i Aurobindo College of Dentistry

Indore, Madhya Pradesh

INDIA

Module plan

- Topic : **A BAG FULL OF DENTURES**
- Subject: Periodontics
- Target Group: Undergraduate Dentistry
- Mode: Powerpoint – Webinar
- Platform: Institutional LMS
- Presenter: Dr Rajesh Kumar

Oral Implants

Learning objectives

- Basic implantology
- Indications and contraindications
- Advantages and disadvantages
- Treatment options available with implants
- Basic implant surgical technique
- Implant complications

Oral Implantology

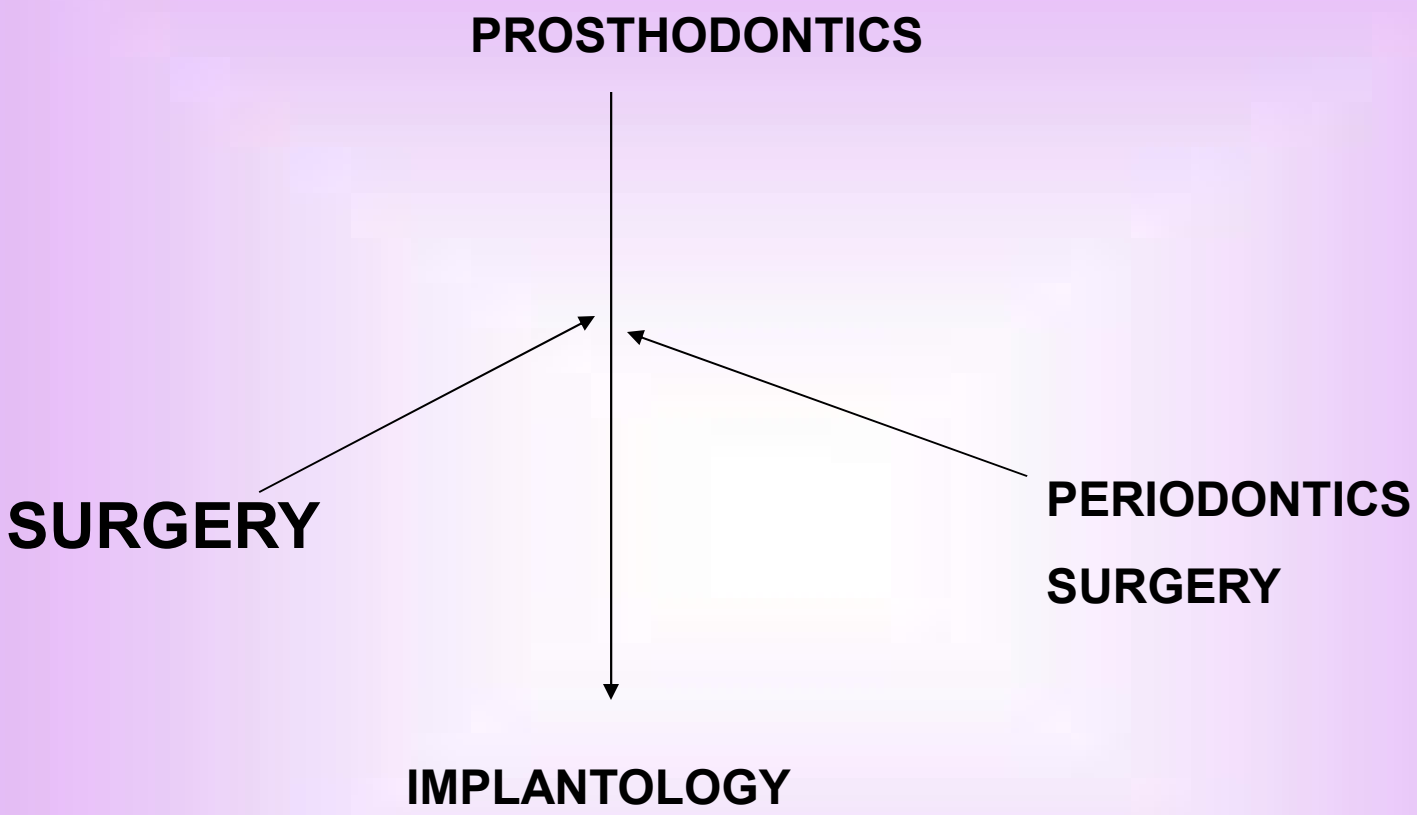
- **It is that branch of dentistry which deals with the study of artificial replacement of missing teeth with the use of inert materials implanted into the tissues**

- **Branch of DENTISTRY which Every one wants to FATHER**

Dental Implants

Definition- **A Dental Implant is defined as**

“ A substance that is placed into the jaw to support a crown or fixed or removable denture.”


PROSTHODONTICS
SURGERY
PERIODONTICS
SURGERY
IMPLANTOLOGY

Indications

- For completely edentulous patients with advanced residual ridge resorption.
- For partially edentulous arches where RPD may weaken the abutment teeth.
- In patients with maxillofacial deformities'.

- **For single tooth replacement where fixed partial dentures cannot be placed .**
- **Patients who are unable to wear RPD.**
- **Patients desire .**
- **Patients who have adequate bone for the placement of implants.**

- **CONTRAINDICATION**
- **Presence of non treated or unsuccessfully treated periodontal disease**
- **Poor oral hygiene.**
- **Uncontrolled diabetes.**
- **Chronic steroid therapy .**
- **High dose irradiation.**
- **Smoking and alcohol abuse.**

- **ADVANTAGES-**
- **Preservation of bone**
- **Improved function**
- **Aesthetics**
- **Stability and support.**
- **Comfort.**

- **Disadvantages-**

- **Can not be used in medically compromised patients who cannot undergo surgery.**

- **Longer duration of treatment.**

- **Need of a lot of patients cooperation**

- **Very much expensive.**

CLASSIFICATION

(A) Depending on the placement with in the tissue.

- **Epiosteal implants- These implants receive their primary bone support by resting on it.**

  eg- Sub-periosteal implants.

- **Transosteal Implants- These implants penetrate both cortical plates and passes through the entire thickness of alveolar bone.**

- **Endosteal implants-**

This kind of implants extends into basal bone for support.

It transect only one cortical plate.

(B) Depending on materials used .

- **Metallic Implants-**

Ti
Ti alloy
micro enhanced pure Ti
plasma sprayed Ti
Co,Cr,Mo alloy

Non metallic Implants-

- Ceramic
- Carbon
- Alumina
- Polymer
- Composite

(C) Depending on Design

- Screw shaped
- Cylinder shaped
- Tapered screw shaped.

PARTS OF IMPLANT

1.Implant body

It is the component that is placed with in the bone during first stage of surgery

- Threaded
- Non threaded

2.Healing screw

:During the healing phase this screw is normally placed in the superior surface of body

Function: Facilitates the suturing soft tissues.

Prevents the growth of the tissue over the edge of the implant.

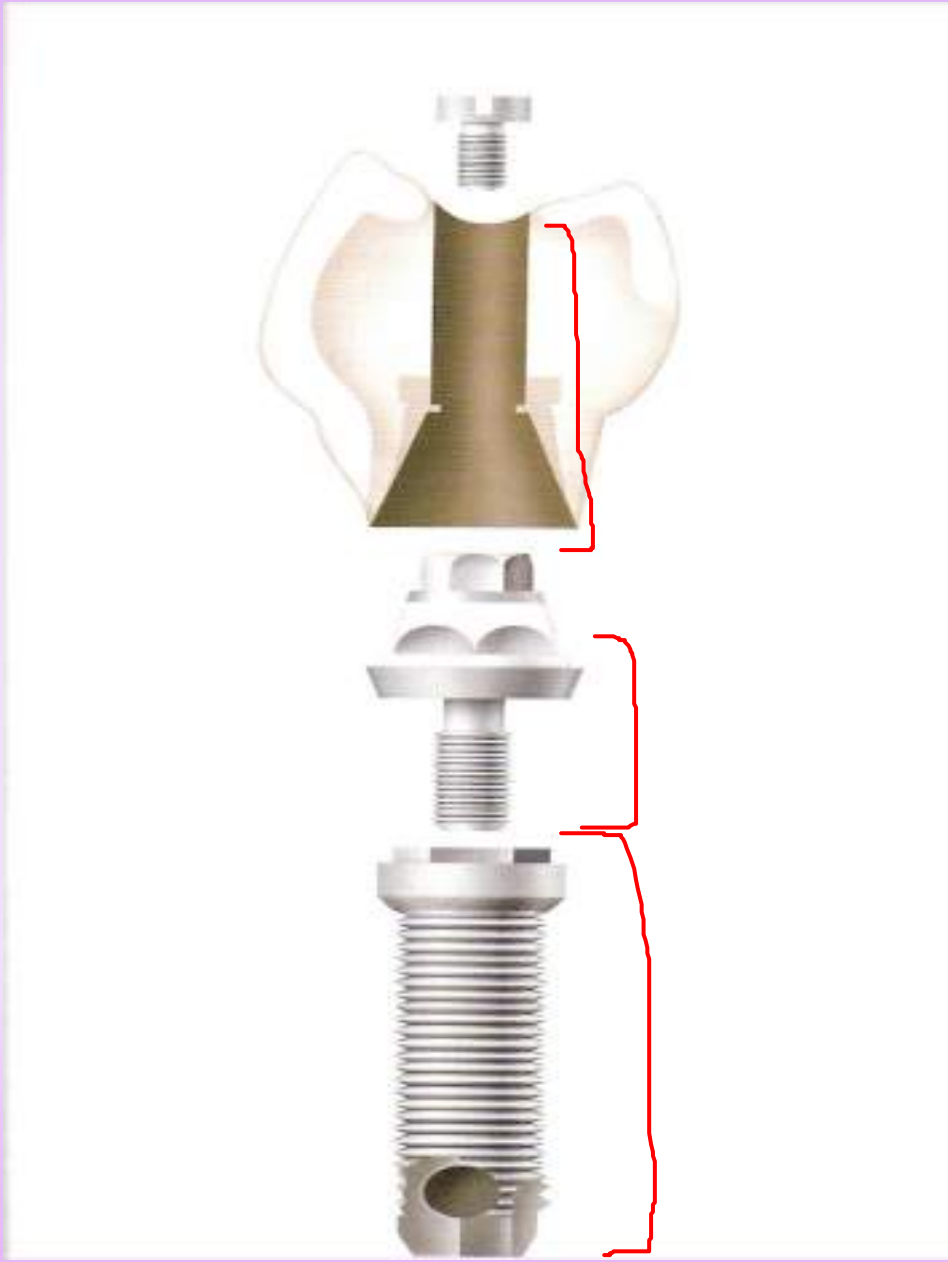
3. Healing caps:

are dome shaped screws placed over the sealing screw after the second stage of surgery & before insertion of prosthesis.

4.Abutments:

part of implant which resembles a prepared tooth & is inserted to be screwed into the implant body

5. Impression posts



IDEAL REQUIESETS

to achieve an osseointigrated dental implant with a high degree of predictibility the implant must be-

- Sterile
- made of a highly biocompetible material
- Inserted with an atraumatic surgical techinique that avoids overheating of the bone.
- Placed with initial stability
- Not functionally loaded during the healing period

PERIMPLANT MUCOSA

Mucosal tissues around intraosseous implants form a tightly adherent band consisting of a dense collagenous lamina propria covered by stratified squamous keratinised epithelium.

Implant epithelium junction is analogous to the junctional epithelium around the natural teeth in that the epithelial cells attach to the titanium implant by means of hemidesmosomes and a basal lamina.

- **The depth of normal non inflammed sulcus around an intraosseous implant is assumed to be between 1.5-2mm.**

- **The sulcus around an implant is lined with sulcular epithelium that is continuous apically with the junctional epithelium.**

Main difference between periimplant & periodontal tissues is that

1. Collagen fibers are non attached & run parallel to the implant surfaces owing to the lack of cementum.

2. Marginal portion of the perimplant mucosa contains significantly more collagen & fewer fibroblasts than the normal gingiva.

OSSEOINTEGRATION

- **The Bone to Implant contact**

- **Sterile metal when placed into the bone the bone grows around it and is held by it.**

OsseoIntegration

- **Defn: A process whereby clinically asymptomatic fixation of alloplastic materials is achieved and maintained, in bone during functional loading (Zarb & Albrektsson 1991)**

Factors influencing

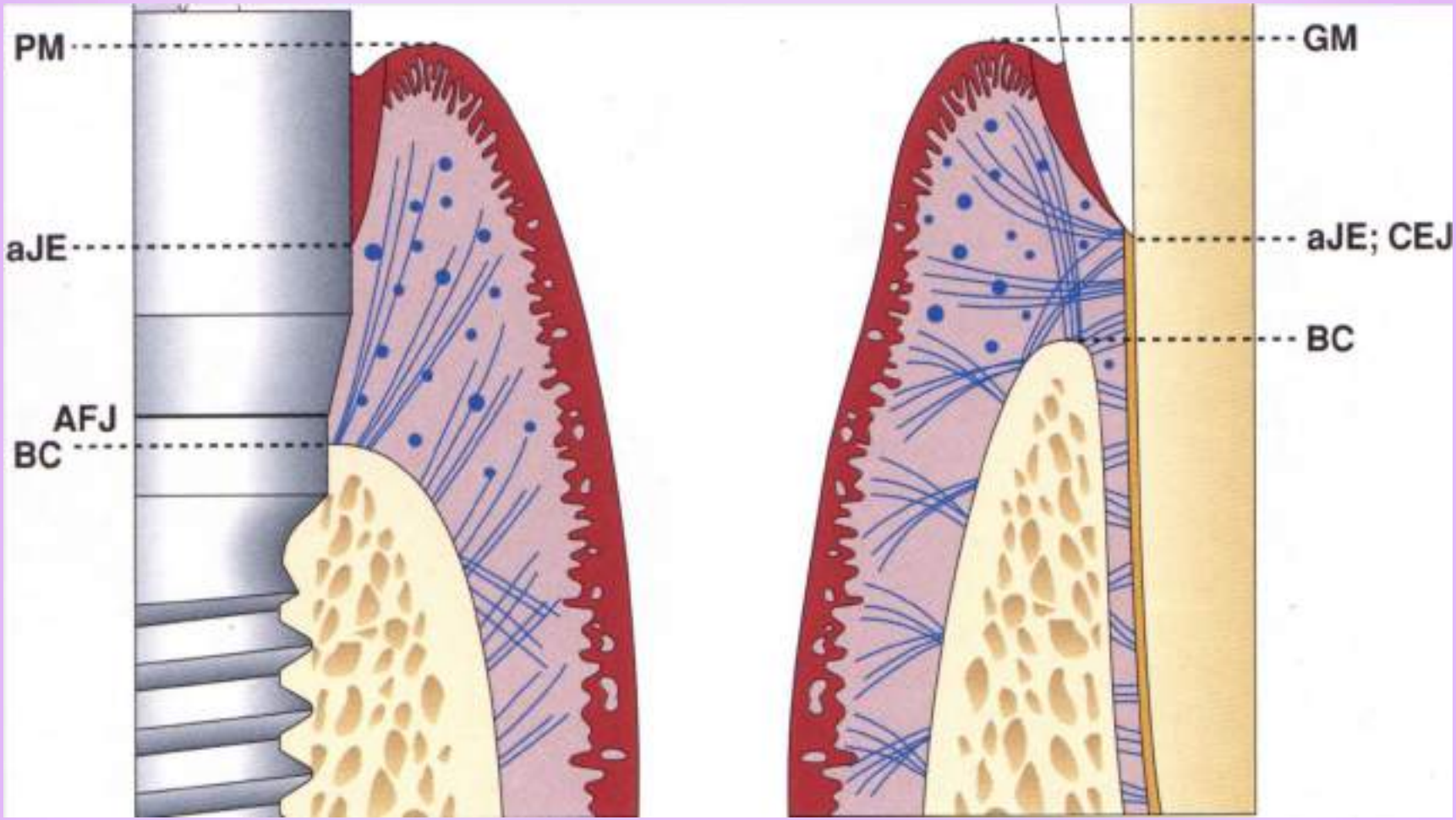
1. Biocompatibility
2. Design
3. Surface conditions of the implant
4. Status of the host bed
5. Surgical technique at insertion
6. Loading conditions (applied later) (occlusion)

The bone implant - interface

- There is no 100% contact between the implant and the bone surface
- It Varies around 60-80 %
- More the time, more is the amount of contact
- More bone contact in the mandible than in the maxilla
- More the surface area, better is the contact
- Irregular surface 1-100 microns. Surface irregularity of .0 – 1.5 microns ideal.
- In the space: PGL/ GLP

IMPLANT - SOFT TISSUE INTERFACE

- Peri implant mucosa
- Attaches to the neck of the implant.
- Has JE and SE
- Fibres oriented parallel to the long axis of the implant

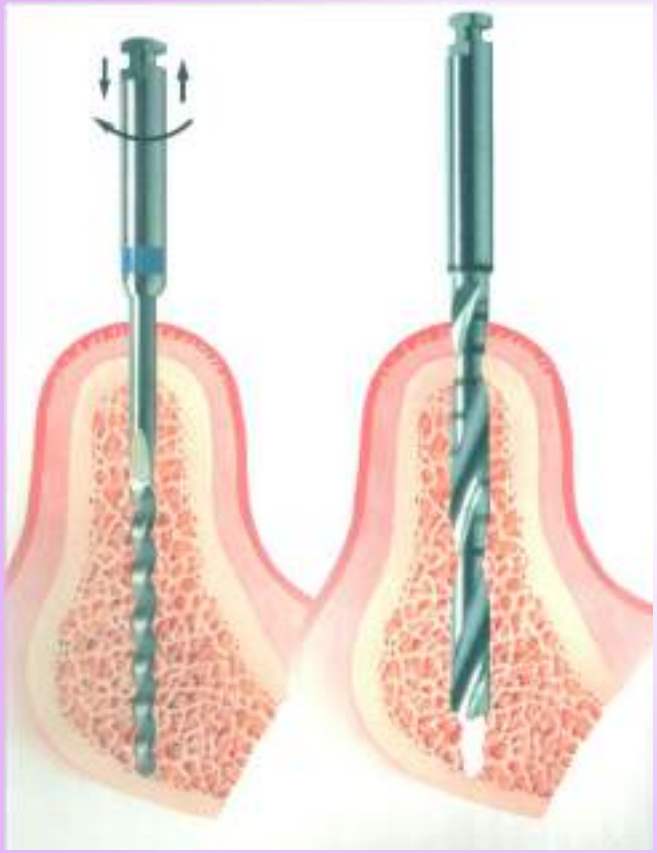

PM
aJE
AFJ
BC
GM
aJE; CEJ
BC

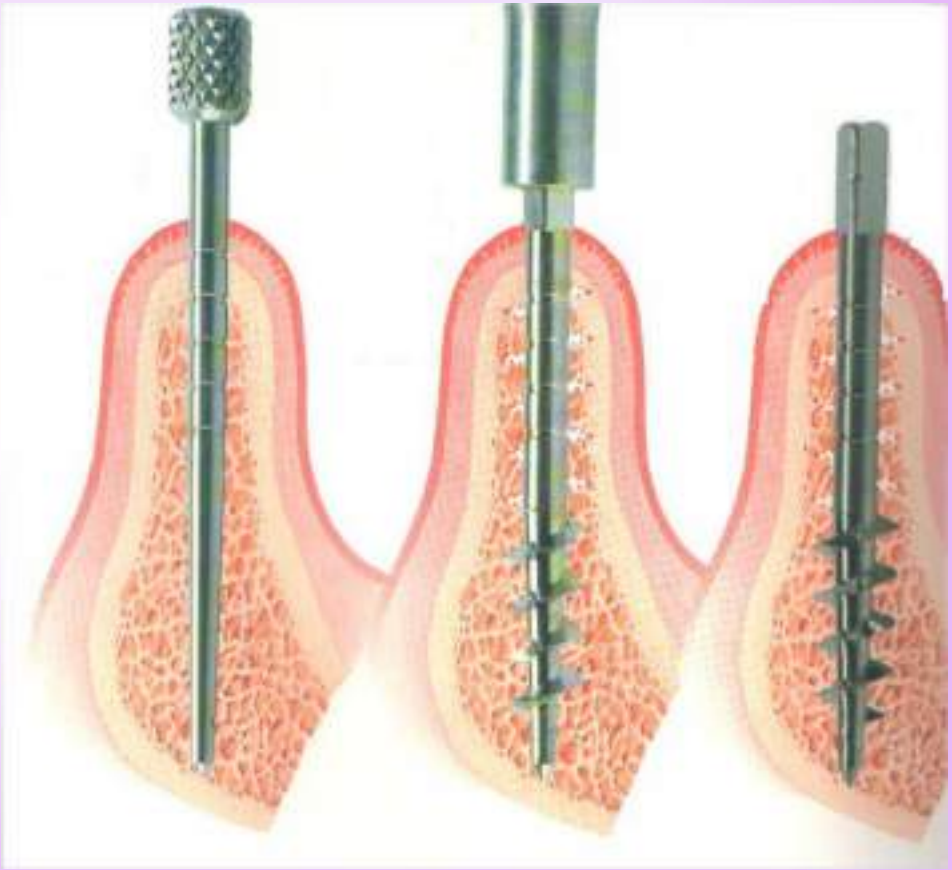
Steps in Implant Therapy

- Examination
- Radiographic Evaluation
- Models
- Designate the type and number of implants to be placed
- Systemic examination

Steps

- Fabricate the prostheis / temporary Surgical Guide
- Local anaesthesia
- Incise and reflect full thickness flap
- Drill in a sequence under constant irrigation
- The Osteotomy site:
- Thread in the implant
- Suture



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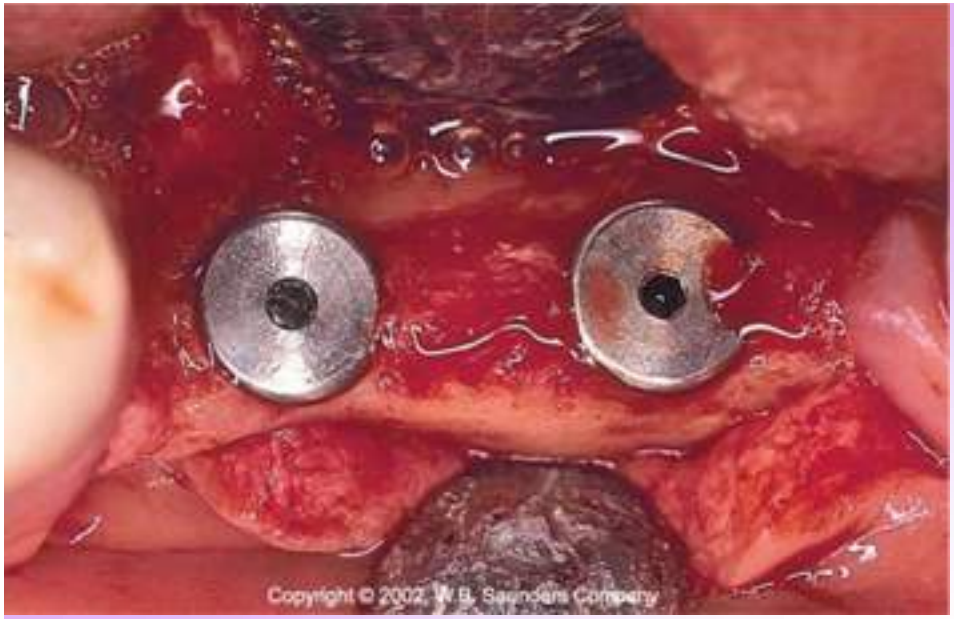
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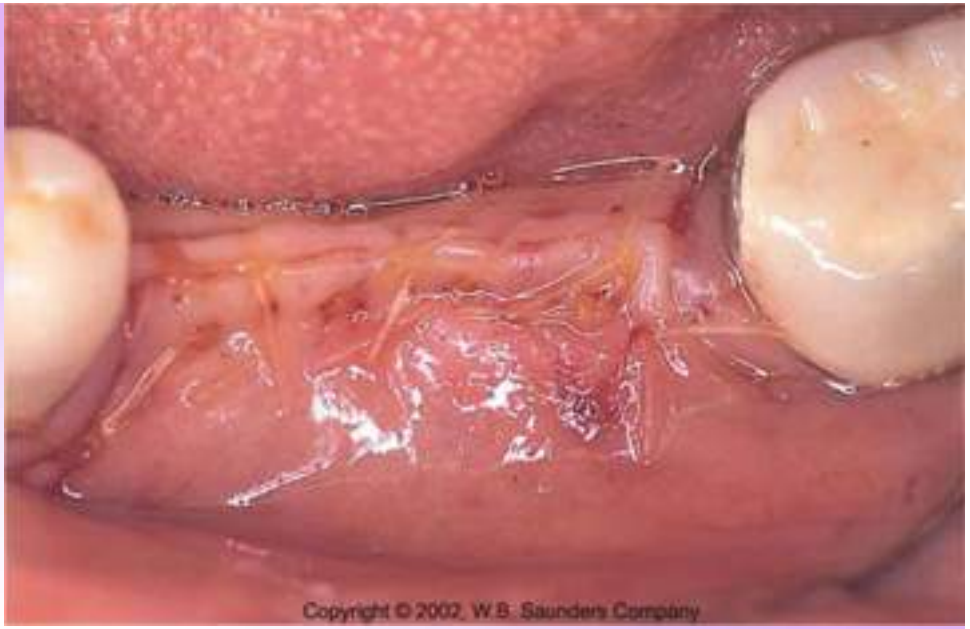
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Waiting Period

- **Mandible: 3 months**
- **Maxilla: 6 months**
- **Augmented area: > 6 months**

Second stage Procedure

- Expose the implant mouth
- Place gingiva formers
- Make impressions & connect abutments
- Prepare the restorations
- OCCLUSION
- Cement the Restorations
- Recall

Follow up

- **Check every 3 months 1st year**
- **Then depends**
- **OHI**
- **OCCLUSION**

Complications

- Pain
- Parasthesia
- Failure to osseointegrate
- Peri implant mucositis
- Periimplantitis

Peri implant mucositis

- Similar to gingivitis
- ETIO: Poor oral hygiene
  Improper restorative margins
- More severe
- No bone loss
- Spreads faster
- All signs of inflammation

Periimplantitis

- Similar to periodontitis
- ETIO: Occlusal problem
  Poor oral hygiene
- Bone loss
- No mobility till last thread in the bone
- Rapid destruction
- Pocketing

Summary

- **Dental implant is a recent and novel technique for tooth/teeth replacement.**
- **Treatment with dental implant is a multi disciplinary approach.**
- **A proper diagnostic evaluation is must before implant placement.**

Thank You.!

Thank you

HOPE TO SEE YOU ALL WITH A

PREFIX

Dr.

ON YOUR NAMES