Overdentures

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Definition

any removable dental prosthesis that covers and rests on one or more remaining natural teeth, the roots of natural teeth, and/or dental implants

Glossary of Prosthodontic Terms 9th Edition. J Prosthet Dent 2017

Rationale for Overdentures

1. Maintenance of alveolar bone

In a period of 25 years in Complete Denture wearers bone resorption in anterior part of;

- mandible is 9-10 mm
- maxilla is 2.5-3 mm
- **i.e resorption of mandible 4x more than in maxilla (Tallgren 1972)**

Tallgren A. **The continuing reduction of the residual alveolar ridges in complete denture wearers: a mixed-longitudinal study covering 25 years.** J Prosthet Dent. 1972 Feb;27(2):120-32.

Crum & Rooney, 1978

Results of a 5-year clinical study show that patients treated with complete maxillary dentures and mandibular overdentures demonstrate less vertical alveolar bone reduction than patients with complete maxillary and mandibular dentures.

Crum RJ, Rooney GE Jr. **Alveolar bone loss in overdentures: a 5-year study.** J Prosthet Dent. 1978 Dec;40(6):610-3.

Other advantages

2. Improved sensory feedback
3. Improved retention
4. Decreased psychological trauma

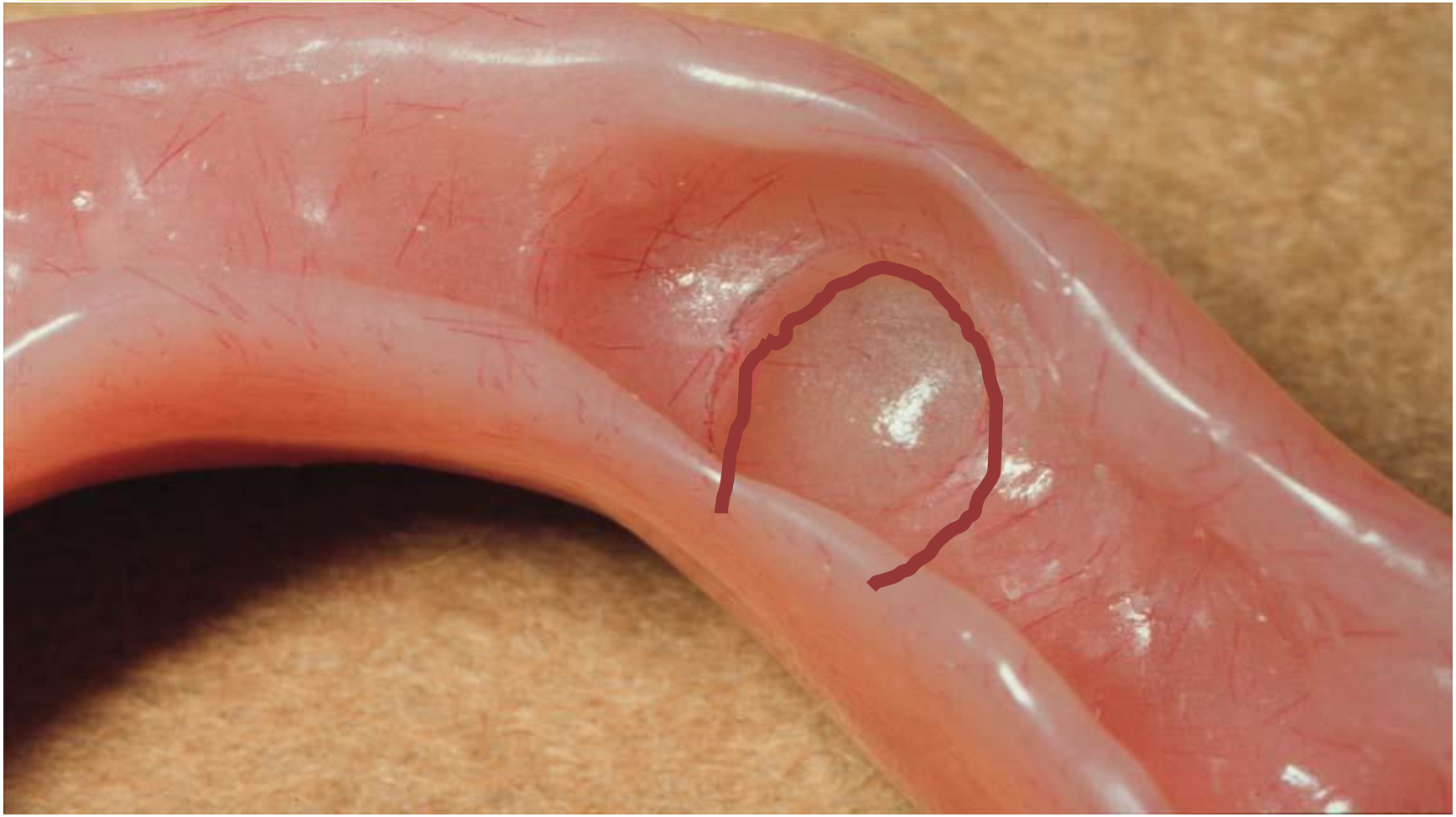
Overdentures

Maxilla is also susceptible to increased bone resorption because 30% of all partially edentate wear CD/opposing natural teeth

Overdentures (OD)

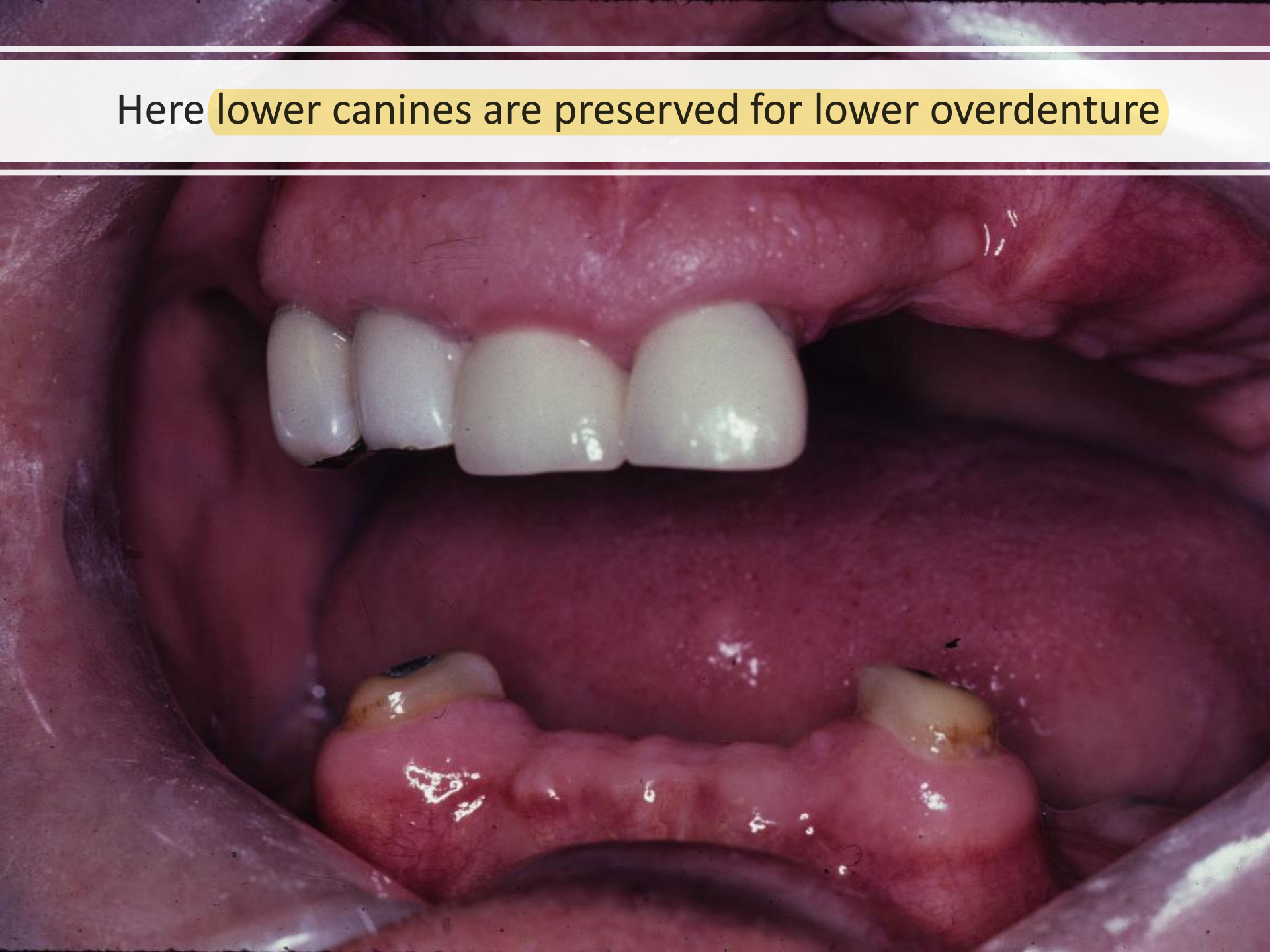
Bone maintained in adjacent areas

There is a space in denture for abutment

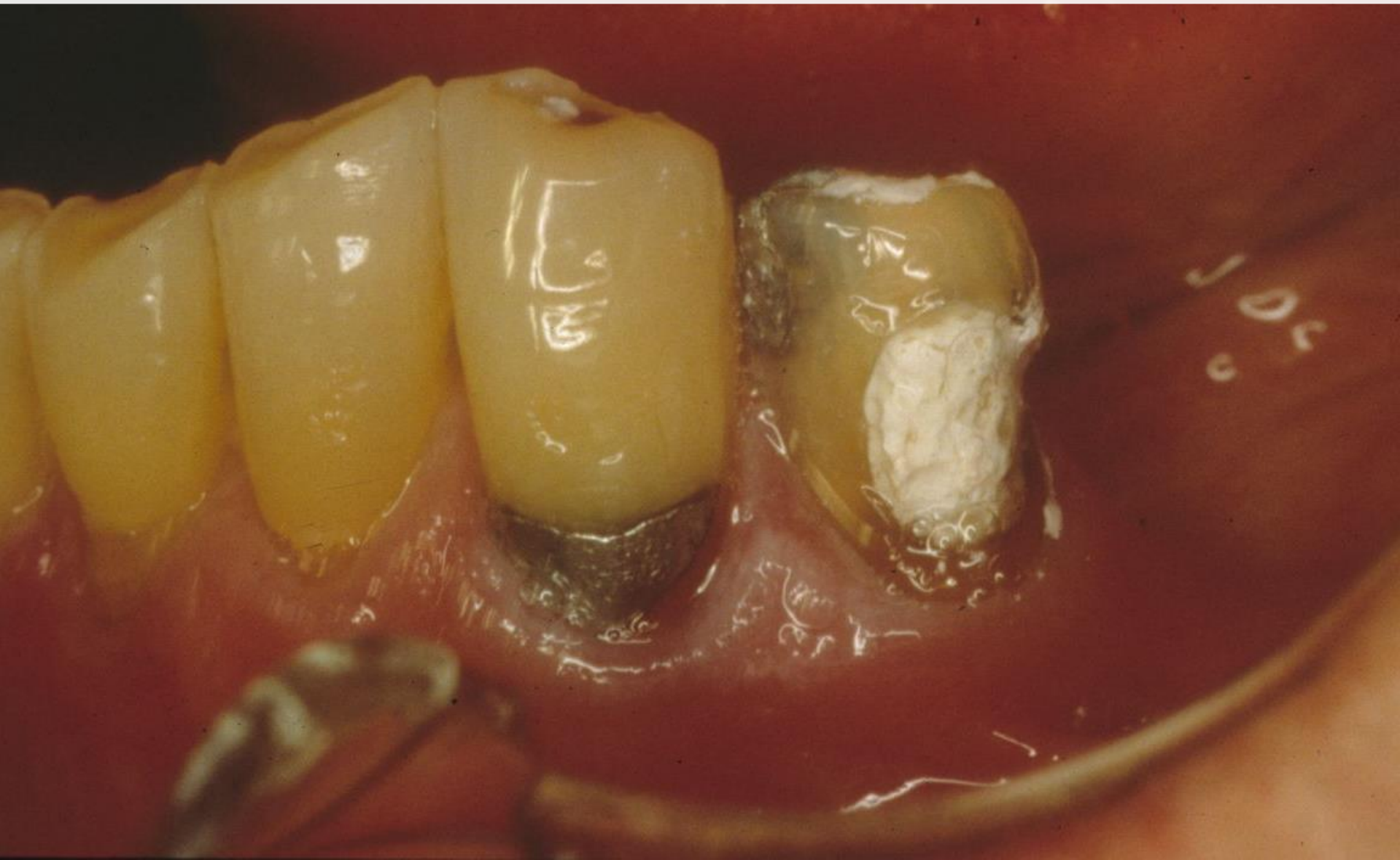


Severe tooth wear of mandibular teeth is an indication for OD

Here lower canines are preserved for lower overdenture

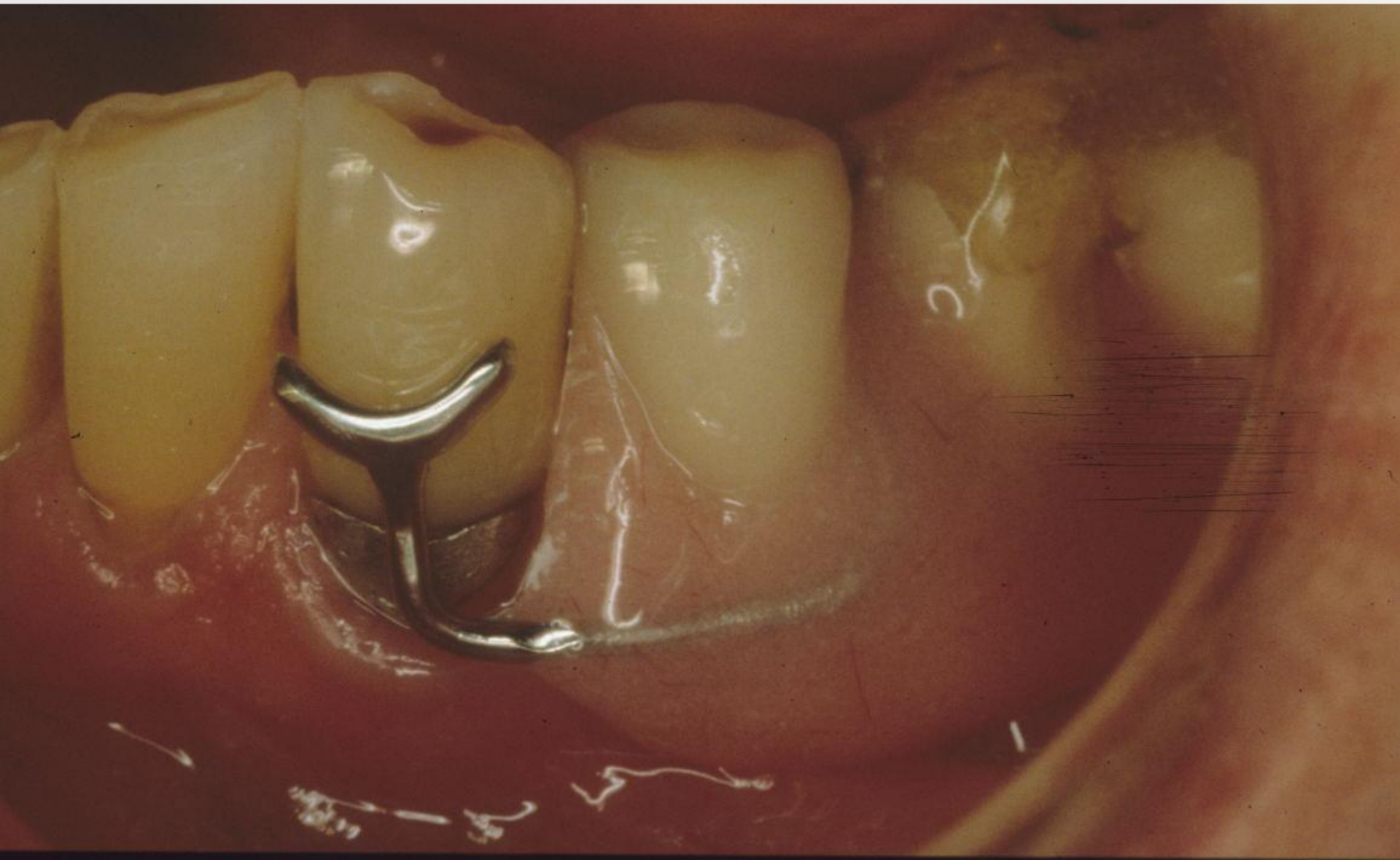


Crown portion of tooth 34 with RCT non restorable



Tooth 34 reduced close to gingival level and closed with Amalgam plug

Root of 34 is underneath the RPD



Overdentures - problems

- High degree of maintenance
- Potential for caries and periodontal disease
- Occasionally difficulty with undercuts
- Occasional fracture of acrylic

Patient Selection (indications)

- Single complete denture
- Cleft palate/surgical defect
- Hypodontia
- Severe toothwear
- Potentially unfavourable complete denture
- Doubtful partial denture abutments

Patient Selection (contra-ind)

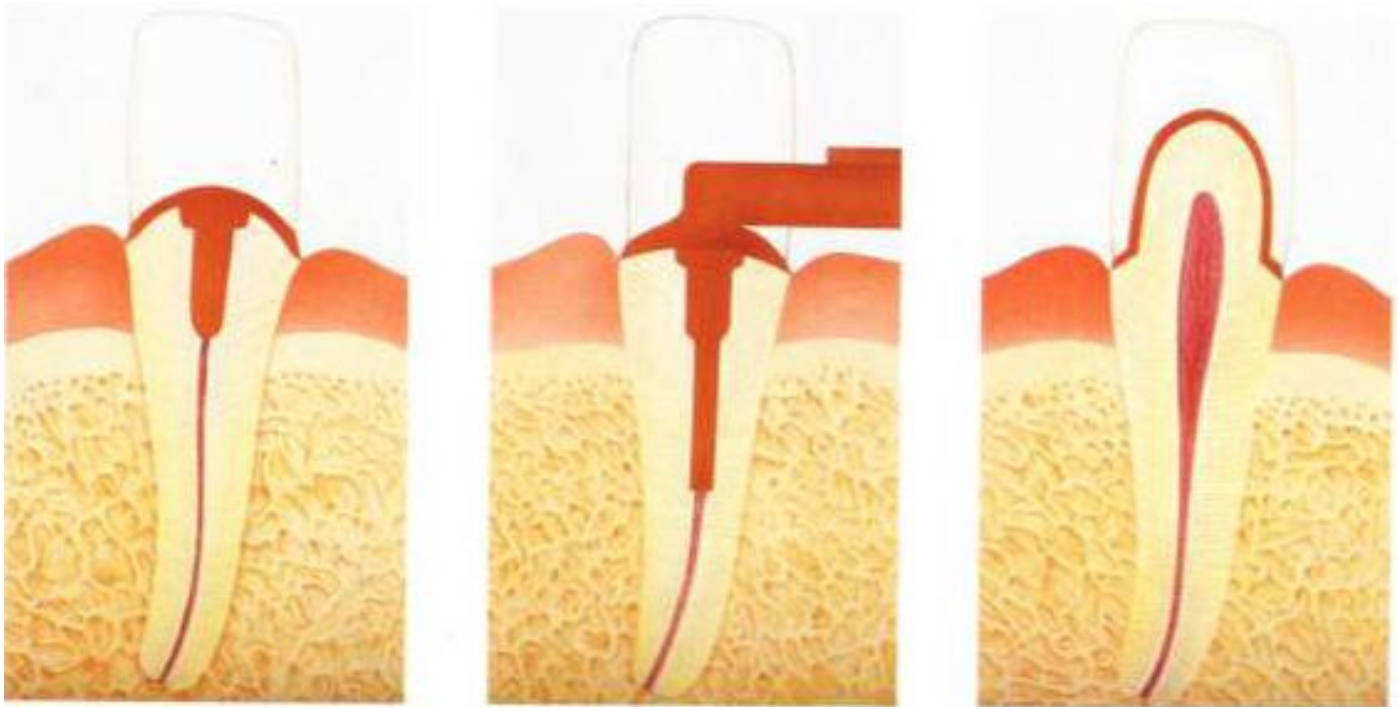
- Extremes of age
- Severe debilitation
- Poor co-operation
- Mental handicap
- Any condition which precludes RCT
- Previous treatment and attitude

Overdenture abutment

Modified crown or modified root structure of a natural tooth

3 types of abutments:

a. domed root face with amalgam plug or coping
b. has an attachment
c. a thimble shaped coping for telescopic crown



Simple coping

Precious metal copings should be easy to clean

Since no retention is being provided, dowels are needed with anti-rotational components


4A
4B
4C
4D

Canine teeth following root filling & 3 months later stud attachments in place

Stud attachments are midway in space requirements between dome shaped restorations and thimble shaped copings. They can be used in conjunction with copings on other teeth

The thimble shaped coping

This space consuming but versatile approach is useful for awkwardly distributed abutments. The thimble shaped coping usually forms the inner layer of a telescopic crown.

The thimble shaped coping is useful for awkwardly distributed abutments

Telescopic crowns and coping

Telescopic crowns/clinical case

Telescopic crowns

Overdenture abutment selection

- Adequate Crown: root ratio
- No sub-gingival caries
- RCT possible
- Symmetrically distributed in the arch
- At least two abutments required
- Cleansible
- Canines>premolars>molars>incisors

Clinical Stages

- Exam/diagnosis/radiographs
- Treatment plan inc. abutment selection
- Perio & endo
- Preparation of abutments and insert
- Denture construction
- Review

Precision Attachments

- Attachments
  - Additional retention
    - Open face, ↓ palatal coverage, +ve retention for P/P

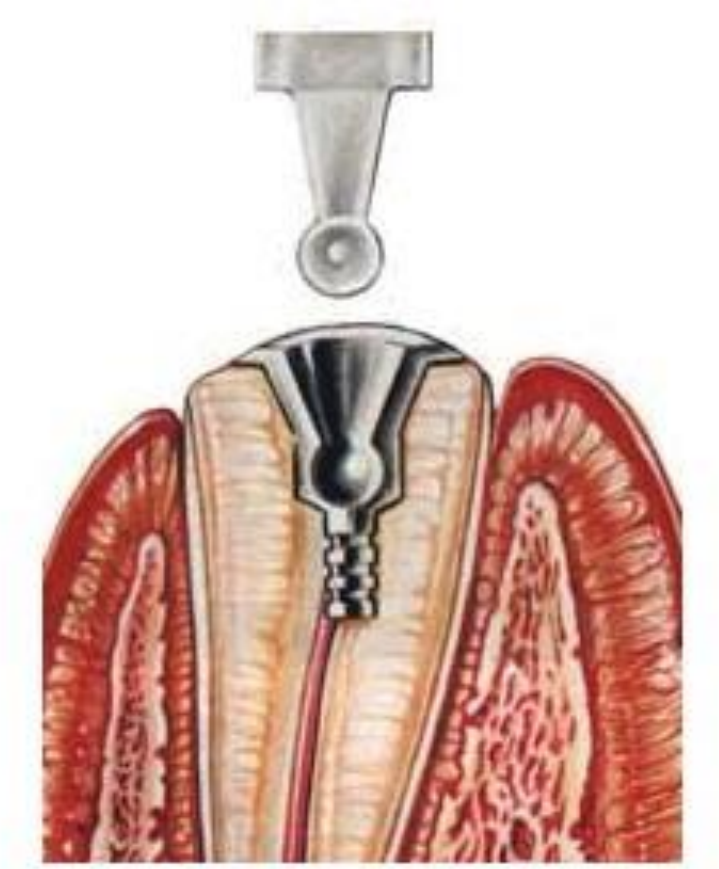
Disadvantages

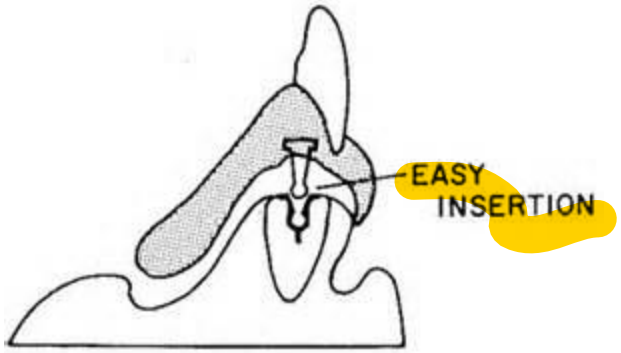
- Cost
- More complicated maintenance
- Weaken denture base
- Need good oral health
- Increase load to abutments

Precision attachments used in overdentures

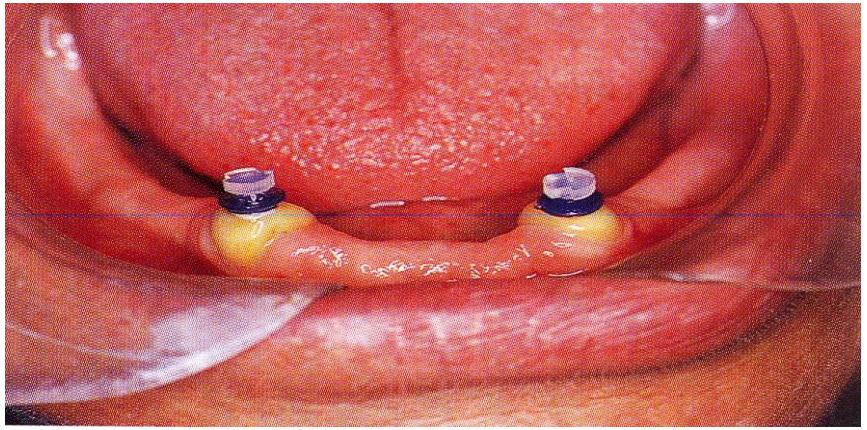
- Intra coronal
- Extra coronal

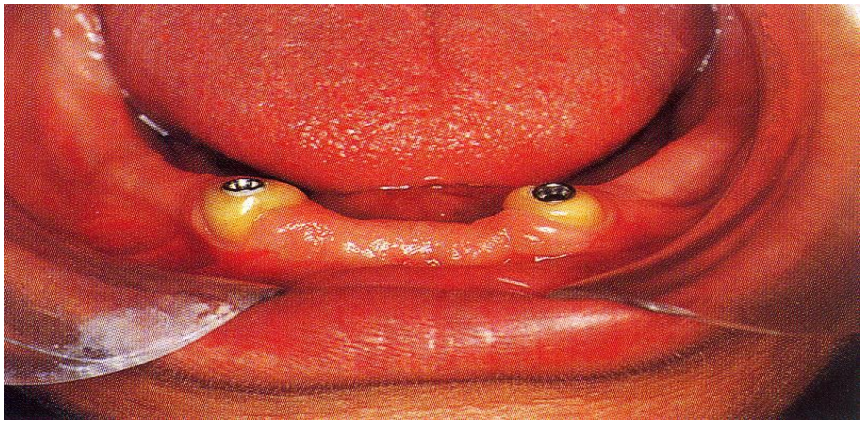
Diagram of intra-coronal attachment

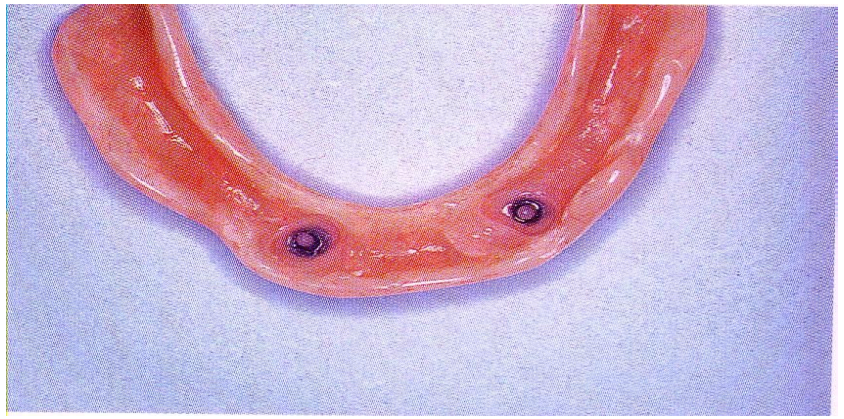




Clinical case
Intra-coronal attachment







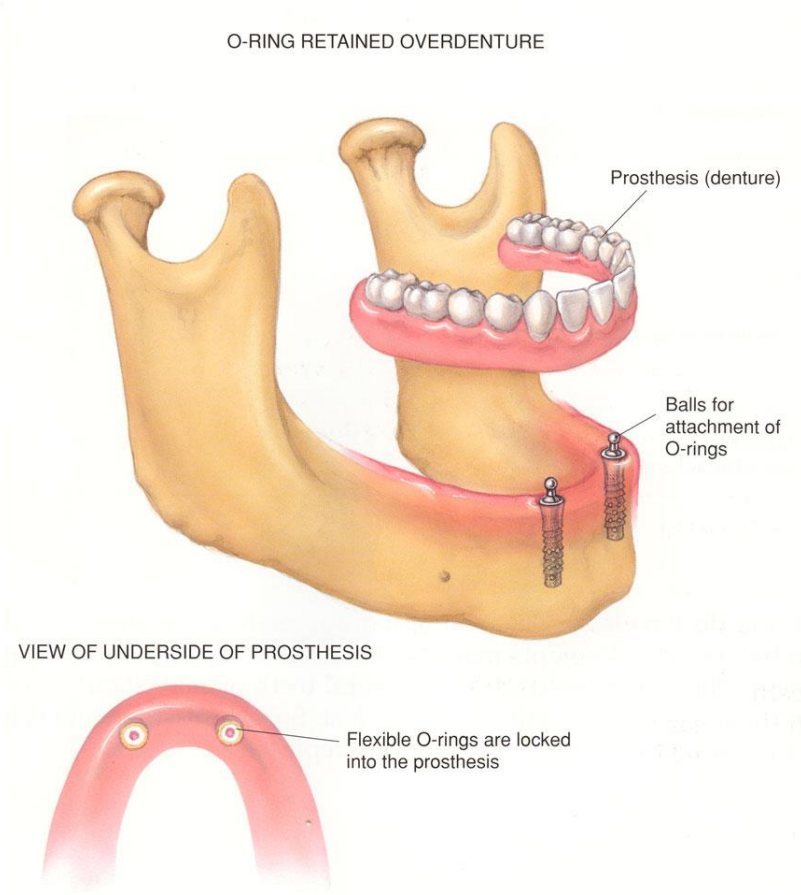
Zest anchor/ locator parts for implant supported overdentures

Extra-coronal attachment

Extra-coronal attachment

Stud Attachments

Stud Attachments



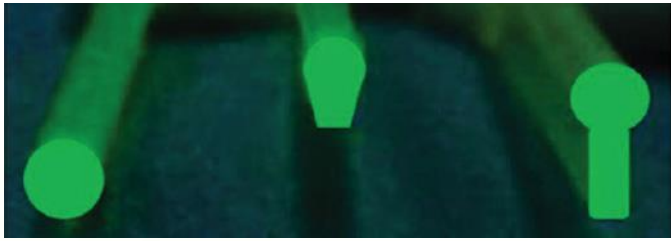
- Patrix soldered onto diaphragm/coping
- Most commonly used as overdenture abutments
- Matrix embedded within fitting surface of denture
- ‘O’ ring made of resilient material (relatively easy to replace)

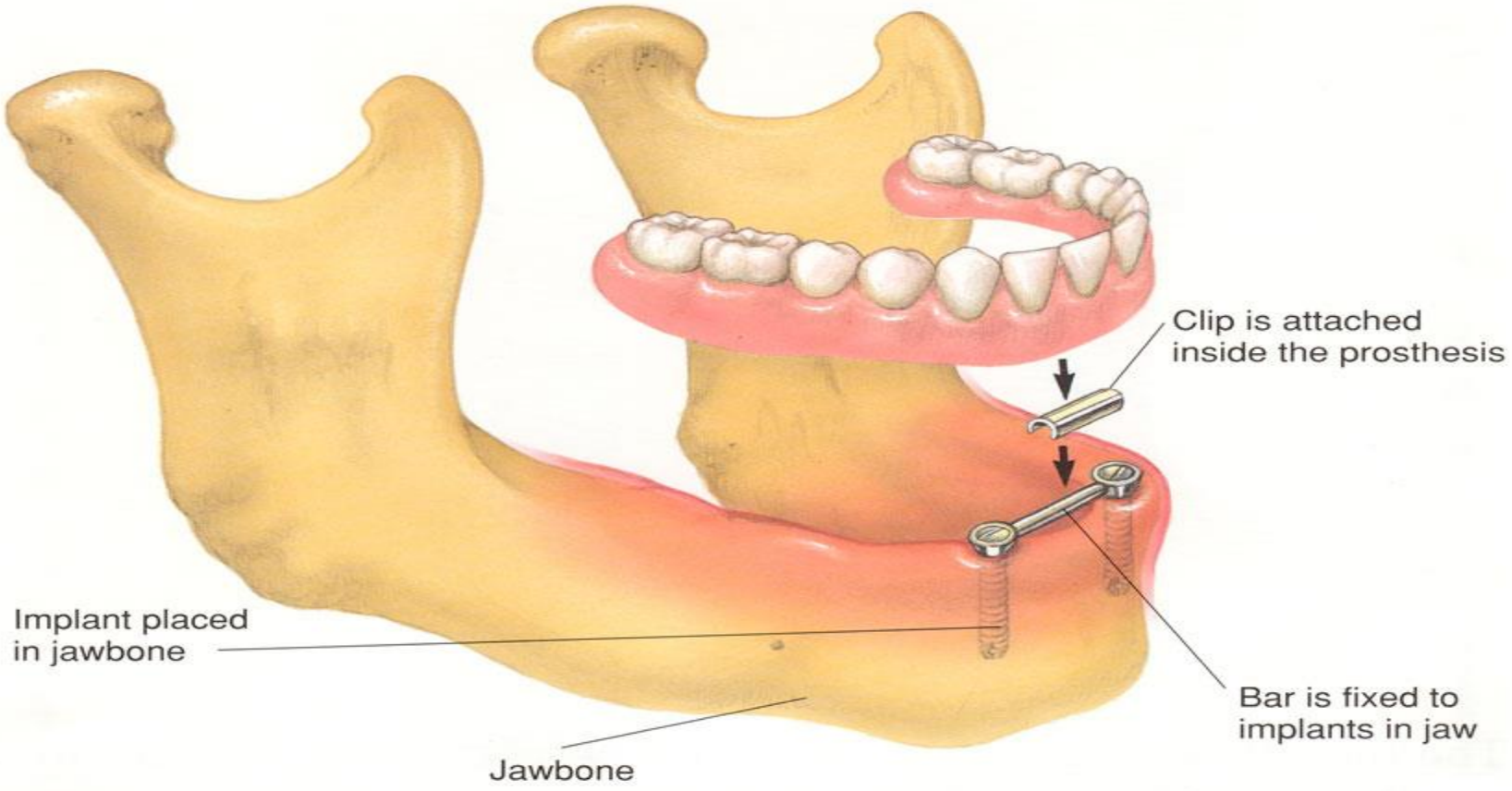
ERA overdenture attachment in implant

Preci-Clix stud attachment direct placement post with male threaded ball, females, and housing

Bar Attachments

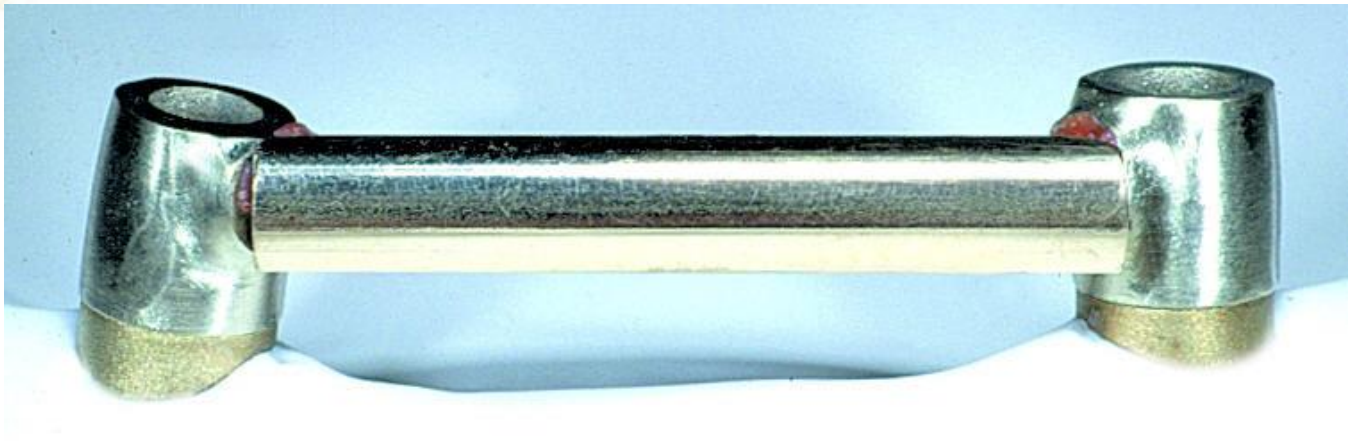
Different cross sections allow different ranges/types of movement:, Ackermann-round, Dolder-U shaped, Hader-keyhole-shaped)



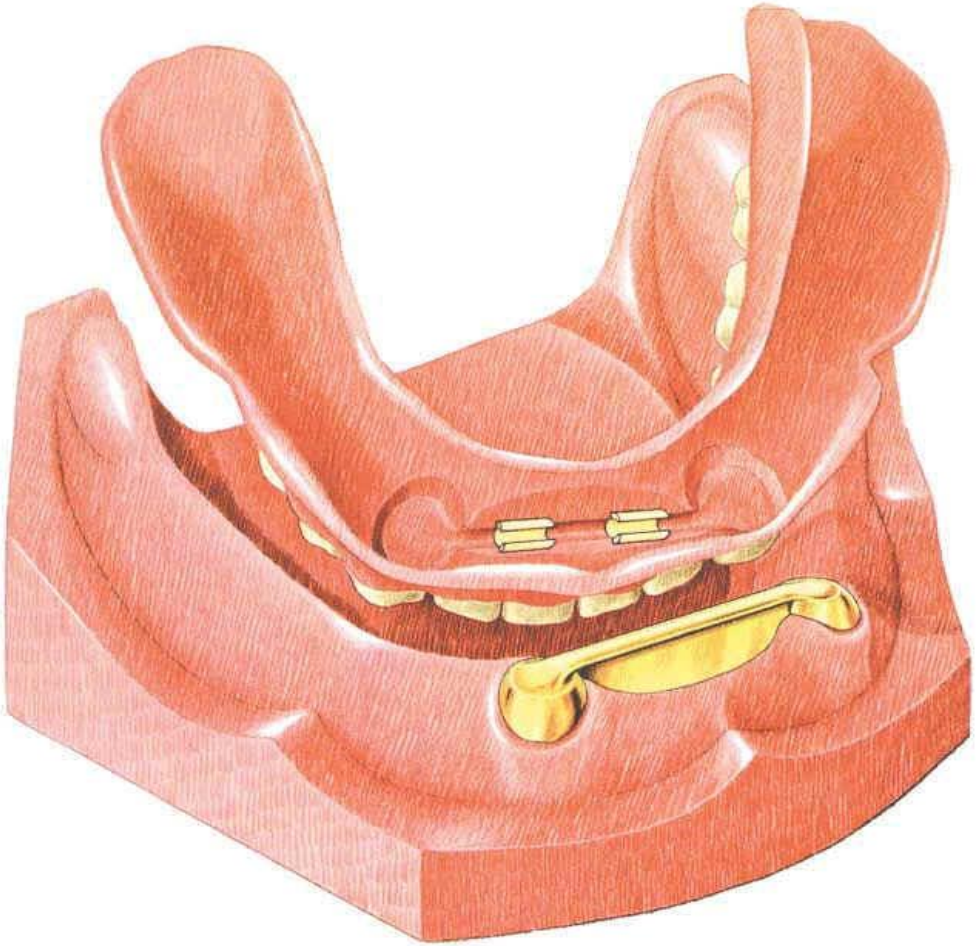


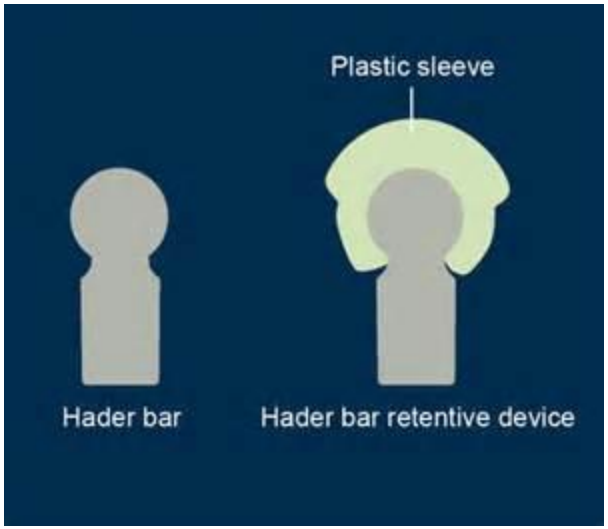
Round shaped Ackermann bar

U shaped Dolder bar

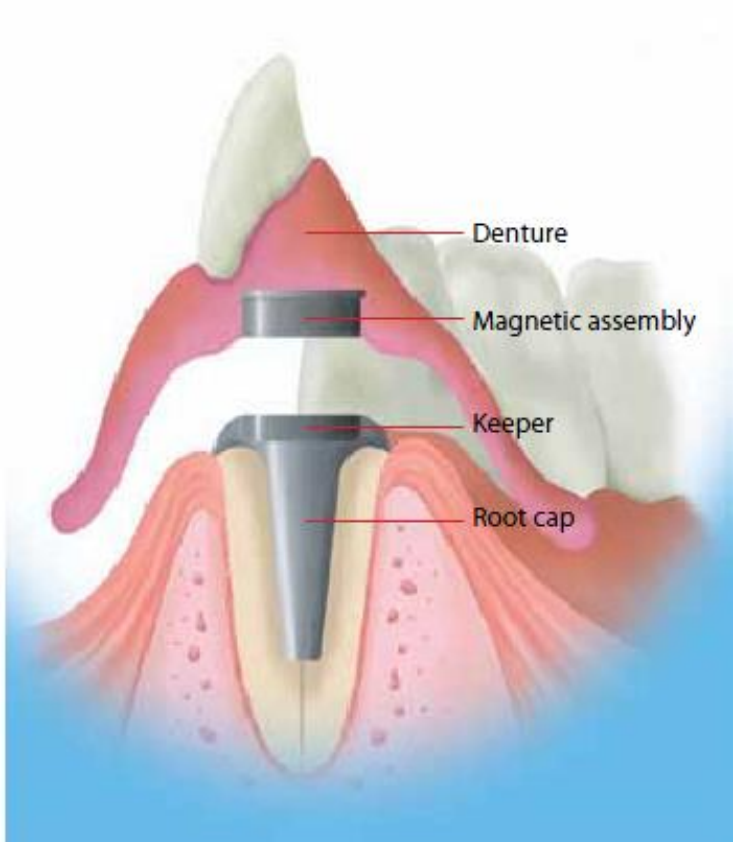


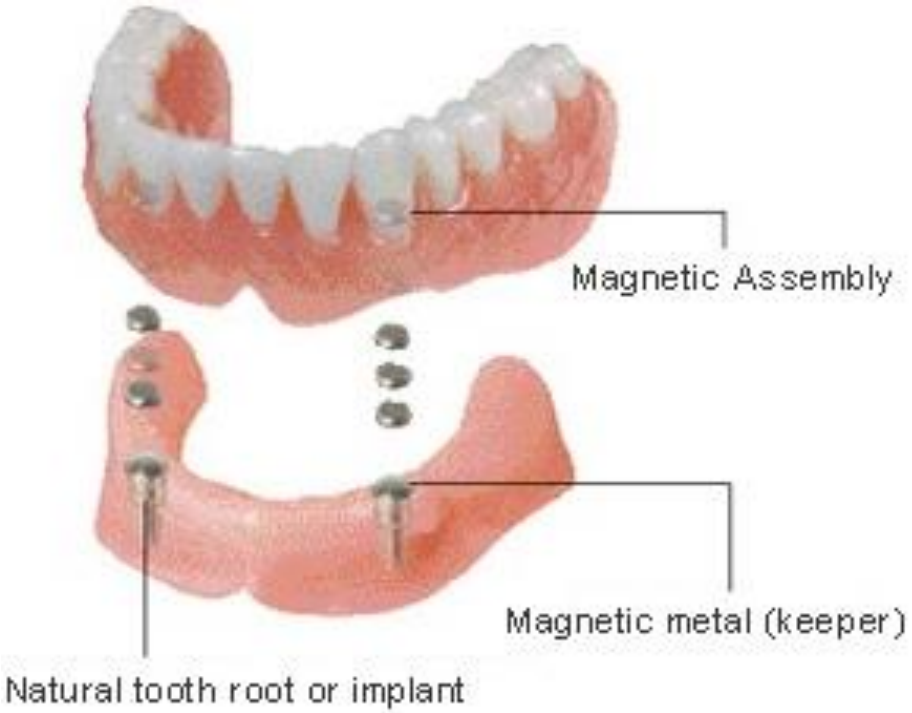
Hader bar and Hader clips/sleeve





Magnets


Denture
Magnetic assembly
Keeper
Root cap


Magnetic Assembly
Magnetic metal (keeper)
Natural tooth root or implant

Screws

- Used in over-dentures supported by implants