

ملاحظة على الشيت : السلايدات كانت مش واضحة هلبا وفي الي مش واضح بكل حاولت
نعرف الي نقدر عليه واسفة لو الشيت فيه اي خطأ مش مني *-*

Implant

: General information

implant are replacement tooth root -1

they are specially designed so that they become securely -2
attached to the bone through a process called
osseointegration

restoration are screwed or cemented onto implants or -3
implant components after a healing period

restoration are fabricated as c&b procedure -4

it is possible to replace a single tooth or several teeth or -5
a full arch

implant make denture more stable -6

Differences between implant and teeth

Unlike teeth implant lack healing capacities -

Implants do not have a periodontal ligament -

The barrier to the oral cavity is rather different around -
implnt sprincipally because of a missing connective tissue
attachment

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of a dental implants in the health & function is as essential as
the surgical technique

The DI is exposed to the hostile enviroment of the oral cavity -
as a passes through the oral mucosa, perimuccosal seal is
therefor important in order to prevent ingress of toxic
substance & bacteria into the deeper tissue

Absence of cementum & periodontal attachment in the case of implant is an equally significant factor for consideration
In spite of the presence of the JE & periodontal attachment
The natural dentition is subjected to the injurious factor of bacteria & their products in the oral cavity
-Patient as well as the dentist should be aware to the various factor responsible for maintaining the implant in a healthy functional state &

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Osseointegration :- represents a direct connection between Bone & implant without interposed soft tissue layers however 100% bone connection to the implant does not occur ,

Problem in identifying the exact degree of bone attachment for the implant to be termed osseointegration based on stability instead of on histological criteria

a process whereby clinically asymptomatic rigid fixation of “alloplastic material is achieved & maintained in bone during functional loading



The term of osseointegration describes the attachment of bone to the surface of an implant -

It is a histological & not clinical observation -

Clinically, an osseointegrated implant feels solid & no mobility is present

When an implant is not osseointegrated, bone often heals without clinical signs of rejection

However, a slight mobility is noted, in such case, the osseous surface is separated from the implant by a thin fibrous

membrane seen in some X-ray

.Successful osseointegration requires a waiting period -

-: Long-term physiology of osseointegration

Osseointegration is a physiological state that undergoes -
maturation over the life of the implant

During implant function surrounding bone continually remodels -
in response to biting force

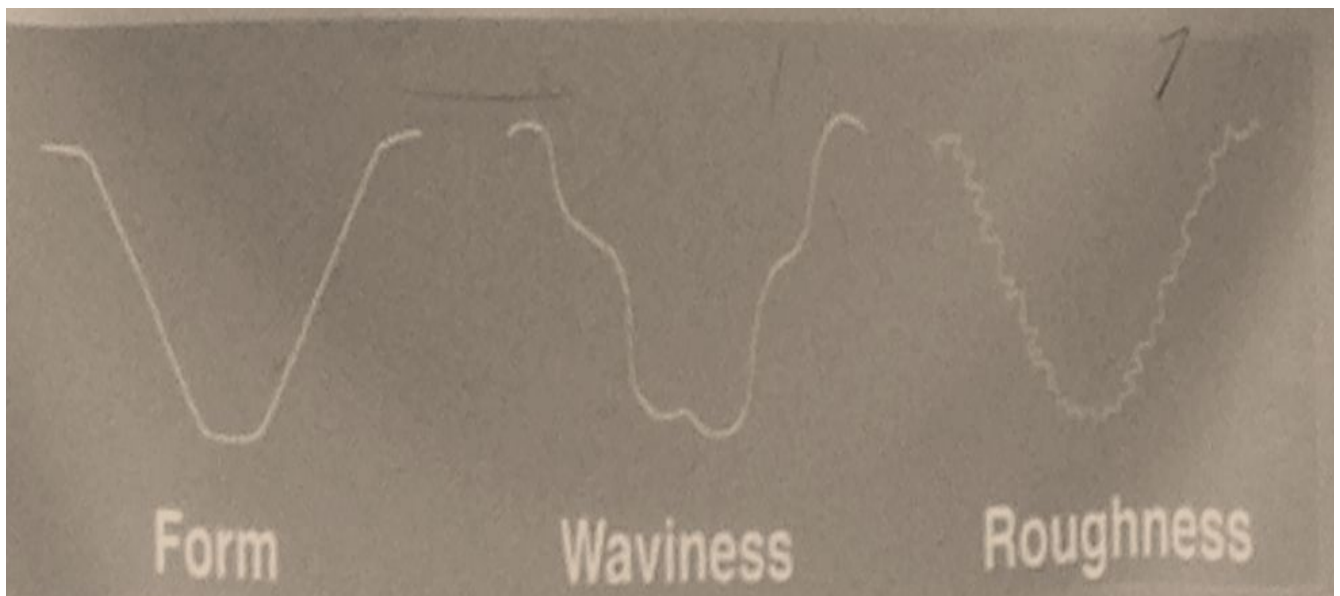
In rare case excessive force may cause loss of osseointegration -

The implant surface also undergoes long-term changes the -
ceramic oxide layer thickens with time

Implants include grit blasting, titanium plasma spraying, etching -
and or coating . Such surface conditioning methods will result

in irregularities of heigh wavelength & how it may indeed

.enhance bonehealing osseointegration is not clear yet



A schematic drawing of an implant , which demonstrates the
terms from waviness & roughness

-:Muccosa – implant anterface

The attachment of the gingival mucosa to the implant surface is of great significance because it forms a seal at the cervical portion of the implant similar to JE in natural tooth. Many studies reveal that there is an attachment between epithelial cells and the implant surface.

A predictable mucosal seal around the implant can be obtained depending on the nature of the implant material.

However, titanium is a highly reactive metal in itself. The oxide layer that forms at room temperature on its surface makes it biologically inert & resistant to chemical attack or corrosion.

-: Implant placement

Compact bone

Bleeding

Tissue necrosis

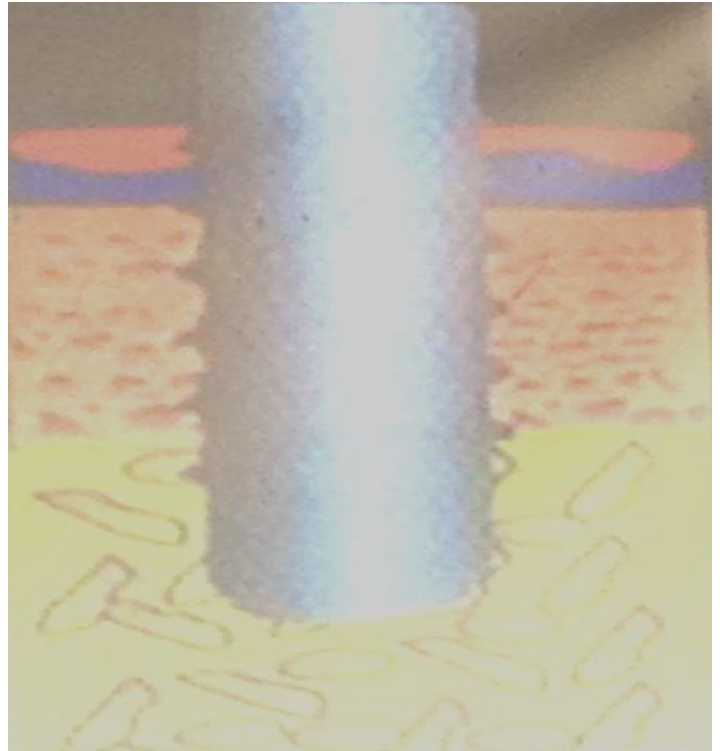
Resorption

New bone formation

Bone marrow

Bleeding

New bone formation

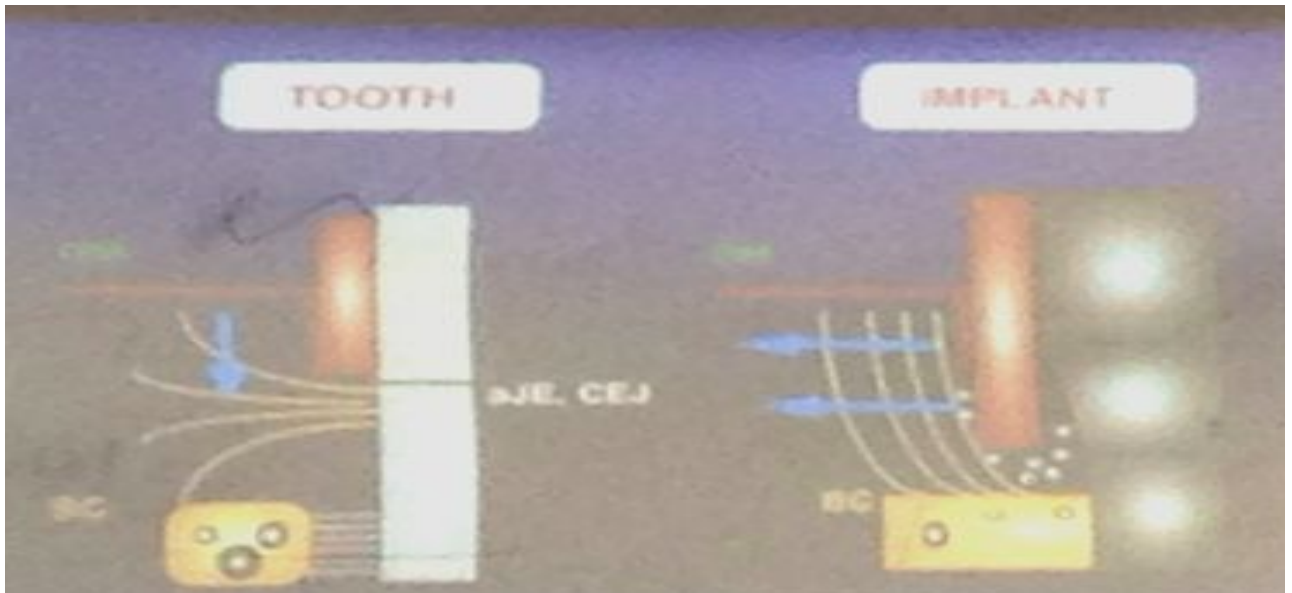


-: The transmucosal attachment

The gingiva at teeth & the mucosa at implant made of titanium have some characteristics in common, but differ in the composition of the CT, the alignment of collagen fiber bundles, the distribution of vascular structure in the compartment &

.Apical of the barrier epithelium

CT fibers around implant neck are parallel to the implant - Surface & as a result provides little resistance to a probe



Schematic diagram illustrating the probe in position at the tooth site & the implant site

الدكتور مغربي باقي الدوة تحت الصورة ما قدرتش نعرف كل الكلام

-: Bone implant interface

Three types of union between the implant & the bone have been described

fibro-osseous integration -

Osseointegration -

Biointegration -

-: Fibro-osseous integration

Collagen fibers from in the interface between the implant & bone

These collagen fibers form the peri implant membrane which

Arise from trabeculae on one side of the socket & wave their way

Around the implant to be inserted into the trabaculae on the

Other side , unlike the PDL fiber which get inserted into the root

surface

than During functional force it helps to laydown new bone rather produce resorotion

-: Osseointegration

&Absence of fibrous tissue in the interface between the bone -

. The implant is the key to implant success

Stability of implant during the healing is important for -
achieving

Osseous integration

-: Stages of healing of implant

Woven bone formation -

Lamellar bone formation -

Bone remodeling -

..... **Principle to be followed for proper** كلمة مفقودة

a traumatic surgery, avoid over heating & crushing of bone -1
during surgery

maintanance of strict asepsis -2

tow stage approach to avoid any mechanical or microbiological -3
challenges

screw shape with microroughened surface to provide better -4
Osseointegration

According to branemark the implant must be kept out of
.Function during the healing phase

-: Bio integration

Bioactive retention is achieved with bioactive material such as
Hydroxyapatite or bioglass coating on implant surface which
Bond directly to bone

-: Indication of DI

patient with partially or full edentulous arch -1

patient who are unable to wear removable denture & had -2
enough Bone for insertion of the implant

patient who has a good general health & are able to maintain -3
Good Oral hygiene

-: Contraindication of DI

uncontrolled diabetes, prolonged steroid therapy, radiation -1

therapy, Abuse of alcohol, smoking, may contribute to failure of
implant

presence of periodontal D considered CI -2

patient who fail to maintain good plaque control -3

-: Surgical procedure

-: tow stage endosseous implant surgery -1

: A- first stage

An incision is made along the crest of the alveolar ridge & a full -
thickness flap is raised to expose the alveolar ridge

The flap reflected to mucogingival junction buccally & lingually -

If the ridge is knife edge it should be recountored with , round -
Bur to make it flat

After preparation of the implant site a surgical guide is placed -
intraorally & implant site is marked with a round bur & the
surgical guide removed

The implant site is deepened to 2mm exposing spongy bone -

Using a 2mm spiral drill a recipient site is prepared to the -

Desired depth maintaining the proper vertical axis

the bone is removed with a drill rotating at a speed of 800-1000
with copious irrigation to prevent overheating of bone

Care should be taken not to damage any vertical structure -
The implant site are then widened to accommodate the -
selected implant using a series of drill, the recipient site should
be accurate in size & angulation

Implant is then placed in position either by tapping or screwing -
it in & cover screw is then placed

The mucoperistium flap is sutured over the implant -
Amoxicillin 500 mg 3*7 given & application of ice back is -
recommended

Chlorohexidine mouth rinse twice daily -
suture removed at the end of one week -

: B- second stage surgery

The implant is left undisturbed for 3-6 months for -
osseointegration to Occurs

The buried implant is uncovered & titanium abutment is -
, connected to permit access to the implant from the oral cavity
& using a punch technique or a flap & cover screw is removed
the abutment is placed On the fixture , A tow weeks time is given
befor supre structure is Placed for healing of the soft tissue to
complete

:-: one stage endosseous implant surgery -2

In this procedure the implant protuded through the crest of the -
bone & the flap sutured apical to the future margin of the
prosthesis

Crestal ancision is given & mucoperiosteal flap are elevated -
bucally & lingually

Implant site is prepared using a round bur -

With hollow cylinder & hollow screw implants a predrill is used -

to Prepare the shoulder level & trephine with depth marking is then used To the final sink depth

Once the implant is tapped into position the smooth portion of the Implant 2-3mm in height remain uncovered to the crest of the bone

A healing cover screw is then fixed to it & the flap is sutured around the implant

Implant is not loaded for 3-4 months -

The cover screw is then removed & the abutment is then placed - it to fabrication of the prosthesis

-: The bone quality & quantity

It is difficult to categorize bone quality when looking to a radiograph

Only a CT scanning survey provides an objective quantitative Analysis

Tactile sensation during surgery provides the best evaluation Of bone quality

Bone density classification provide an indication of implant Survival

Bone volume has a direct impact on treatment -

Recommendations & prosthesis selection, loss of bone width Required osseous grafting , loss of bone height is more difficult often impossible to recover &

Ridge mapping measure, consist of clinical bone sound -

Under LA & measurement of gingival thickness to determine Bone width

At least 1mm of bone lingual & buccal of the implant must Remain for it to survive

-: Bacterial attachment & calculus formation

Bacteria attaches to implant & abutment in the same way it -
Attaches to dental surface

Calculus formation also occurs in a similar fashion -

The presence of teeth in the oral cavity is a source of implant -
Bacterial colonization

Edentulous patient that receive implant rapidly develop a -
Bacterial flora similar to dentate patient

-Plaque accumulation & bacterial infiltration may result in peri -
Implantitis

Plaque accumulates on implant surface

Soft tissue around the implant

Inflammation

Called peri implant mucositis

It similar to gingivitis (reversible) & can be controlled easily

If it left untreated

Lead to progressive loss peri implant bone

When bone loss occur along with inflammation of the soft
tissue it is termed



Peri implantitis

-: Peri-implant mucosa

The mucosa surrounding implants is clinically similar to the mucosa surrounding teeth

The gingival attachment is comprised of JE=1-2 mm & a CT Attachment = 1 mm

Unlike teeth, CT fibers are not perpendicular to the implant surface, but parallel

Blood supply to peri-implant CT is limited, which comes from the periosteum & Periosteum only, in tooth it comes from periodontium

Periodontium

The peri-implant features have important clinical consequences - Probing resistance is decreased & early inflammatory response is limited

-: peri-implant mucositis

A reversible form of peri-implant gingival inflammation - is caused by the loosening of abutments (mucositis)

Bacteria infiltrate the gap created by loosened abutment -

When addressed at an early stage, no damage occurs to underlying bone

-: Peri-implant mucositis

the main signs of mucositis is gingival inflammation around implants without evidence of bone resorption

It may be due to poor oral hygiene or a poor prosthesis design - That make access difficult

Most often mucositis results from abutment loosening, which enables bacterial infiltration

If it is untreated it will result in peri-implantitis

It is reversible disease, elimination of the causative factor -
Result in complete elimination of the disease

-: Peri-implantitis

peri-implantitis is an inflammation of peri-implant tissue that -
Lead to bone loss

It result from plaque & bacterial infiltration around implant -

Clinical signs of PI may be more severe than ptes -

Because of the lack of CT resistance & diminished blood supply -
PI lesions spread to bone rapidly

Rx of PI involves inflammation control modification of the -

Exposed implant surface. Scaling, pocket irrigation & plaque

Control & systemic antibiotic is recommended

Once bone loss has occurred, the damage is not reversible -

Unless bone regeneration treatment is attempted

-: Implant survival & success

In the literature, implant survival & implant success have distinct
Meanings

Survival : refers to implant that are still in the mouth at the time
Of examination. Regardless of the state of the prosthesis or patient

Satisfaction a non-functional implant requiring additional

Treatment is counted in the surviving group

Success : refer to implant that are not only in the mouth, but are
Also functional & satisfactory

The exact definition varies amongst clinicians

-: Implant failure

Since the implant is exposed to the oral environment adverse -
Effect of plaque bacteria & abnormal occlusion force may cause
Pathological changes in the peri-implant tissue

When bone loss occur around the implant to the point when it -
is mobile it is termed a “failed implant” or even there is a
Significant bone loss but the implant is not mobile it is a
”failing implant “

If implant has loss some bone support but Bone loss is arrested -
then its called ailing implant

Bone loss can occur due to over loading the implant -

-: A failure implant may be treated by

occlusal therapy -1

plaque deposition are removed with plastic instrument & the -2

Patient is placed on periodic recall

chlorohexidine mouth rinse may be prescribed 0.12% -3

in area where deeper pocket have formed local drug -4

Delivery system may be employed

regenerative therapy may also be considered depending on -5

The type of osseous defect

a failing implant may be removed -6