

## Prosthodontics

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 (complete denture & 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 Prosthesis

**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.

### Crown

It is 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:

**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:

1. **Metal Crowns:** {Gold alloy and its 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 Crown restorations.

## Bridge

The terminology used for bridge is sometimes rather loosely applied, and in different parts of the world the same terms are used to describe different terms. The word “bridge” in UK is used to describe a fixed appliance only, where as in parts of world it also includes certain tooth borne removable appliance.

The first big decision must be made jointly by the dentist and patient is should the missing tooth/teeth be replaced or not? To be convinced that the replacement will produce significantly more benefit than harm. The following questions must be asked:

1. How the patient general and dental well-being be improved by the replacement?

\*what disadvantage will be the replacement bring with it?

\*what is the ratio of the advantage and disadvantages?

2. if the balance is strongly in favor of replacement, should the replacement by means of:

\*a bridge.

\*a partial denture.

\*a removable bridge.

\*an implant retained prosthesis.

## The choice between fixed and removable prosthesis

### General consideration

#### 1- patient attitude:

Patients show different degrees of enthusiasm for fixed and removable prostheses. Unless the patient is particularly anxious to have a bridge or implant retained prosthesis and fully understands the implications, it is often better, particularly when a number of teeth are missing, to make a partial denture first to see how the patient responds. It may be that the

denture is satisfactory, both aesthetically and functionally. If so, the destructive and irreversible tooth preparations that may be necessary for a bridge or surgical procedures for implants can be avoided, or at least deferred. Alternatively, if the patient is unhappy with the partial denture, he or she will enter into the arrangements for making a bridge or implant retained prostheses with greater enthusiasm and commitment.

## 2- Occupation:

Sports players and wind-instrument players have been referred to earlier. Although sports players should be provided with crowns when necessary, it may be better to defer making an anterior bridge or implant-retained prostheses until the patient gives up the more violent sports, and meanwhile to provide a partial denture.

Although wind-instrument players usually need a bridge replacement for their missing anterior teeth, there are some who find that air escapes beneath and between the teeth of a bridge. They are better able to maintain a seal with a partial denture carrying a buccal flange.

Public speakers and singers who make more extreme movements of the mouth often need the confidence that comes from wearing a bridge.

## 3- oral hygiene

Questions of oral hygiene and periodontal health were dealt with in relation to crowns and similar considerations apply to bridges. However, when there are strong indications for replacing missing teeth in a case where there has been periodontal disease and alveolar bone loss, provided that the periodontal disease is under control it is preferable to provide a bridge whenever possible rather than a partial denture. This is because a number of abutment teeth splinted together as part of a bridge have a better prognosis than individual teeth with reduced alveolar support, which may be mobile, used as denture abutments.

When only one or two teeth are missing in the arch, a bridge or implant restoration is usually considered the better solution. When large numbers of teeth are missing, particularly when there are free-end saddles, partial dentures or implant-retained prostheses are a more logical choice. In some cases, the preferred treatment is to replace one or two missing anterior teeth with a bridge and the posterior teeth with a partial denture. This has the advantage that the patient is not embarrassed to leave the denture out at night and is more confident when wearing it during the day.

#### 4- Age and sex:

F.P.D preferable to be done after the age of 17-18 years of age especially to the posterior teeth because: -

\* Tooth has large pulp.

\* Teeth not fully erupted.

Also F.P.D. is not indicated for elderly patient when there is lack of resilience in the periodontal membrane or abrasion which increases the size of occluding surfaces.

#### 5- General health:

Both bridges and partial dentures are elective forms of treatment, and need not be provided for people who are ill. When tooth replacement is necessary for someone who will have difficulty tolerating it because of poor physical or mental health, or when there are medical complications such as with patients who require antibiotic cover for every appointment, it is better to consider the simpler, less time-consuming form of treatment first.

#### 6- Occlusal problems:

may indicate a bridge rather than a partial denture. For example, a missing upper incisor in an Angles Class II Division I malocclusion with the lower incisors occluding against the palate would be difficult to replace by means of a partial denture without increasing the occlusal vertical dimension (OVD) or providing orthodontic treatment; a bridge would be more straightforward.

#### Local consideration:

The condition of the teeth adjacent to and opposing the missing teeth may help to determine whether a fixed or removable prosthesis is indicated. When the prognosis of teeth adjacent to the space is doubtful it may be better to provide a partial denture at least in the short term until the prognosis is clearer. The doubtful tooth could then either be used as a support for a bridge or extracted and a larger bridge or denture constructed. If the angulation or size

of the teeth adjacent to the space make them unsuitable to support a bridge, it may be better to provide a partial denture rather than design an unnecessarily elaborate and complex bridge.

### Comparison and advantages of fixed bridges over R.P.D:

- 1) More stable and comfortable to the patient because it covers tissue surface (there is no acrylic base, flanges or clasps).
- 2) Esthetics better.
- 3) Provide more stable occlusion.
- 4) It has splinting action, while R.P.D push the teeth and cause mobility of teeth.
- 5) Easier to keep clean in the mouth by brushing and dental flossing (There is a point contact between pontic and tissue). While the R.P.D should be removed from the mouth to clean.
- 6) Does not irritate or apply pressure on tissue.
- 7) Psychological patient can tolerate fixed bridge rather than removable one.
- 8) Fixed partial denture is preferred to use in epileptic patient (patient with sudden bouts of unconsciousness fits), patient suffering from Parkinson while the removable P.D. is contraindicated because of fracture and inhalation of the appliance.
- 9) The bulk of R.P.D may induce a difficulty in speech while with the F.P.D the size of pontic is similar to that of the teeth replaced.
- 10) Badly tilted abutment teeth may interfere with the construction of P.D (due to the undercut, lead to food stagnation). A telescopic bridge with metal coping, or fixed movable bridge or proximal half-crown can be used.
- 11) F.P.D is more suitable for handi -capped patient.
- 12) Anatomical limitation of R.P.D
  - a. Abnormally large tongue.
  - b. Muscular disorder.
  - c. Mandible tori.

d. Palatal surface tissue.

**Advantage of replacing missing teeth:**

- 1) Improve appearance.
- 2) Improve masticatory function.
- 3) Improve speech.
- 4) Occlusal stability.
- 5) Periodontal splinting.
- 6) Restore occlusal vertical dimension.
- 7) Feeling of 'completeness'.
- 8) Orthodontic retention.
- 9) wind instrument players.

**Disadvantage of replacing missing teeth:**

- 1) Damage to the tooth & pulp.
- 2) Secondary caries.
- 3) Periodontal problem.
- 4) Cost & Discomfort.
- 5) Failures.