Partial Denture

Minor retainer

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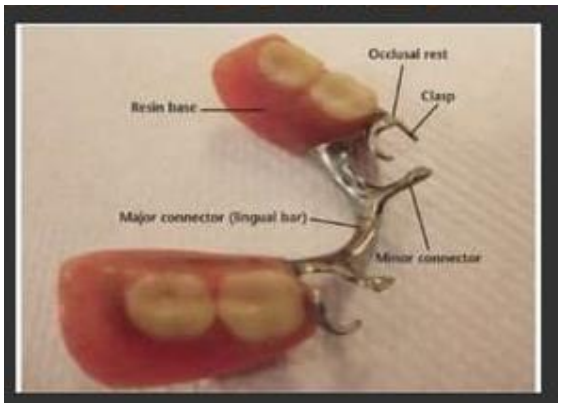
Lecture 4

Minor connector:

It's the connecting link between the major connector or base of a removable partial denture and other unites of the prosthesis such as clasps, indirect retainer and occlusal rest.



Function of minor connector:

In addition to joining denture parts, the minor connector serves two other purposes:

1-To transfer functional stress to the abutment teeth .

2- To transfer the effect of the retainers, rest and stabilizing component throughout the prosthesis.

Requirements of minor connector:

1-The minor connector must have sufficient bulk to be rigid, and at the same time the bulk of the minor connector should not be objectionable

2- The minor connector must be designed to fit into the embrasure space

3- The minor connector should never be placed on the convex lingual surface of the tooth.

4- The minor connector should arise at right angle from the major connector

5-it should have a triangular cross section, the tapering toward the contact area of the teeth and the thickest portion toward the tongue.

Note: the surface of the minor connector which contacts the tooth is known as the proximal plate. And the surface of the tooth contacted by the proximal plate is known as the guiding plane.

Types of minor connector

• Joining the clasp assembly to major connector.
• Joining the indirect retainer or auxiliary rest to major connector.
• Joining the denture base to the major connector.
• Approach arm in bar type clasp.

1-Joining the clasp assembly to major connector.

May be two types:

A-Most minor connectors that support clasp assemblies a located on the proximal surface of abutment teeth adjacent to an edentulous area.

- Should be broader buccolingually and thinner
- It should not be bulky to avoid any tongue interference
- It should be rigid enough to support the active component of P.D.
- It should have a triangular cross-section .The thickest portion is near the lingual line. The angle of the tooth and the thinnest portion near the buccal line of the tooth this configuration aids in better teeth arrangement.

B- If the clasp assembly is not being placed on the tooth adjacent to the edentulous space ,the minor connector is placed in the embrasure between the abutment at its neghbouring tooth.

-The minor connector should never be placed on the convex lingual surface of the tooth.

Joining the indirect retainer or auxiliary rest to major connector:

Embrasure minor connectors are located between two teeth. Embrasure minor connectors extend from the occlusal, incisal or cingulum surface of the tooth to the major connector.
They join the major connector in a rounded right angle and they taper slightly toward the occlusal (incisal).

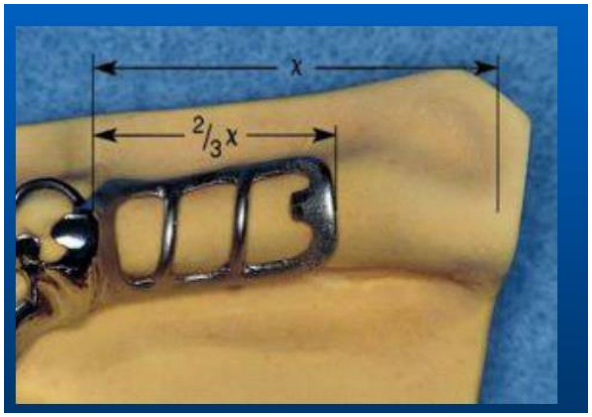
Joining the denture base to the major connector:

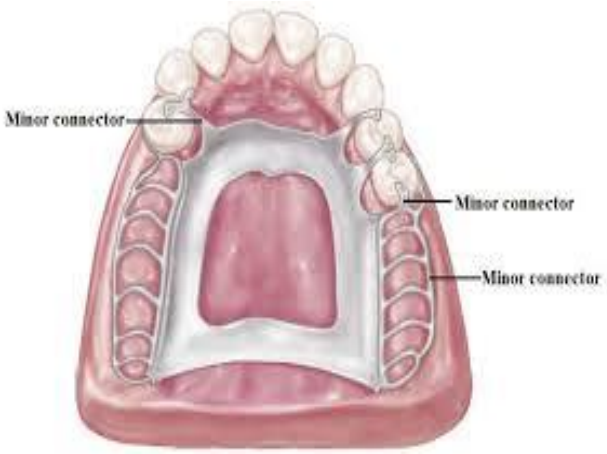
-It should be rigid enough to support and resist breakage of the denture base.

-It should allow proper arrangement of natural teeth.

-In maxillary distal extension cases ,the connector should extend up to the maxillary tuberosity.

-In mandibular distal extension cases ,the minor connector should cover 2/3rd the length of the edentulous ridge.





Types :

1-Lattice construction.

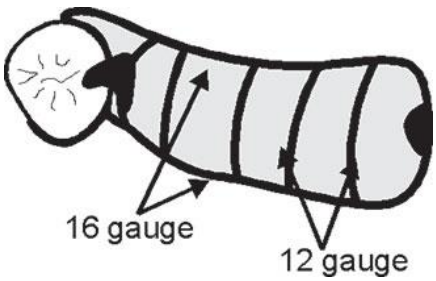
2-Meshwork construction.

3-Bead ,wire or nail head minor connectors.

1-Lattice work:

- It consists of two long struts of metal (16 gauge) placed on the buccal and lingual slopes of the ridge with smaller struts (12 gauge) running over the crest of the ridge connecting the long struts this resembles a lattice framework.

Lattice work



- In the maxilla, the palatal strut is formed by the lateral border of the major connector .

- Longitudinal strut should not be placed on the crest of the ridge as they can interfere with the arrangement of teeth .They can also produce a cleaving action on the denturebase.

- Transverse struts should be placed such that they do not interfere with tooth placement.

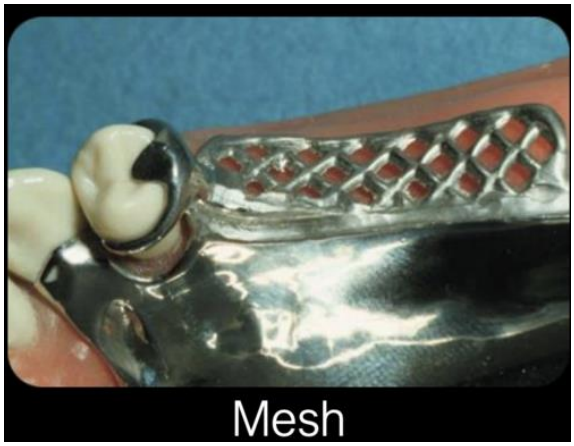
- Relief is given between the struts and the ridge for the acrylic to flow. This is done with the help of tissue stops.

Advantages

1-Strongest attachment of the acrylic resin denture base to the removable partial denture.
2-Easy to reline.
3-For multiple teeth replacement.

2.Mesh Construction

A mesh minor connector allows resin encirclement of the minor connector and provide mechanical retention of the denture base.



Disadvantage

 Its difficulty presents during the packing of acrylic resin.

 Increased pressure is needed to force resin through the small holes in the minor connector.

 Insufficient packing pressure may result in inadequate resin penetration and a weak attachment to the framework.

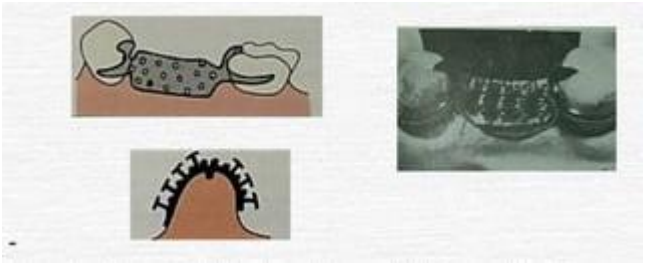
* Mesh construction may be used whenever multiple teeth are to be replaced. Nevertheless, open construction is preferred.

Tissue stopper: square metal projection also termed as cast stops formed by removing a (2×2 mm.) of relief wax to allow the free end of the minor connector contact the master cast to stabilize the framework during acrylic prcessing, preventing distortion of the acrylic framework and give adequate space for the acrylic to flow in between the framework and tissue surface of the cast.

3.Beads and nail heads:

Projections may be created by placing resin beads on the appropriate segments of the wax pattern, investing the completed pattern, eliminating the pattern materials via heat application, and casting the framework. Nailheads may be produced in a similar manner

The primary **advantage** of a metal base is related to improved hygiene and enhanced thermal stimulation.
Disadvantages include difficulty in adjusting and relining cast metal bases. Furthermore, the attachment of resin is relatively weak.
Bead, nailhead, should be limited to short span, tooth-supported applications.



4. Minor Connectors that Serve as approach arm for vertical projection /bar –type clasp:

Approach arms for vertical projection/bar-type clasps are the only minor connectors that are not required to be rigid. These components support direct retainers (clasps) and therefore must exhibit some degree of flexibility.
A minor connector of this type approaches the tooth from an apical direction rather than from an occlusal direction. The approach arm should display a smooth, even taper from its origin to its terminus.