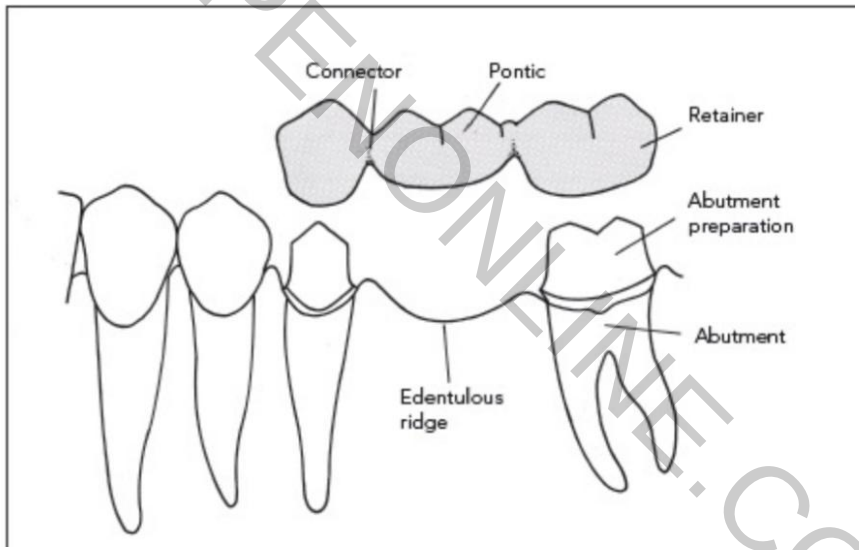
PARTS OF FPD

FPD is made up of
- Retainers- that obtain support from abutments
- Pontic- that replaces missing tooth
- Connnectors- that connects pontics to the retainers



Retainers:

Defination-Retainer in FPD is defined as,the component of FPD which takes support from abutment tooth and provides retention to the prosthesis.

It's basically a crown or any restoration that is cemented to abutment.

Classification-1.Based on tooth coverage -a)Full venner crown

b)Partial veneer crown

c)Conservative retainers

2.Based on material used- a)All metal

b)Metal ceramic

c)All ceramic

d)All acrylic

Full veneer crown :
Covers all five surfaces of abutment
Its fabricated like a cap
Their design resist masticatory forces in all directions and hence these r most retentive and ideal retainers.
Indications-when
●the abutment tooth is small
●edentulous span is long
●abutment is extensively decayed /calcified/previously restored
●for endodontically treated teeth
Contraindications-
Patients with uncontrolled caries

Partial veneer crown:
These r preferred over FVC when less tooth reduction is indicated
Crown doesn't cover entire abutment and facial surface of abutment is left intact for superior aesthetics
Less retentive than FVC but retention can be improved by adding pins or retentive grooves
It gives improved access for finishing, improved periodontal health and intact facial surface can be used for pulp testing
Indications-
●short span FPD
●single restoration

Contraindications-
●Long span FPD
●Extensively decayed abutment

Conservative retainers:
primarily used for anterior teeth
they have small metallic extensions directly luted on to lingual surface of abutment using resin cement .cannot accept heavy occlusal load

Telescopic retainers:
These r used in case of tilted abutments where path of insertion of FPD doesn't coincide with long axis of abutment teeth.In this two copings r fabricated one over other,internal coping changes path of insertion by modifying morphology of tooth and external coping fits over internal coping along new path of insertion.
Accurate parallelism is necessary n is critical to achieve.

Inlay retained FPD
Used when one of the abutment tooth is decayed
Advantage is it preserves more tooth structure
Disadvantage is,when it's MOD, it may behave like a wedge n lead to vertical fracture of tooth.

Fibre reinforced composite retainers:
A popular alternative to resin bonded bridges as minimal tooth preparation is required.

All metal retainers:
Can be either FVC or PVC
Require minimal tooth reduction n r strong even in thin sections

Metal ceramic retainers:
Can be either FVC or PVC
Require more tooth reduction

All ceramic retainers:
Either FVC or PVC
Require maximum tooth reduction

All acrylic retainers
Indicated for temporary FPD

Criteria for selecting type of retainers

1.Alignment of abutment teeth
2.Appearance
3.Condition of abutment teeth
4.Cost
5.Preservation of tooth structure

Pontics

Definition-an artificial tooth on a FPD that replaces missing natural tooth,restores it's function and usually fills the space previously occupied by natural crown.

Requirements of a Pontic

- restore function
- provide good aesthetics
- should be comfortable to pt
- biocompatible
- permit effective oral hygiene
- should preserve underlying mucosa n bone

Factors affecting design of a Pontic:

1.Space available -

Generally good Pontic can be fabricated in space due to tooth loss but in case of long standing edentulousness deficient space should be managed eitb6 ortho movement or by modifying retainers.

2.Residual ridge contour

A smooth round ridge is best but in some cases surgical excision of hyperplastic tissues or ridge augmentation procedures may be required

3.Occlusal load on the Pontic

To restore proper function, pontic should follow same occlusal pattern as the remaining dentition

Classification of pontics:

Pontics can be classified according to following criterias

1.Based on mucosal contact

A.with mucosal contact

a.saddle pontic

b.ridge lap pontic

c.modified ridge lap pontic

d.ovate pontic-root form pontic

-modified ovate pontic

-natural tooth ovate pontic

-Lancebergs pontic

B.Without mucosal contact
a.Bullet pontic
b.spheroidal n modified spherical pontic
c.Hygienic or sanitary pontic-Bar sanitary pontic
-Fish belly Or conventional sanitary pontic
-Modified sanitary pontic
d.Denture base type

2.Based on type of material used
A.Metal and porcelain veneered pontic
B.Metal and resin veneered pontic
C.All metal pontic
D.All ceramic pontic

3.Based on method of fabrication
A.Custom made pontics
B.Prefabricated pontics
C.Prefabricated custom modified pontics

●Saddle pontic

A pontic with a concave gingival surface that overlaps the ridge buccally n lingually is saddle pontic.

Generally avoided due to difficulty in maintaining.

●Ridge lap pontic

Resembles a natural tooth, designed to adapt closely to ridge.

Avoided as it's difficult to maintain n often leads to inflammation of tissues in contact.

●Modified ridge lap pontic

Tissue contact is limited to buccal surface of ridge crest.It shows T shaped contact with concave buccolingual surface n convex mesiodistal surface.

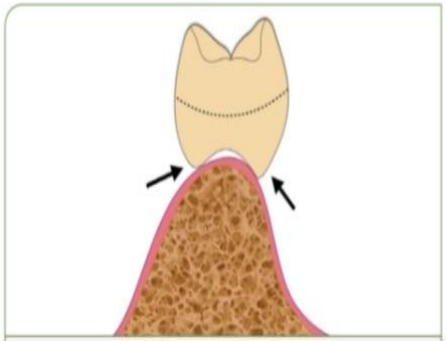


Fig. 25.15: Saddle pontic with buccal and lingual tissue contact.

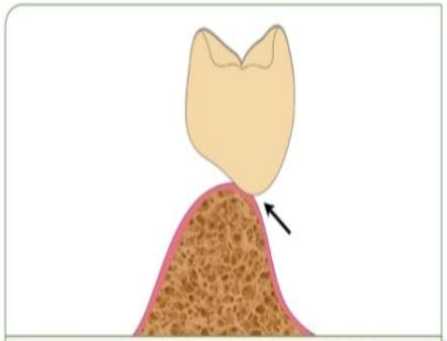


Fig. 25.16: Ridge lap pontic where the tissue contact is predominantly on the labial surface of the ridge.

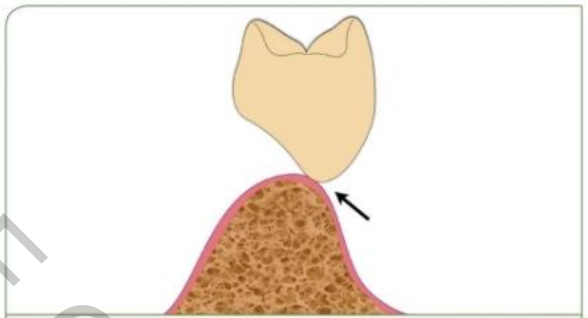


Fig. 25.17: Modified ridge lap pontics where tissue contact is strictly limited to the labial surface of the ridge.

●Ovate pontics

Used in incompletely healed or defective ridge.

More aesthetic,as it appears to arise from the ridge.

●Conical pontics

Convex tissue surface with single point contact

Easy to maintain but poor aesthetics

●Spheroidal n modified spheroidal pontics

Contact at the ridge crest

No concave surface

Indicated in reduced inter arch space

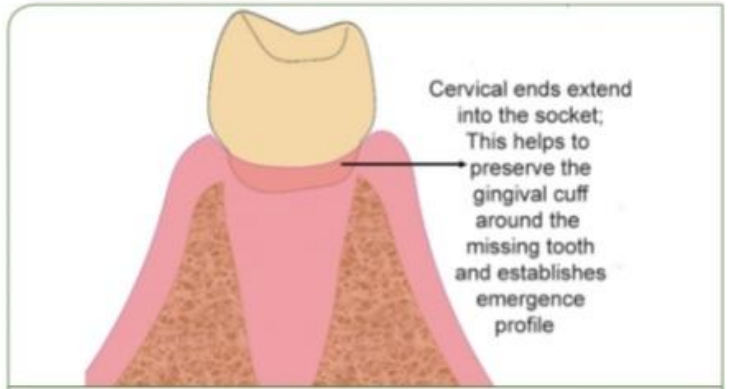
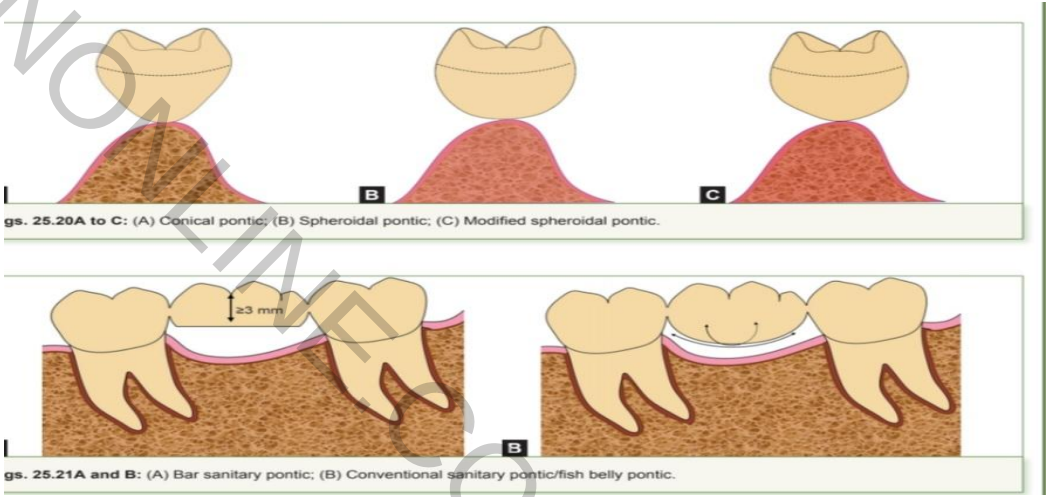


Fig. 25.19: Ovate pontic.



gs. 25.20A to C: (A) Conical pontic; (B) Spheroidal pontic; (C) Modified spheroidal pontic.

gs. 25.21A and B: (A) Bar sanitary pontic; (B) Conventional sanitary pontic/fish belly pontic.

- Hygienic or Sanitary pontic

Zero tissue contact, easy to maintain but poor aesthetics.

Advised for posterior teeth

Three common designs

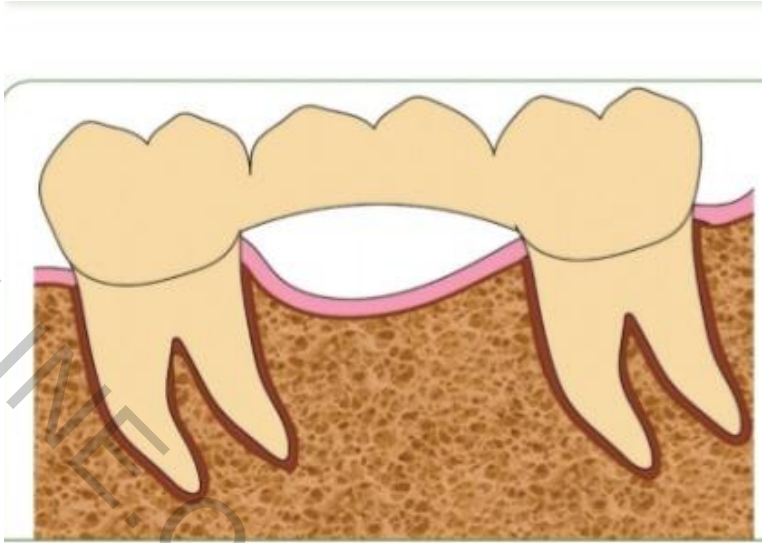
a.Bar Sanitary pontic with flat gingival surface

b.Fish belly pontic with convex gingival surface.

Main disadvantage is as size of connector is decreased strength of FPD is decreased.

c.modified Sanitary pontic

Overcomes all above limitations with a hyperparaboloid gingival surface.



Figs. 25.22: Modified sanitary pontic.

Based on material

1.Metal ceramic pontics

●Advantages

-Aesthetics

-Biocompatible

-Easy procedure

●Disadvantages

Difficult to fabricate if abutment is not metal ceramic

Not indicated in long span bridges

2.Resin veneered pontic

●Advantages

Easy to fabricate

●Disadvantages

-less strength

-staining

-unaesthetic

Indicated in temporary FPD

3.All metal pontics
●Advantages
-strength
-Easy to fabricate
●Disadvantages
-poor aesthetics
Indicated in mandibular molars under high stress n in bruxism

Based on method of fabrication

1.custom made pontics
Most commonly used
Superior aesthetics n flexibility
Tedious fabrication process
2.pre fabricated pontics
Trupontic
Interchangeable facing
Pin facing
Reverse pin facing
Modified pin facing and Harmony facing

Connectors

Connectors in FPD is defined as ,the portion of the FPD that unites retainers and pontics

Broadly classified as

1.Rigid connectors

2.Non rigid connectors

-Tenon Mortise connectors

-Loop connectors

-Split pontic connectors

-Cross pin n wing connectors

Rigid connectors

- These are used in fixed FPD and when entire load on pontic is to be transferred directly to pontics.
- Rigid connectors can be made by casting or soldering
- These connectors r sectioned in wax pattern such that when components r cast they can be joined on a flat ,parallel n at a controlled distance of 0.13mm

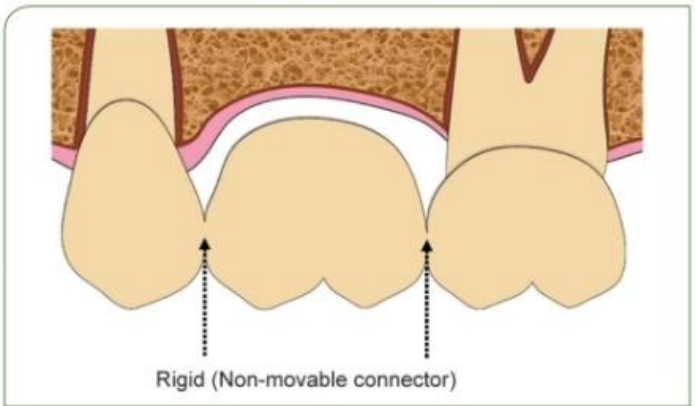


Fig. 25.48: Rigid connector of a fixed-fixed bridge.

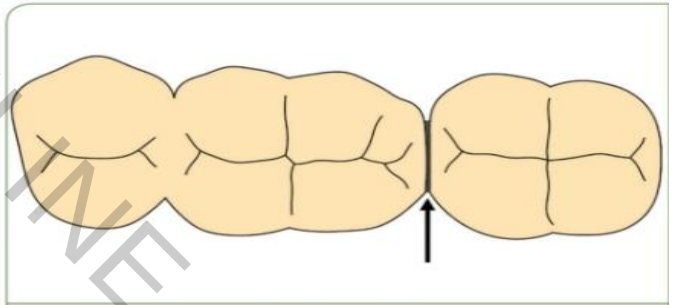


Fig. 25.49: A rigid connector with parallel surfaces and controlled dimension.

Non rigid connectors

These connectors allow limited movement between retainers n pontics.

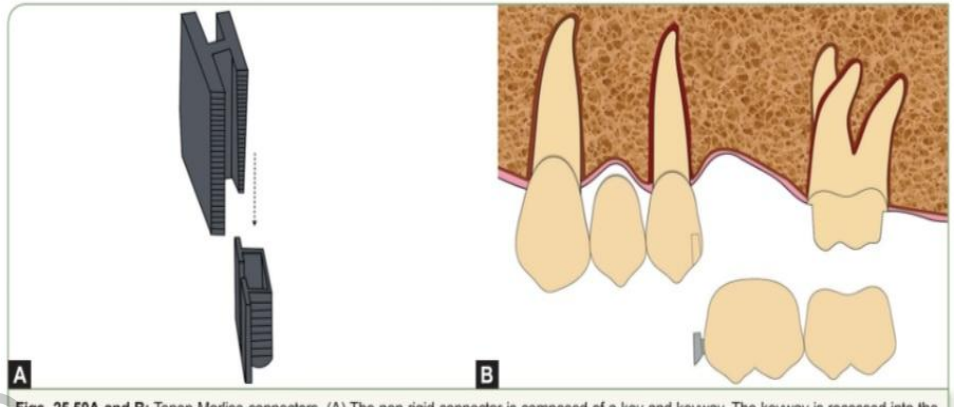
Indicated in cases where single path of insertion cannot be achieved bcoz of non parallel abutments.

1.Tenon -Mortise connectors

-It consists of Mortise (female) prepared within contours of retainer n Tenon(male) attached to pontic.

-It's alignment is critical as it must parallel the path of withdrawal with other retainer.

-Both components can be custom made or pre fabricated.



Figs. 25.50A and B: Tenon-Morlise connectors. (A) The non-rigid connector is composed of a key and keyway. The keyway is recessed into the proximal contour of the retainer, and the key extends from the pontic. (B) The distal segment, with the key, is cemented immediately after cementation of the mesial segment.

2.Loop connectors

-Used when existing diastema is to be maintained in FPD.

-It consists of a loop on lingual side of prosthesis that connects adjacent retainers and or pontics.

-Cast from platinum gold palladium alloy wire

-Its design should allow proper maintenance of oral hygiene

-Eg. Is palatal connector in spring cantilever FPD

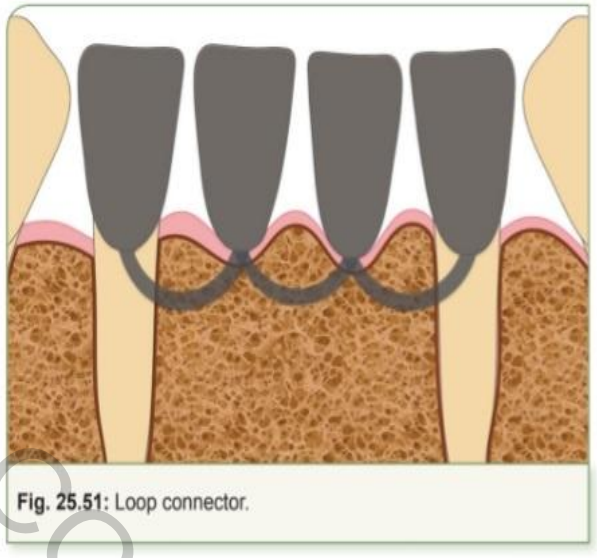


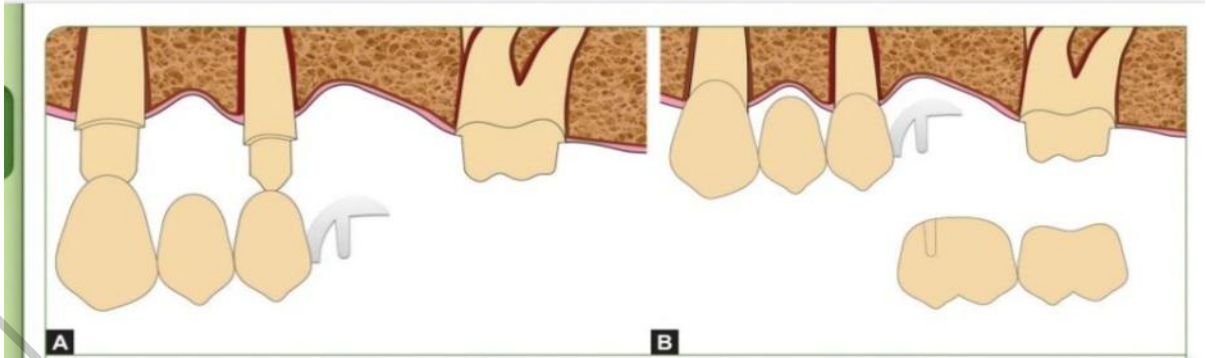
Fig. 25.51: Loop connector.

Split pontic connector

-Used in pier abutments cases

-connector is incorporated in the pontic

-Pontic is divided into mesial segment which has a key n a distal segment with a keyway



Figs. 25.52A and B: Split pontic connector (A) The medial segment, which is cemented first, has a distal shoe in the gingival portion of the pontic; (B) The distal segment of the pontic covers the mesiogingival part of the pontic when the distal retainer is cemented.

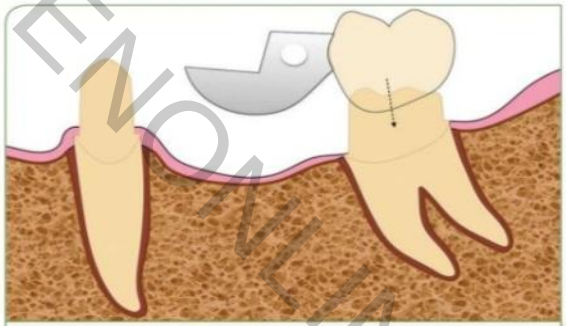


Fig. 25.53: Cross pin and wing connectors. The distal retainer and wing should be cemented first.

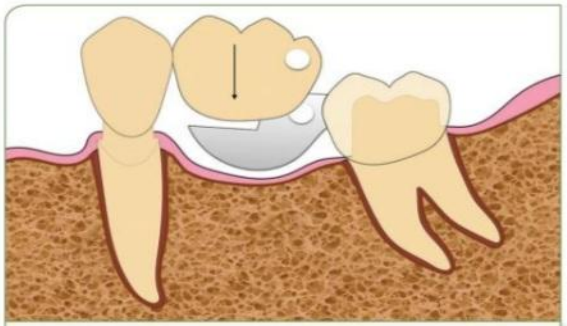


Fig. 25.54: Cross pins and wing connectors. The retainer-pontic segment is seated finally.

4.Cross pin n wing connectors
-Used for tilted abutments
-It has retainer wing (distal) component and a retainer pontic (mesial) component
-Distal retainer wing should be seated first followed by mesial pontic retainer n then pin is seated into the pinhole.

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