is comparatively less cumbersome and painless with less postoperative discomfort to the patients. A Dental Implant, normally made out of Titanium or vitallium alloy, is implanted into the jawbone by gently making a precise receptor site and left to heal for 3-6 months. During this phase bone heals fusing to the implant, after which final replacement of tooth is placed on top of it. Generally the entire surgical procedure is done under local anesthesia only.

There are many advantages of Implant supported prosthesis for the restoration of one or more missing teeth. Some of the main advantages are as follows:

### **ADVANTAGES OF IMPLANT – SUPPORTED PROSTHESIS**

1. Maintenance of bone
2. Maintenance of occlusal vertical dimension
3. Tooth positioned for esthetics
4. Proper occlusion
5. Improved psychologic health
6. Regained proprioception (occlusal awareness)
7. Increased stability
8. Improved phonetics
9. Reduced removable prosthesis size (eliminating palate or flanges)
10. Improved success rate of prosthesis
11. Increased survival time of restoration
12. Improved function of prosthesis
13. Maintenance of muscles of mastication and facial expression

Now a days, the Dental Implantology is one of the most dynamic and fast developing specialization in

the modern Dentistry. More than 100 types of major implant systems, promoted by different manufacturers, are available to the Dental Surgeons. Due to the availability of various types and forms of Implants, suitable in different conditions, the Dental Implants can be used in almost all the cases of partial or full edentulism. Like in the cases of complete edentulism, where patient is having very thin ridge with loose dentures and where nothing much can be done, just 2 Micro Implants in each jaw can do wonders and give unmatched and complete satisfaction to the patient with Implant supported dentures. Even in the cases of Maxillary Sinus proximity or less Ridge height, the endopore Implants, which come in the size as small as 5mm length, can give excellent results. Even in aesthetically important cases, we can put immediate temporary bridge, by using Transitional Implants. In the cases where we have to go for extraction of one or more teeth, we can insert the Biocortical Screw Implants in the socket immediately after the extraction, in the same sitting. So, with the latest advancement in the field of Dental Implantology, Dental Implants can be used in almost all the situations for replacement of one or more missing teeth.

However, the one thing that every Dental Surgeon needs to keep in his mind, is that the Dental implants are very technique sensitive. That means that the dental implant may fail due to slight deviation of the accepted procedure.

Now most of the Dental Implant systems have the success rate of around 95% if the operator observes proper surgical procedures. Apart from the overheating of the bone during preparation of the receptor site in the jaw bone which may cause early loss of Implant, improper load, angular load or improper sitting of prosthesis on dental implant, may create stress on a particular implant and may cause its failure in a long duration. So, all these factors should be observed during the treatment planning for a particular case, for the long term success of this excellent technique of restoration of missing teeth.

So, if the Dental Implants are placed with all the surgical skill, there are enough dental implants placed to support the superstructure, the superstructure placed on top of the dental implant is fabricated correctly, and the patient is not having any systemic or local contraindications for Implant surgery, then the chances are that these dental implants will be lasting for patient's life time. However patient needs to maintain oral hygiene and take care of the implant like the natural teeth.

### **Why are Implants preferred over Dentures and Bridges ?**

Dentures are generally loose and unstable. There are chances of falling out while talking and eating, and inability to pronounce properly, whereas implants can provide the stable dental replacements that are both functional and aesthetic.

Bridges require the grinding of adjacent healthy teeth on either side to support the bridge. When these teeth are lost at a later stage, the entire bridge needs replacement and grinding of the other teeth for new

bridge. Implants are directly attached to the bone and gums, so no support of neighboring teeth is required as teeth are constructed over the Implants. Thus neighboring teeth are spared of long-term problems. Chewing efficiency of removable partial and complete dentures is only 20-25% of natural teeth, but for implanted teeth it can be 90-95%.

With Implants patient can enjoy better health through renewed eating habits.

Implants also protect the jawbone from shrinkage and deterioration, which happen in case of bridge or Denture.

Removable Dentures always give the artificial feeling of having some foreign body in the mouth, while Implant gives the natural feeling.

With these invaluable benefits, the Implant treatment is becoming a fast-growing better alternative to the traditional tooth replacement methods.