

# Crown and bridge Prosthodontics

## Lecture.1

Prof. Adel F. Ibraheem

### Prosthodontics (prosthetic dentistry or prosthodontia)

*The dental specialty concerned with restoration and maintenance of oral function, comfort, appearance and health of the patient by making artificial replacements for missing parts of the mouth and jaw.*

### Branches of Prosthodontics

1. Fixed Prosthodontics
2. Removable Prosthodontics
  - a) Complete Denture
  - b) Removable Partial Denture
3. Implant Prosthodontics
4. Maxillofacial Prosthodontics

### Fixed prosthodontics(Crown and Bridge prosthodontics );

It's a branch of dental science that deals with restoration of damaged teeth with artificial crown and replacing the missing natural teeth by a dental prosthesis permanently cemented in place [Fixed partial denture].

### Types of Fixed Prostheses

- 1) *Extra coronal ;involve all the restoration that seat over the tooth such as all type of crown restorations(full metal crown ,partial crown ,PFM, all ceramic crown.....) and direct or indirect veneer restoration*
- 2) *Intra coronal; involve all the restoration that seat inside the tooth such as inlay, onlays ,pinlage.*
  - **Fixed Prosthodontics involove :**
    - *Inlays-gold and all ceramic*
    - *Gold crowns-full and partial veneer*
    - *Porcelain & Zirconium-all porcelain and PFM*
    - *Fixed partial dentures*

### Crown :

*It's fixed extra coronal artificial restoration of the coronal Portion of a natural tooth .It must restore the morphology, function and the contour of the damage portion of the tooth And should protect the remaining tooth Structures from farther damage.*

### Types of crowns: (classification)

#### **A) according to coverage area**

- 1.**Complete crown** : It is the crown that covers all the coronal portion of the tooth ,Such as full metal crown ,All Ceramic crown which is a complete crown made of ceramic material.
- 2.**Partial Crown** : It is a crown That covers part of the coronal portion of the tooth such as 3/4 Crown, 7/8Crown .
- 3.**Complete replacement** : it involve those which replace the natural crown entirely. This type of crown retains itself by means of a metal extended inside the root canal space of the tooth such as a post crown.

### **B)According to Materials:**

According to Materials used in the construction of crown and Bridge crown restorations Could be made of :

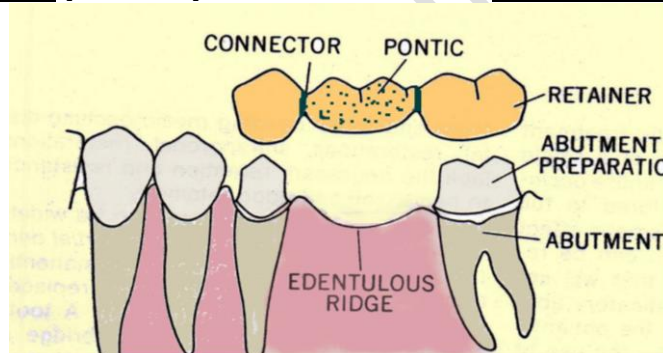
1. **Metal Crowns {Gold alloy And it's alternatives}** as in Full metal Crown and 3/4 Crown.
2. **Non metal crowns:** Such as **Acrylic resin , Zirconium** or **Porcelain** as in jacket crown.
3. **A combination:** of metal and plastic materials as in PFM and PFZ Crown restorations.

### **Fixed Partial Denture (Bridge)**

*It is a fixed dental prosthesis (appliance) which replaces and restores the function and esthetic of one or more missing natural teeth; it can not be removed from the mouth by the patient. It is primarily supported by natural teeth or root.*

#### **Components of the bridge:**

1. **Retainer:** It's the part that seat over (on or in) the **abutment tooth** Which could be major or minor, connecting the pontic to the abutment , *it is either major or minor retainer, & it could be crown, inlay, post & core.*
2. **Pontic:** It is the suspended member of fixed partial denture that replaces the missing tooth or teeth , usually it Occupies the position Of the missing natural tooth .
3. **Connector:** It Part of F.P.D that join the individual components of the bridge together (retainer& pontics) , Which could be fixed (rigid) or movable (flexible) connector. When the **retainer** is attached to a fixed connector it's called **a major retainer** but when it is attached to a **flexible [movable]** Connector it is called **a minor retainer.**



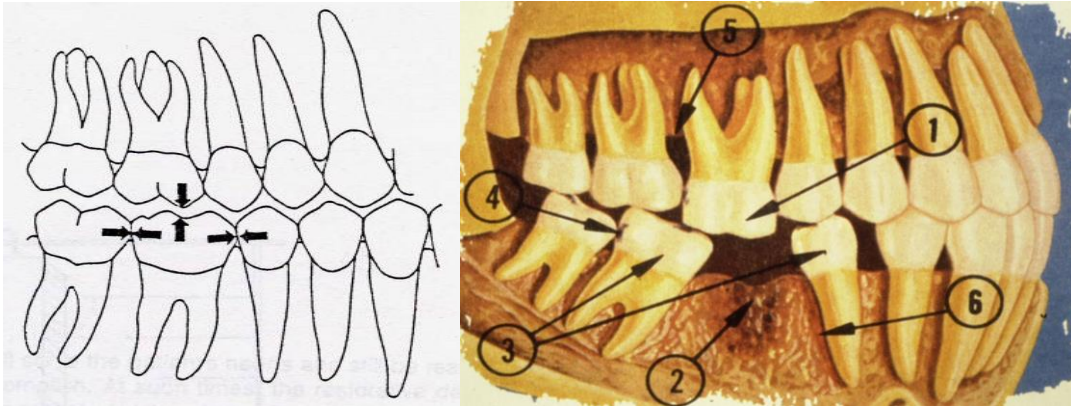
#### **Definitions (terminology)**

- ❖ **Abutment:** *a tooth to which a bridge attached.*
- ❖ **Span:** *is the space between natural teeth that is to be filled by pontics.*
- ❖ **Saddle:** *is an area of the edentulous ridge over which the pontic lies.*
- ❖ **Pier:** *is an abutment standing between two abutments & supporting two pontics, each pontic being attached to further abutment.*
- ❖ **Unit:** *when applied to bridgework, means either a retainer or a pontic; (thus bridge replace premolar & use two abutments may referred as three unit bridge).*
- ❖ **Path of insertion;** *An imaginary line along which the restoration can be inserted and removed without any interferences or causing lateral force on the abutment.*



## Why do a Fixed Partial Denture?

The stability of an individual tooth depend on a balance of the forces exert on that tooth by the adjacent , opposing teeth , supporting tissue & by the soft tissue of the cheek , lips ,& tongue .



When a single tooth is not replaced (after loss), this balance is upset, & the consequence may by:

1. **Tilting (drifting) of the adjacent teeth**
2. **loss of the proximal contact to:**
  - a) Food stagnation & pocketing
  - b) periodontal problem & mobility
  - c) Sub-gingival caries
3. **Super eruption of the opposing tooth or teeth**
  - a) Gingival recession
  - b) Traumatic occlusion or lacking of bite
  - c) Loss of bony support for that tooth.
  - d) loss of the proximal contact
4. **Loss of function on the affected side:**
  - a) Diffuse atrophy
  - b) Heavy deposition of plaque & this lead to gingivitis & periodontal disease.
  - c) Trauma to the soft tissue during function
  - d) Loss of tissue (contraction of both soft tissue & alveolar bone)
5. **posterior bite collapse**

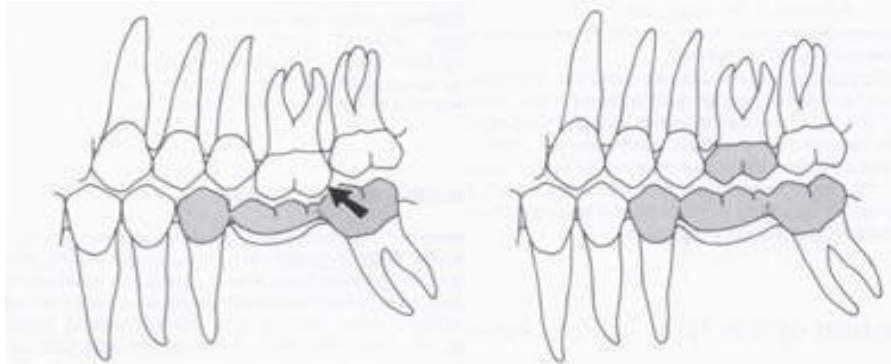
The posterior teeth also support the vertical height of the face. If they are lost, the face tends to lose height and close down; this is called “posterior bite collapse”



### The general effect of tooth loss:

- 1) Generalized collapse of lower & upper dental arch
- 2) Premature contact causing deviation in the normal movement of the mandible, this may result in T M J dysfunction & muscle spasm that cause pain
- 3) Tooth loss may lead to unilateral mastication on the opposite side of the dental arch which results in periodontal problems, caries on the affected side due to deficient mechanical cleaning afforded by the act of mastication.
- 4) posterior bite collapse these changes also put pressure on the front teeth which tend to move or splay forward

Treatment at this stage prevents further disruption, it may be insufficient to ration back to full health, it need extended treatment plans including, ortho. Treatment, additional cast restoration to correct disturbed occlusal plane.



### **IN SOME CASE THE DECISION MIGHT BE NO PROSTHETIC TREATMENT ?????!!!!!!!!!!!!**

- 1) Long standing edentulous space into which there has been little or no drifting or elongation of the adjacent teeth.
- 2) If the patients perceives no functional , occlusal or esthetic impairment.

### Reasons for treating tooth loss

- 1) Esthetic
- 2) Function (ability to eat)
- 3) Pain due to TMJ dysfunction & muscle spasm
- 4) Maintenance of dental arch ( occlusal stabilization & prevent tilting)
- 5) Speech ( particularly lower incisors)

### Methods of treating tooth loss

- ❖ Orthodontic
- ❖ Removable partial denture
- ❖ Fixed partial denture (tooth supported partial denture)
- ❖ Implant ( osseo-integrated implant)
- ❖ Combination