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Class I RPD

Design

Considerations

CLASS I - DESIGN

- Premolar abutments
 - mandible
 - maxilla
- Canine abutments
 - mandible
 - maxilla
- Premolar, canine and lateral abutments

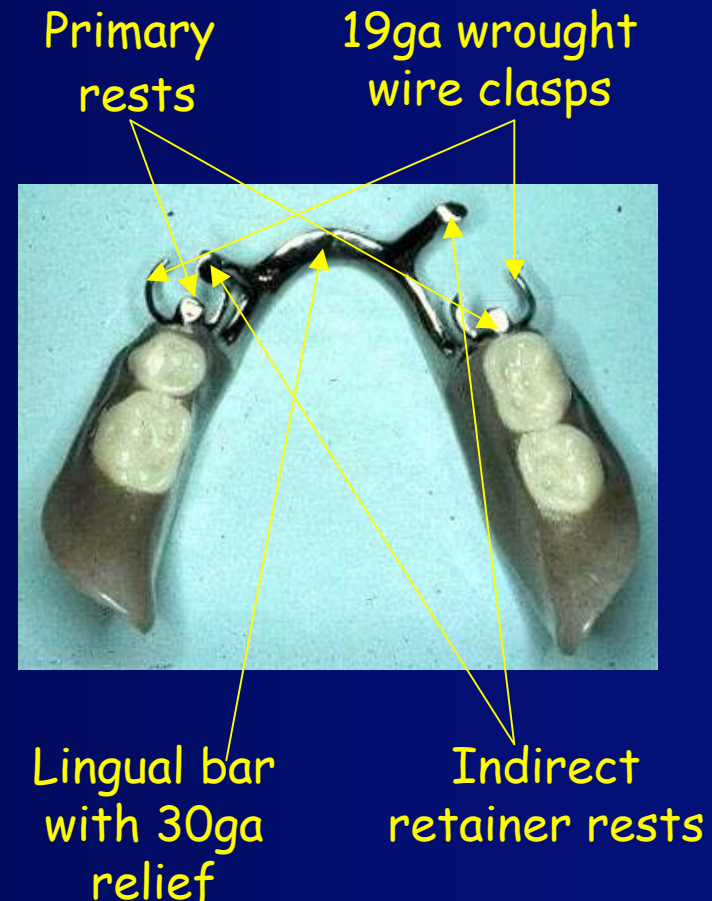
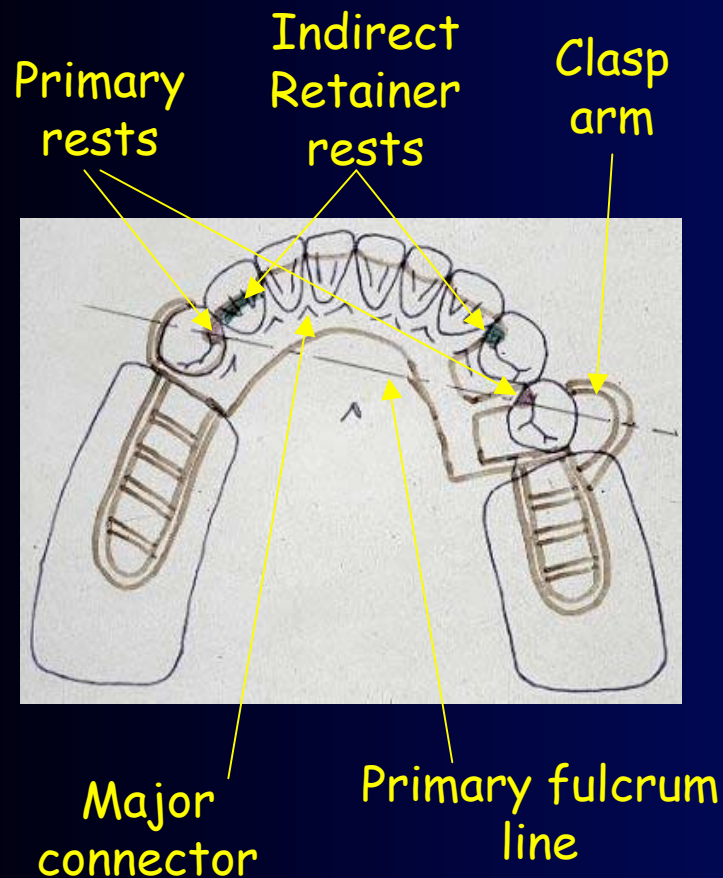
FULCRUM LINES

- Page 96 of your text (you need to know this material, all three columns, especially fulcrum and retentive fulcrum line axes.)
- **FULCRUM LINE AXIS** - Tissue directed movement of the base under loading - goes through the most distal occlusal rests.
- **RETENTIVE FULCRUM LINE AXIS** - Movement of the base *AWAY* from the ridge - goes through retentive clasp tips.

INDIRECT RETENTION

- The component of an RPD that assists the direct retainers (clasps) in preventing displacement of a distal extension base by functioning through lever action on the opposite side of the fulcrum line when the denture base rotates away from the tissues around the fulcrum line. (from the previous slide, which fulcrum line would this be?)

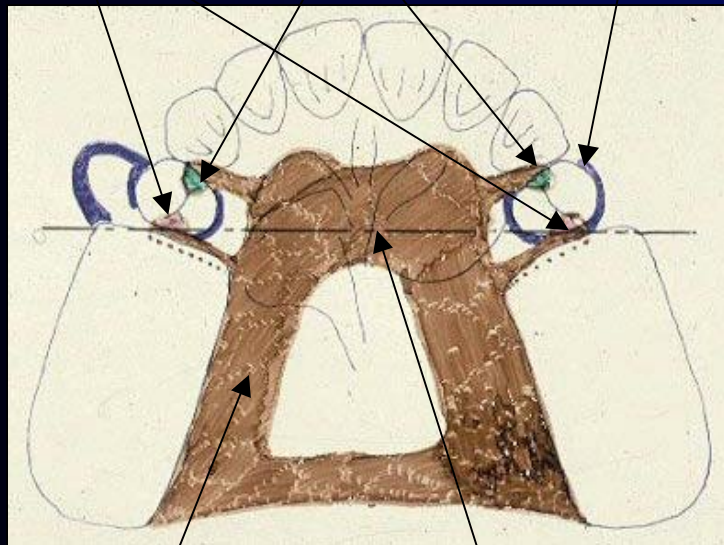
Class I - Premolar abutments - Mandible



Think about the pros and cons of placing rest seats on the mesial or distal surface of abutment teeth in such a case as this.

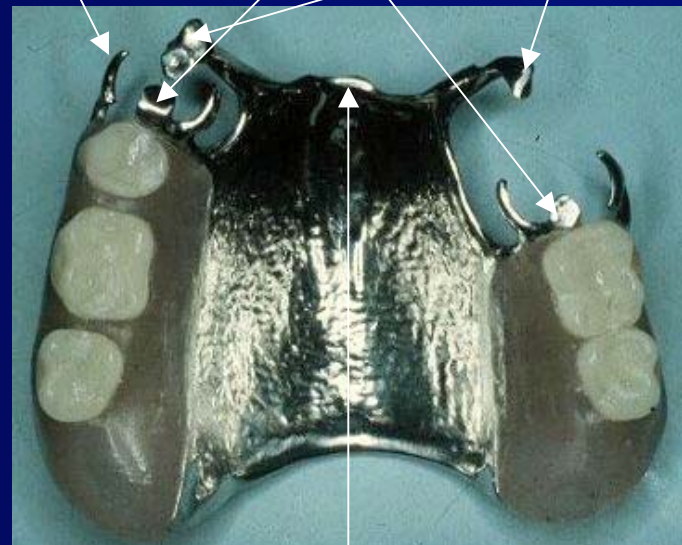
Class I - Premolar abutments - Maxilla

Primary rests
Indirect retainer rests
Clasp arm



Major connector
Primary fulcrum line

T bar cast clasp
Primary rests
Indirect retainers

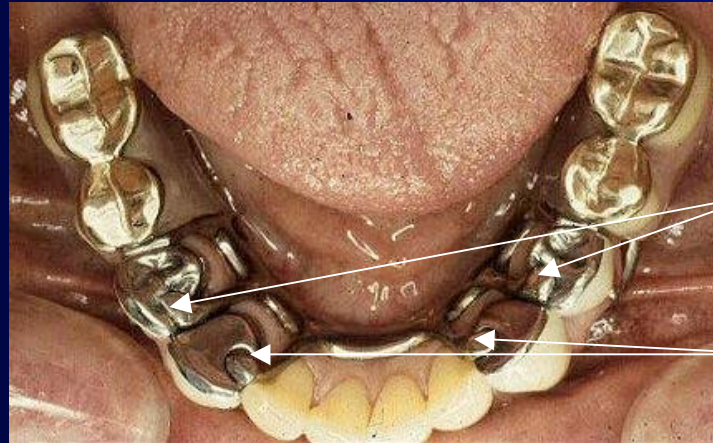


Anterior border of palatal plate ending in valley of rugae

Think about clasp selection (design and material) - when and why?

Class I - Premolar abutments - Combination case

Gold occlusals allow for more accuracy in the occlusion - they also 'hold' the vertical dimension better because they resist wear more than acrylic does. This patient was a bruxer....



PFM abutments
Primary occlusal rests
Cingulum ball indirect retainers



Balancing

A combination case should have bilaterally balanced occlusion with maximum contacts in centric, balancing and working.



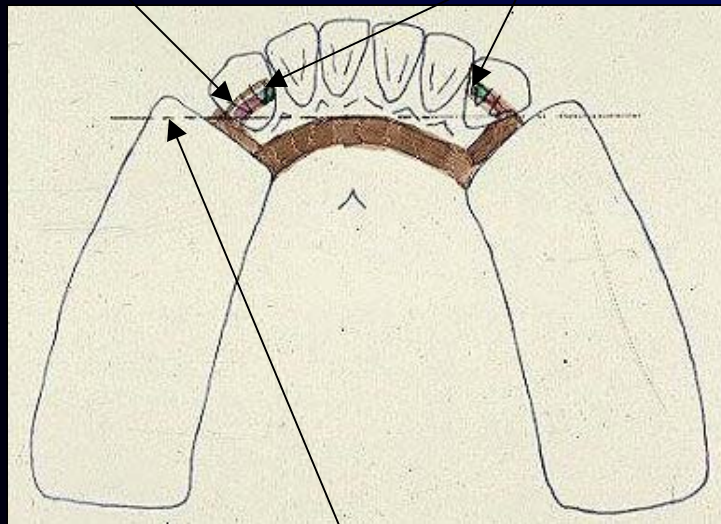
Working

Class I - Canine abutments - Mandible

A Class I-A case

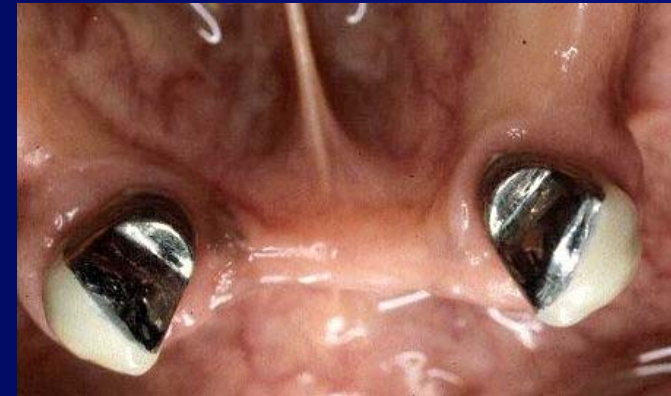
Primary rests provided by first portion of long rest

Indirect retention provided by mesial portion of long rest



Primary fulcrum line

Select appropriate clasp arms



PFM crowns with raised cingulum rests

A lingual plate covers the rests



Class I - Canine abutment - Mandible

Rotated canines
make incisal
notch the rest
seat of choice



Lingual plate major
connector with incisal
notch rests

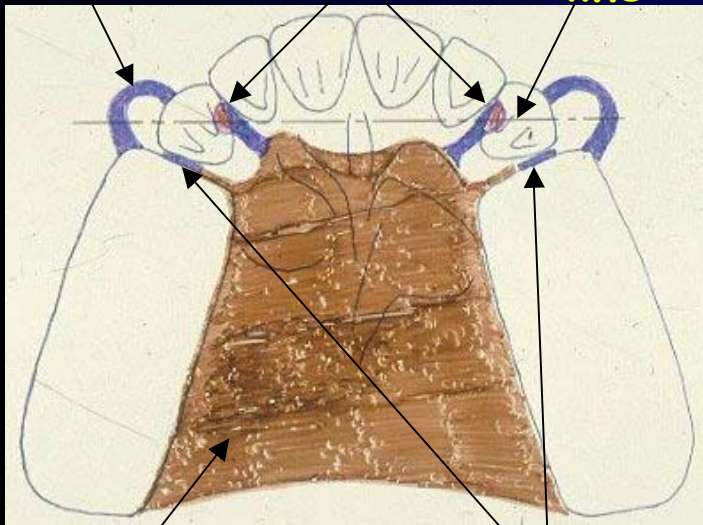


Combination case.



Class I - Canine abutments - Maxilla

Clasps appropriate for tooth
Primary rests
Primary fulcrum line



Palatal plate major connector

Indirect retention provided by proximal plates which bind against guide planes when rotation away from tissues occurs



Class I - Canine, lateral and premolar abutments - maxilla and mandible



I
bar

$\frac{1}{2}$ round cast
clasp

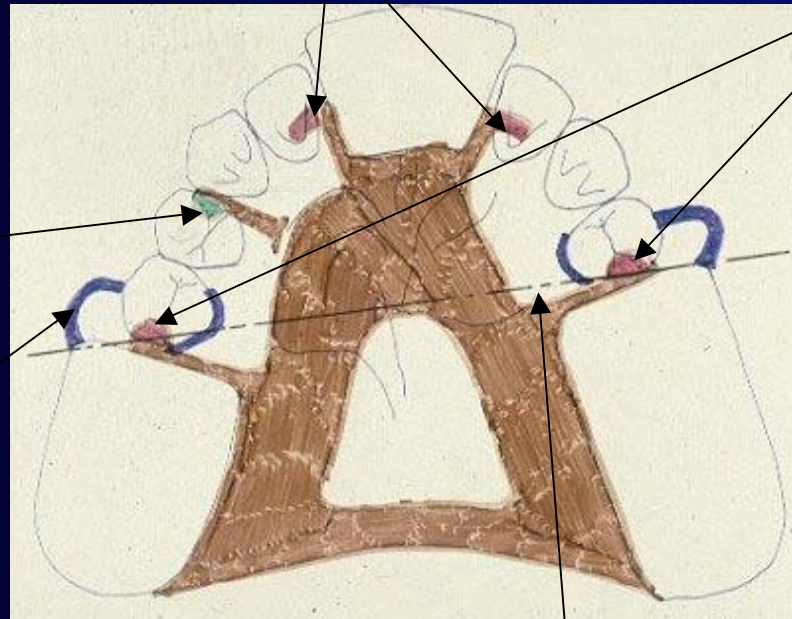
Modified T
clasp



Class I-A - Premolar abutments - maxilla

Secondary rests on laterals to support base in modification space and provide indirect retention

Primary rests



Separate rest to provide indirect retention is NOT needed

Customize your choice of clasp arm

Primary fulcrum line

Class II RPD

**Design
Considerations**

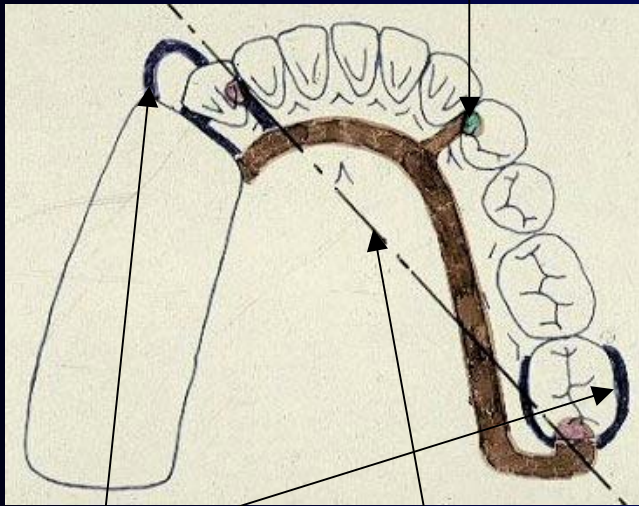
Class II

Class II:

- Mandibular
- Maxillary

Class II - Mandibular

Indirect
retainer



Clasps as
appropriate for
the abutment

Primary
fulcrum line

#30 - full gold
crown with DO rest,
lingual guideplane
and MB undercut



#28 - MO
rest for
indirect
retainer

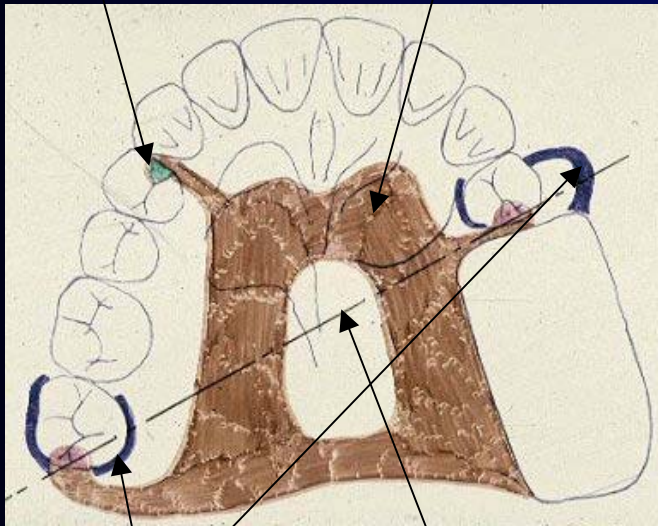
#21 - MO and DO
rests, lingual guide
plane, mid-buccal
undercut

How do the clasps differ?

Class II - Maxillary

Indirect Retainer

Major connector - anteroposterior palatal strap

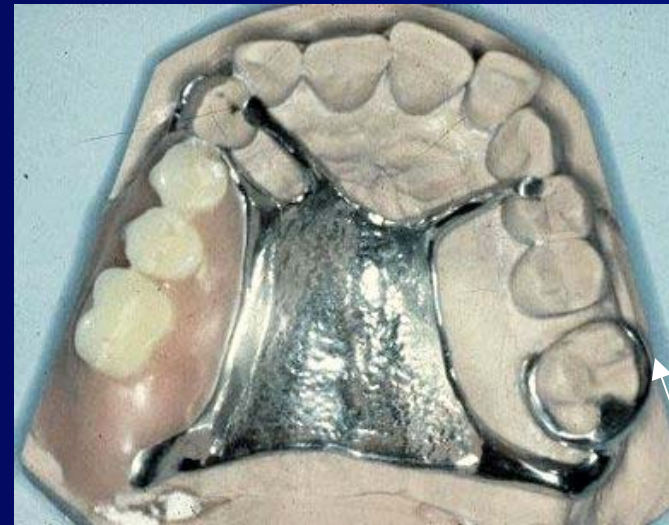


Clasp arms as appropriate

Primary fulcrum line

ML cingulum ball rest as part of PRI system

Indirect retainer



T-bar cast clasp

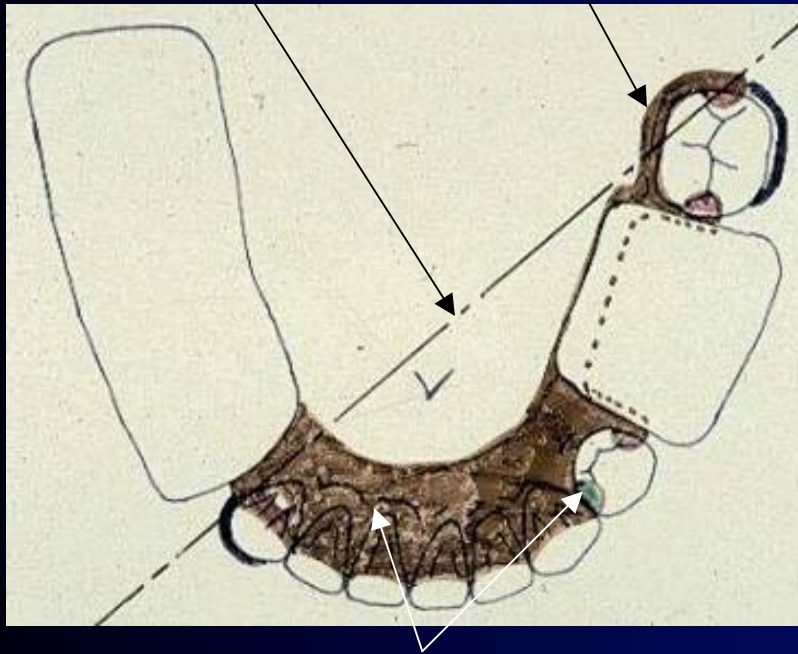
1/2 round cast clasp



Class II-P - Mandibular

Primary fulcrum line

Different clasp designs for lone standing molar



Indirect retainers:
plate and rests



- $\frac{1}{2}$ rd CC clasp engaging 0.01in MB undercut.
- MO and DO rest seats.
- Lingual **BAR** (above)
- OR** lingual **PLATE** (below) major connector on lingual of molar.

(note how clasps on anterior abutment are optional)

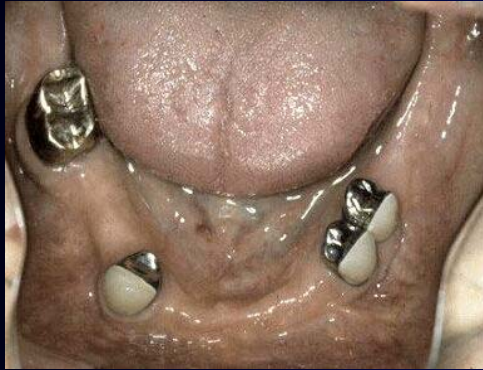


Class II-P - Mandibular

teeth #18, #20, & #28 abutments
#28 - pfm cr. with DO rest
#20-#22 pfm fpd with raised cingulum
rest on #22 and DO rest on #20
#18 - natural tooth with MO & DO rests



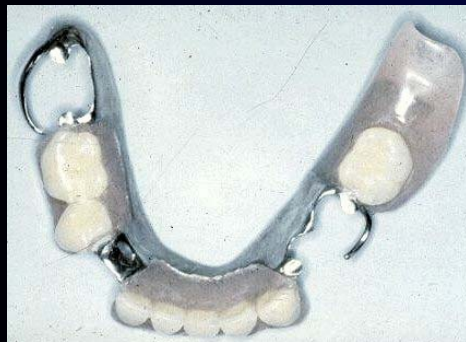
Class II - A-P - Mandibular



#20 - PFM crown, DO rest
#21 - PFM crown, MO rest
#27 - PFM crown, raised
cingulum #30 - Gold crown,
MO & DO rests



Indirect retention provided
by teeth in modification space
and rests



Cast clasp

Wrought
wire clasp



Class II - AP - Mandibular



#22, #23, #24 - PFM crowns; raised cingulums
#29 - Full gold crown, MO rest
#30 - Full gold crown, MO and DO rests



Lingual plate,
indirect retainer
rest #24



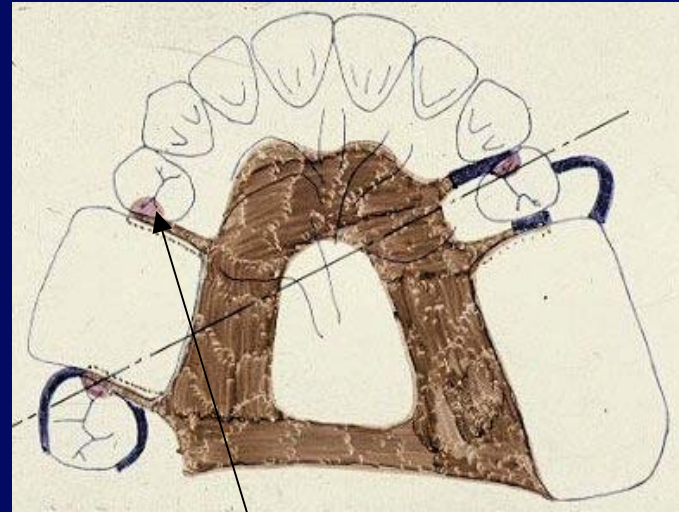
1/2 rd. cast
clasp on
#22



Class II-P - Maxillary



- #5 - PFM crown, MO rest
- #11 - ML ball rest
- #15 - Gold crown with MO and DO rests



secondary rest seat to support modification base is also the indirect retainer rest



- I-bar cast clasp - #5 & #11
- 1/2 rd. cast clasp - #15



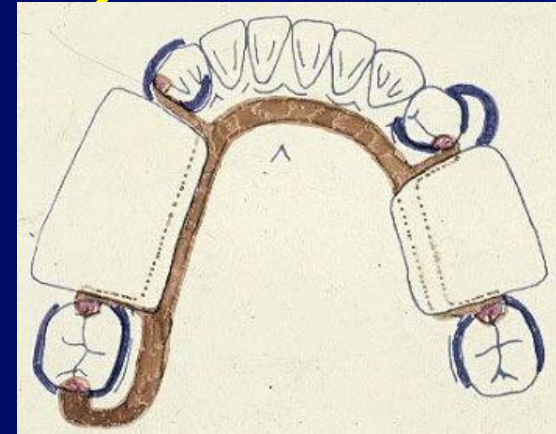
left lateral view of working occlusion showing canine guidance

Class III RPD

Design

Considerations

Class 3-P - Mandibular (bilateral)



Molars: gold crowns, MO & DO rests, buccal guide planes, and ML retention

#20 - DO rest, lingual guide plane, & MB retention

#27 - raised cingulum composite rest, lingual guide plane, & MB retention

Mesial and distal rest seats on lone-standing molars preferred to mesial rest alone



Metal bases; re-line not likely to be necessary



Class 3-P - Mandibular (bilateral)



#27 - raised composite cingulum - lingualplate major connector is fabricated around the new lingual cusp.



Clasp on #20 OR #27 can be eliminated without reducing retention

Clasps: cast vs. wrought wire - wire thought to be more stress-broken and therefore gentler on weaker teeth

C-clasp on molar and 18 ga. rd. clasp on canine.

C-clasp on molar and 18 ga. rd. clasp on premolar



secondary rest seat to support the major connector

Metal base with retention beads

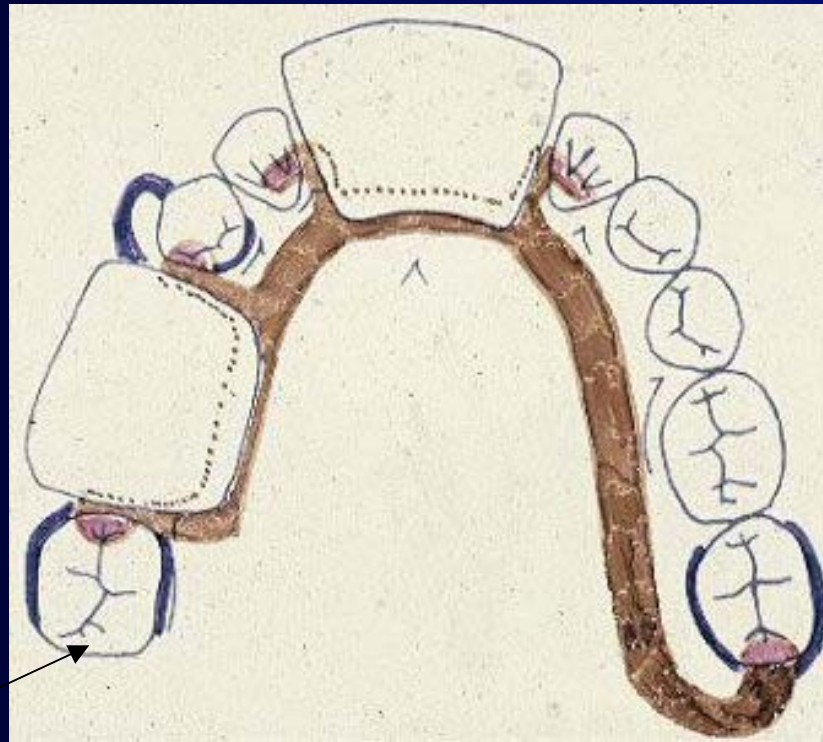


Class 3 - Mandibular (Unilateral)



This framework rests on a gold coping cemented onto the molar. This is an alternative to placing a post and core, and crown on the tooth.

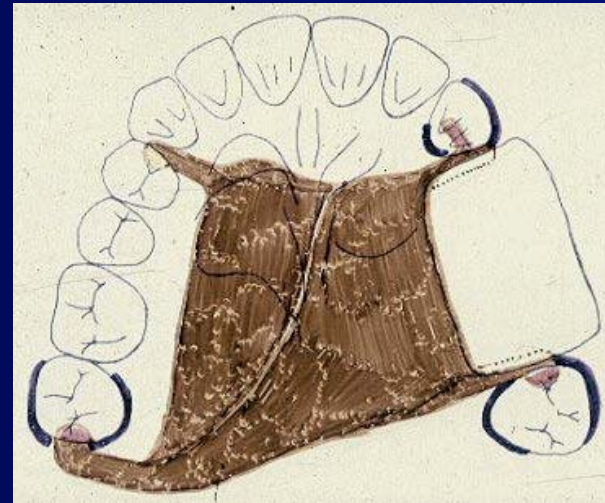
Class 3-A - Mandibular



An additional rest seat on the distal of the molar is desirable.

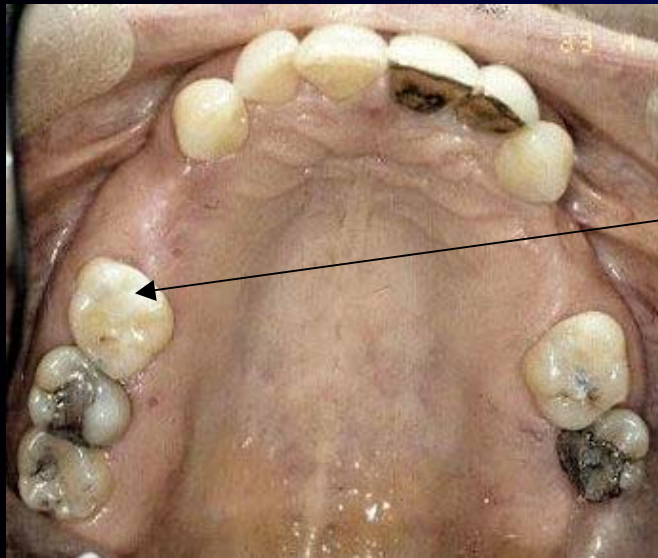
Class 3 - Maxillary

For patient comfort, a full palatal plate major connector, as shown in the diagram on the right, along with a secondary rest on the premolar, is more desirable than the design shown below.



Class 3-P - Maxillary (bilateral)

Palatal strap major connector and metal bases - why not acrylic?



Composite replacing an amalgam - why?



1/2 rd. cast clasps on molars and 18 ga. rd. cast clasps on the canines



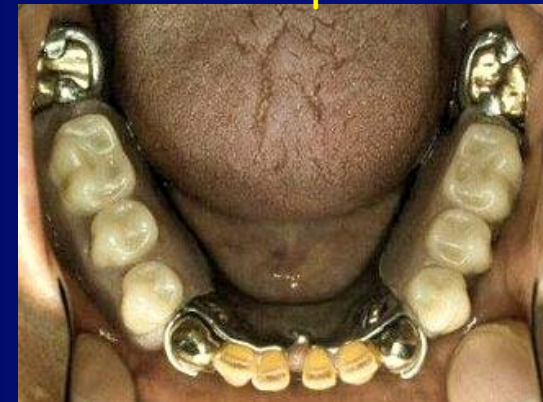
Class 3-P - Maxillary and Mandibular



#18,#31 - full gold crowns
#22,#27 - 3/4 gold crowns



#18,#31 - 1/2 rd. cast clasps
#22,#27 - 18 ga. rd. cast clasps



Class 3-A - Maxillary



In the images below, the I-bars on the bicuspids approach from the interproximal space one-tooth removed - why?

(A good guess would be that the prognosis for #4 is guarded or finances preclude crowning the tooth - and #13 may lack the necessary height of contour.)



Modified T-bar clasp - remember that the clasp arm must have adequate length for flexibility - too short an arm = rigidity.

Class 3-A-P - Maxillary



Anterior Palatal
Strap or Open
Horseshoe major
connector to
circumvent the
palatal torus

Class 3-P-2A - Maxillary



An adaptation
of a modified
T-bar clasp



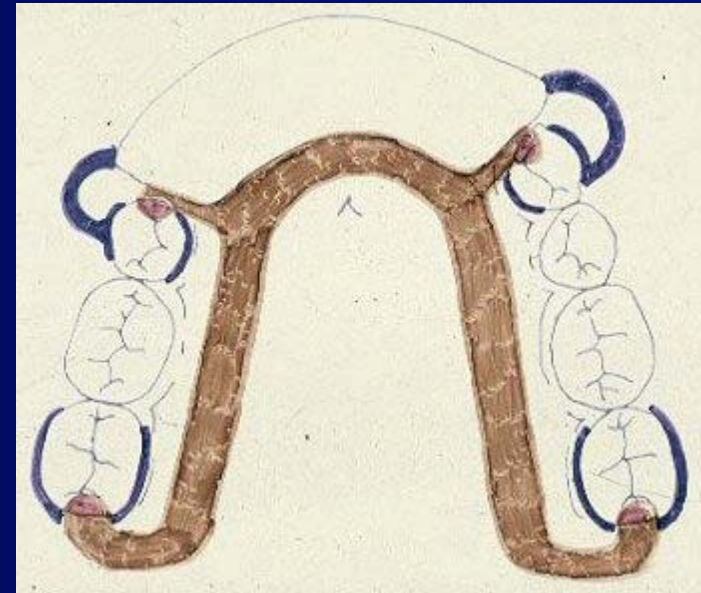
Class IV RPD

Design

Considerations

Class 4 - Mandibular

Rest seat location - try to place a rest seat on the two teeth adjacent to the edentulous area and also the most posterior teeth remaining on each side; preferably molars and on the distal surface as shown on right image



- Embrasure clasps on #20,21 & #28,29
- Lingual plate major connector
- Molars tipped too far lingually to use as direct retainers.



Ledge type cingulum rest seats on #22 & 27 to support anterior base.

Class 4 - Mandibular



lingual inclination of all molars
precludes using a conventional
major connector



Lingual plate imparts rigidity and
bracing (reciprocation) for I-bar
clasps on the premolars



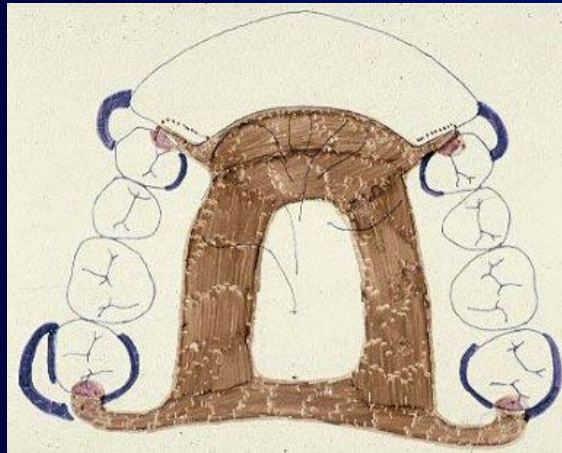
-Labial bar major connector
-#18,32: i/2 rd. cast clasps to ML retention
-Bracing/reciprocation: #18: horizontal arm,
#32: buccal plate



-Labial bar
-#21,28: I-bar cast
clasps

Class 4 - Maxilla

Rest seat location - try to place a rest seat on the two teeth adjacent to the edentulous area and also the most posterior teeth remaining on each side; preferably molars and on the distal surface as shown on the image at right.



major connector choices are full palate (preferred), closed horseshoe (as shown) or open horseshoe



T-bar cast clasps on both molar abutments have retention on both "wings" of the "T"



I-bar clasps on the premolars



#2 & #15: DO rests
#12: gold inlay

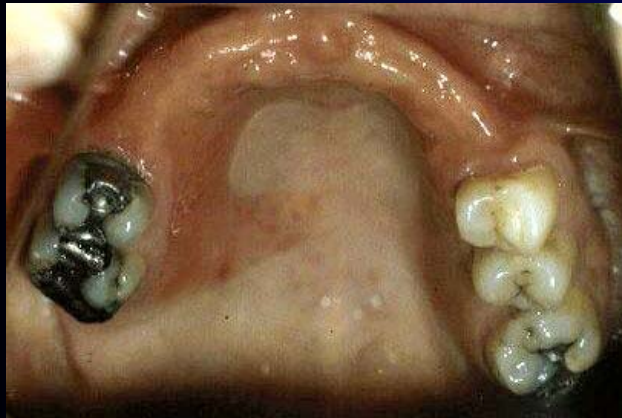
Major connector at least 6mm from fgm.

Class 4 - Maxilla

Two more examples of Class 4 RPD's - on the right with a full palate major connector, and below with a closed horseshoe (ant/post palatal strap)



Note the red, irritated palatal tissue associated with the RPD base and major connector caused by occlusal trauma and plaque on the tissue surface of the rpd



QUESTIONS ????????