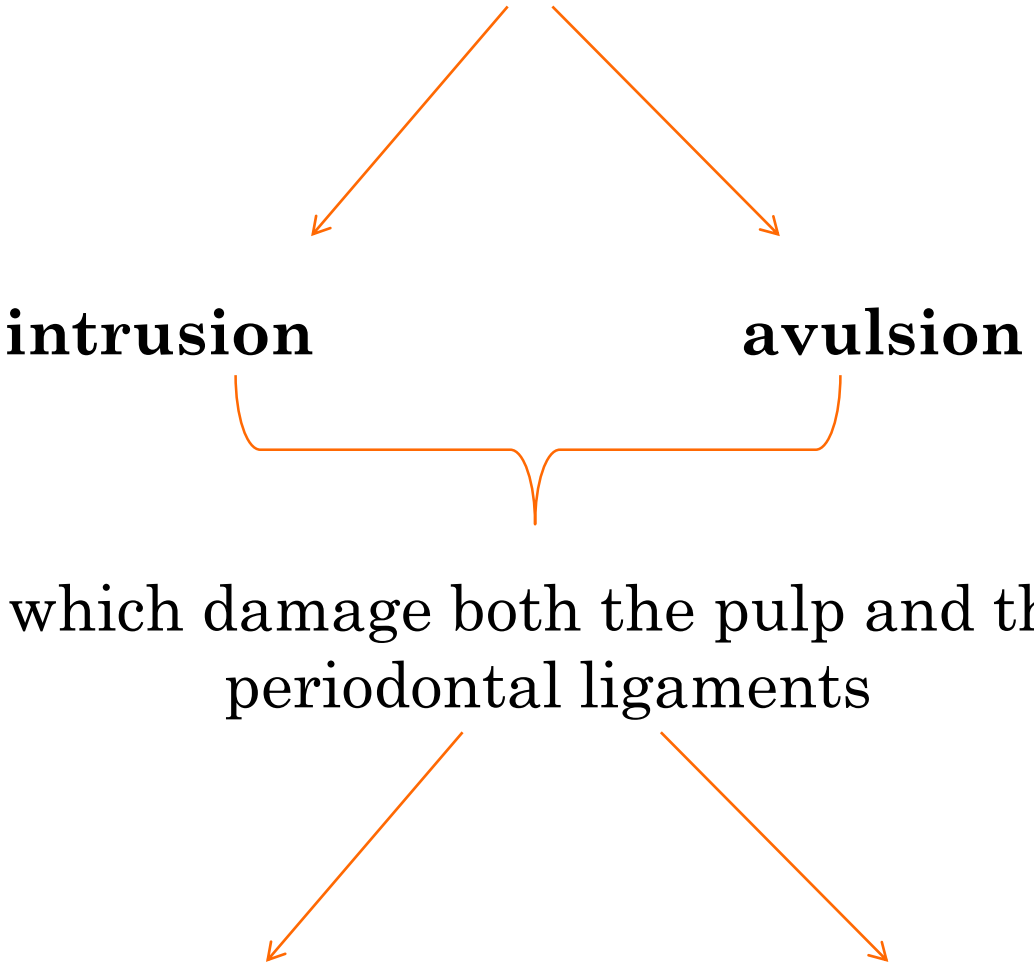
Decoronation

Decoronation

How, Why and When?

Dental trauma is most common in children between 8 and 10 years old, during the early mixed dentition,



intrusion of the maxillary right central incisor in the mixed dentition in a 10-year-old girl

Avulsion of the maxillary right central incisor in an 8-year-old boy

Ankylosis due to damage to the periodontal ligament in both central incisors after avulsion and replantation in a young girl.
Immediately after replantation at 12 years of age.

After two years. Almost total resorption of the roots with replacement by bone.

In children and adolescents, the ankylosis is accompanied by increasing relative infraposition of the tooth

one year after diagnosis of ankylosis

Three years later

A 12-year-old boy with his maxillary left central incisor in slight infraposition

If an ankylosed tooth is left in situ, infraposition will increase

Conditions may be further complicated by tilting of the adjacent teeth with subsequent space loss

Neglect of an ankylosed incisor, showing inhibited vertical growth of the alveolar ridge in the region of the ankylosed maxillary left central incisor and tilting of the adjacent teeth

infraposition

- built up in composite
- Orthodontic extrusion

is not a treatment option, as it results in intrusion of the adjacent teeth

Fixed ar… applied to the …ylosis.

the outcome is a failure

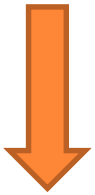
Six months later, there is intrusion of all adjacent teeth.

Relapse after treatment. Despite a composite build-up

Extraction of an ankylosed tooth may cause severe bone loss

The extracted tooth, with attached bone

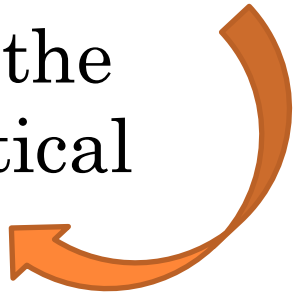
extraction of an ankylosed tooth



loss of attach bone

especially in buccopalatal width

Decoronation preserves not only the width of the ridge but also the vertical height



The decoronation technique was developed to prevent such bone loss

The crown of ankylosed, infrapositioned incisors is removed, leaving the root in the alveolus, to be replaced by bone

Decoronation Procedures

The ankylosed maxillary
right central incisor

A mucoperiosteal flap is raised

The crown is removed with a diamond bur under continuous saline irrigation.

The crown has been removed

The root filling is removed with an endodontic file

sealers may cause irritation, and gutta percha filling would be an to complete bone healing

The coronal part of the root surface is reduced to 2 mm below the marginal bone

The empty root canal is thoroughly rinsed with saline and thereafter allowed to fill with blood

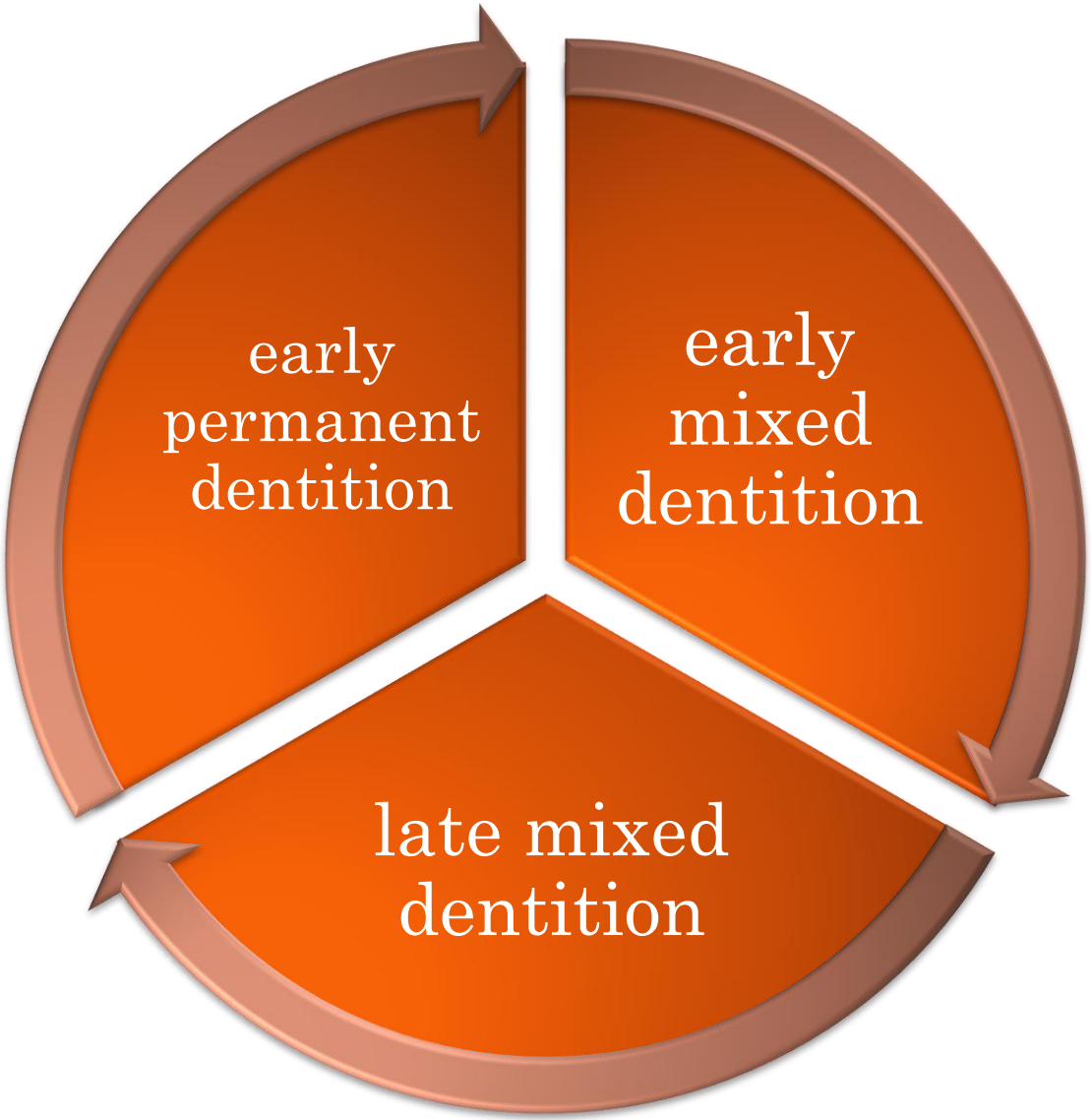
The mucoperiosteal flap is drawn over the alveolus and sutured with single sutures. A blood clot forms in the gap between the labial and palatal mucosa

The removed crown is shaped as a pontic with composite material and splinted to adjacent teeth

Before decoronation

Immediately after decoronation

Indications for Decoronation



Indications for Decoronation

- In the early mixed dentition (age 7 to 10 years):
  Decoronation within two years

- In the late mixed dentition (age 10 to 12 years): Individual monitoring. If patients have reached the pubertal growth spurt, a rapid increase in infraposition can be expected.
  Decoronation is indicated at the time of infraocclusion

- In the early permanent dentition: The increase in infraposition is sometimes slow.
  Decoronation might not be necessary
  , but annual follow-up is important

Post-Decoronation Restorative Treatment Options

No Replacement

Replacement Patient's Crown Bonded to Lingual of Adjacent Teeth

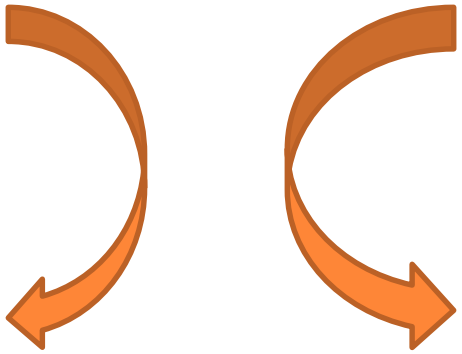
Fixed Space Maintainer in the Mixed Dentition

Natural Tooth or Acrylic Tooth Attached to Orthodontic Archwire

Removable Partial Denture

Resin Bonded Bridge

Replacement of a lost crown in young patients in the mixed dentition may be complicated



During eruption of the canines there is an increase in transverse intercanine width

lateral incisors often change position due to apical pressure

Fixation of the replacement tooth to the adjacent teeth should therefore be postponed until the canines are fully erupted

A10-year-old boy

1

The lateral incisors are tipped slightly mesially

2

Two years later, the lateral incisors have changed position and are tipped distally due to eruption of the canines

Removable acrylic partial denture

retained by Adam's or ball clasps

disadvantage → Poor retention during the mixed dentition

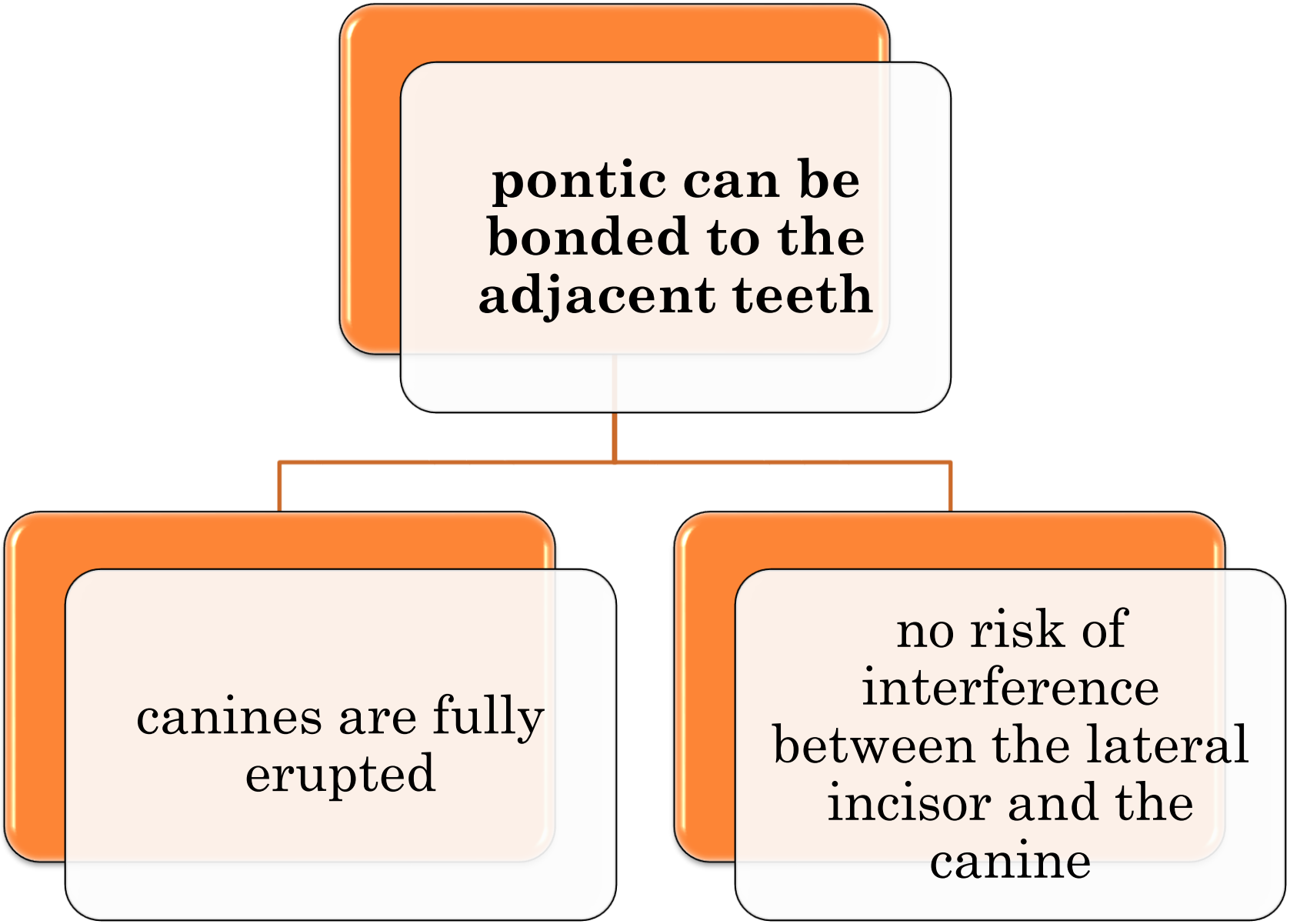
It is also important to avoid interfering with eruption of teeth in the lateral segments

An alternative therapy during the mixed dentition

lingual arch wire soldered to bands
on the second primary molars, with a denture tooth fixed to the arch wire

Fixed space maintainer in the early mixed dentition.

Lingual archwire is soldered to bands on the primary second molars


pontic can be bonded to the adjacent teeth
canines are fully erupted
no risk of interference between the lateral incisor and the canine

A removed crown shaped as a pontic and bonded to the adjacent teeth.
Preparation of the pontic, lingual aspect

Pontic filled with composite, lingual aspect

Bonding to adjacent teeth.
Rubber dam isolation of the field is essential

Downgrowth of the gingiva and formation of new marginal bone over the alveolus made it necessary to shorten the pontic one year after decoronation.

At the time of decoronation

After one year, the pontic has been shortened

Development of the Alveolar Ridge

At the Department of Paediatric Dentistry of the Eastmaninstitutet in Stockholm, 77 teeth were decoronated during the period following publication of the first study in 1984 up to 1997

The age of the patients at the time of trauma	6 and 18 years
The age at decoronation	10 and 22 years.

Radiographs were taken immediately before and after decoronation, after six months and then annually up to 14 years.

RESULTS

In patients treated with decoronation before the age of 13 years, i.e., before or during pubertal growth periods, there was an

increase in vertical bone level

One year after trauma, at 9 years of age. Maxillary left central incisor ankylosed and in infraposition.

Three years later, immediately before decoronation.

Immediately after decoronation. The adjacent teeth have been proclined during orthodontic treatment to prepare space for a temporary prosthesis.

At the age of 21, there is an increase in vertical dimension of the marginal bone.

The buccopalatal width of the alveolar ridge was maintained into adulthood in all patients

An 18-year-old patient with a concave alveolar ridge following uncomplicated conventional extraction at age 12

10 years after decoronation. The alveolar ridge has a favorable width for an implant.

Insertion of implant 10 years after decoronation. A few root remnants were no impediment

Final solution

Summary

Extraction of an ankylosed tooth may involve loss of attached bone. especially the buccopalatal width. These adverse effects are
circumvented by the decoronation technique, which preserves not only the width but also
the vertical height of the alveolar ridge

Above all,
maintaining the width of the alveolar ridge allows optimal positioning of an implant and ideal esthetic shaping of the crown.

THANK YOU FOR YOUR KIND ATTENTION