Operativ techniques in Dentistry: Paedodontics and Orthodontics

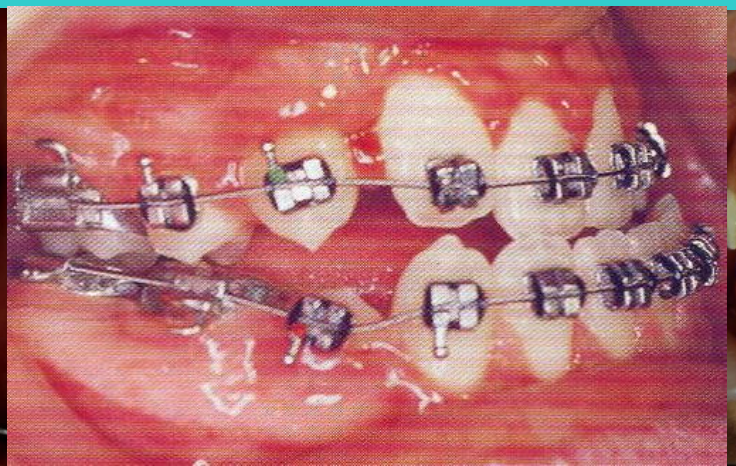
- The purpose of orthodontics
- Grouping of the appliances
- Elements of fixed appliances
- The types and parts of the removable appliances

The purpose of orthodontic treatments

To solve esthetic complaints

To treat the functional anomalieas (chewing, speech, TMI, etc.)

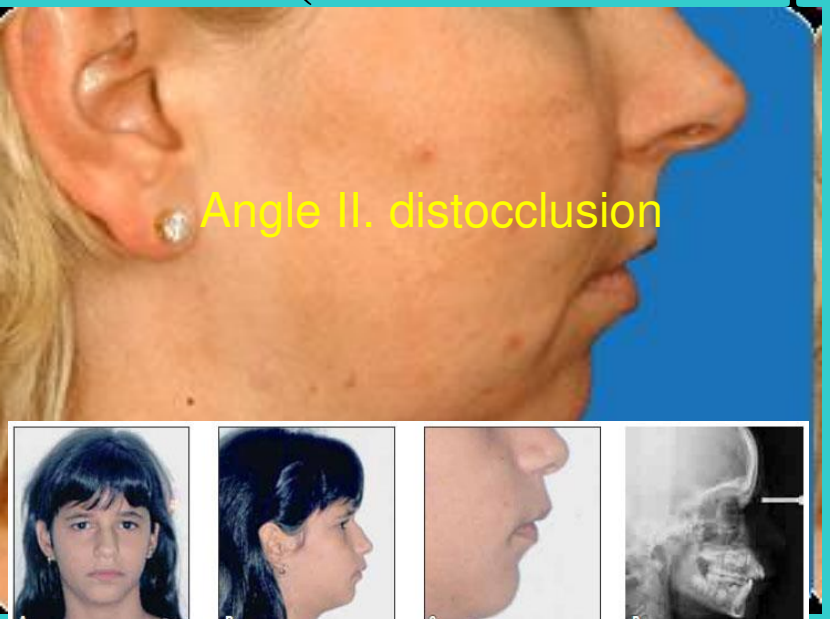
Prevention (caries, parodontitis, TMJ dysfunction)

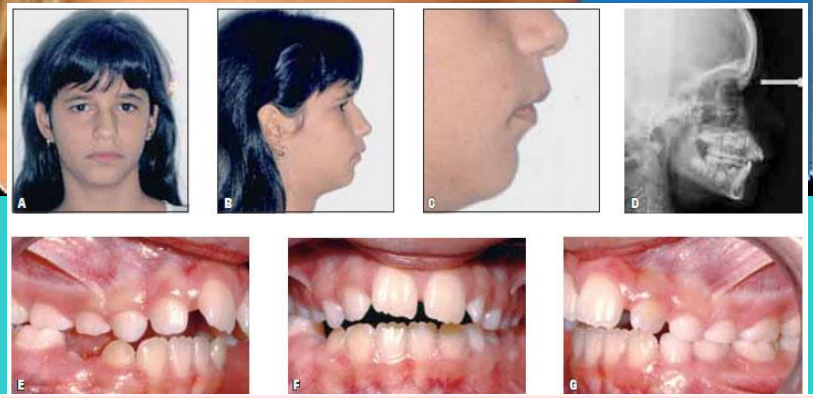


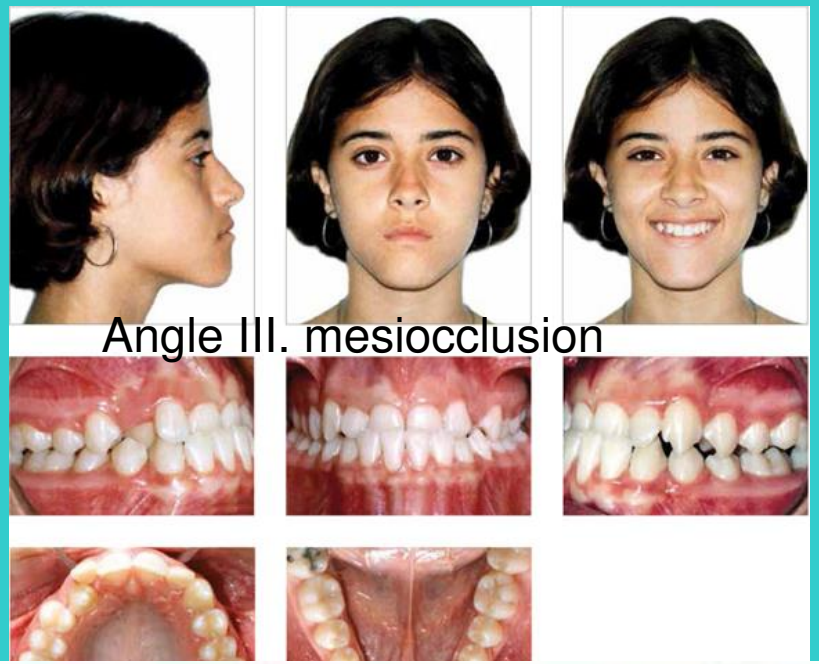
Angle Classification

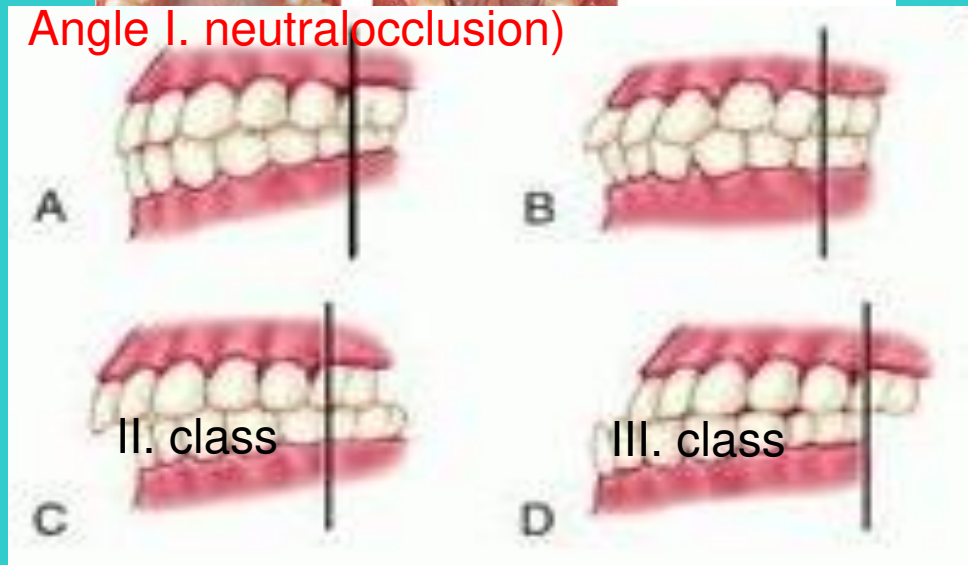
- Class I Molar (65%)
- Class II Molar (30%)
- Class III Molar (5%)

Sagittal anomalies - Angle classification (based on:anteroposterior relationship of the jaws)

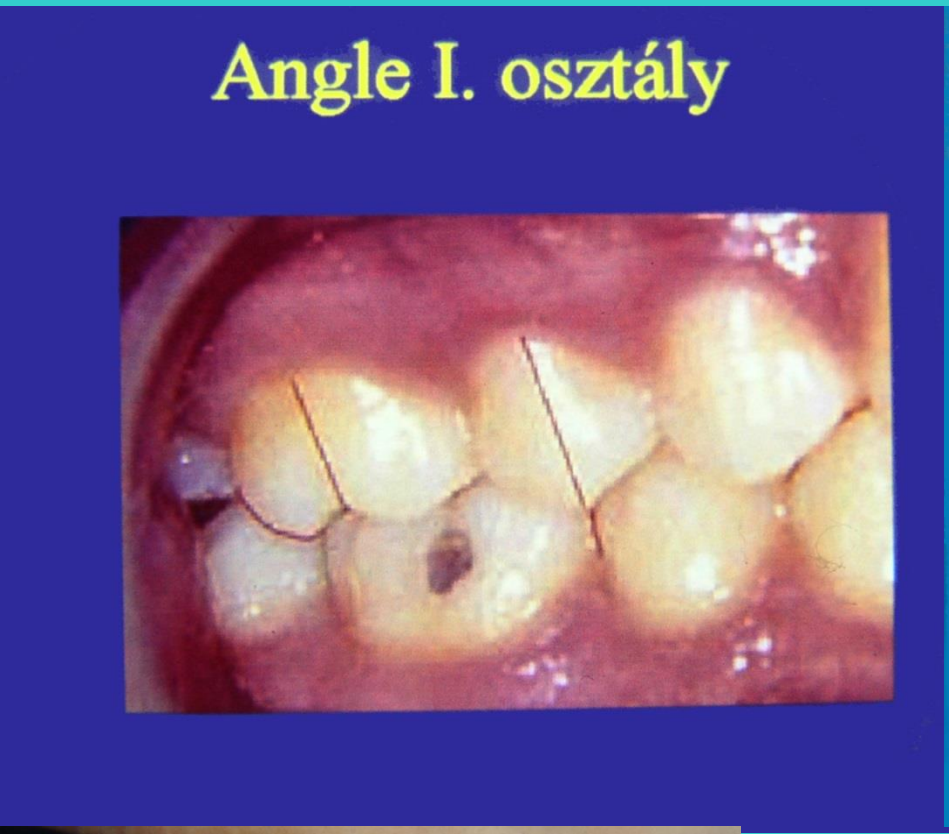


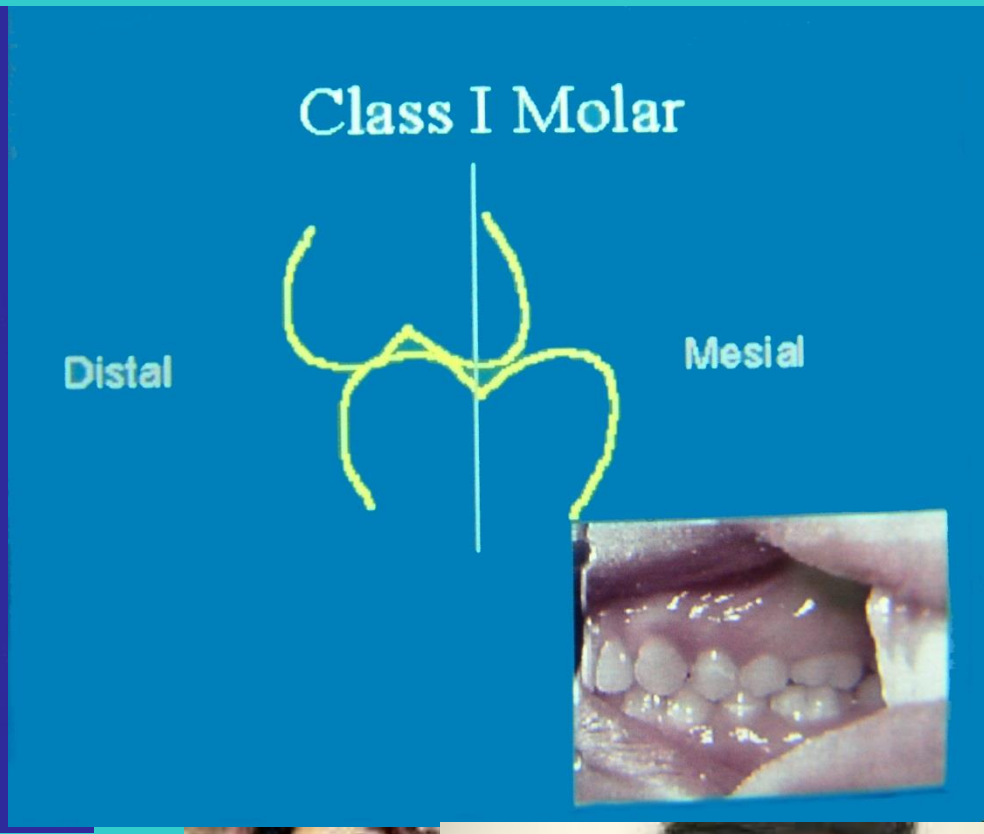


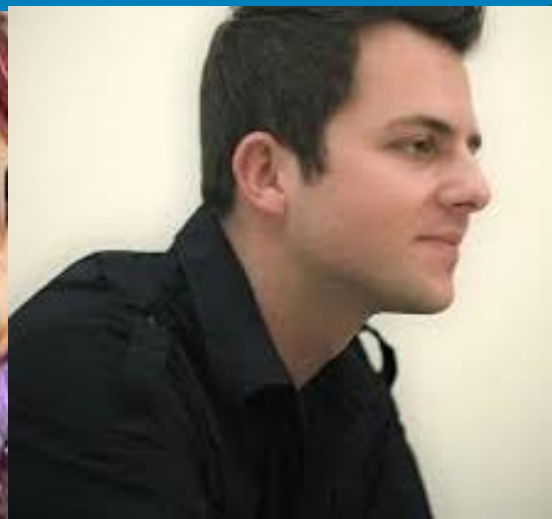




I. class



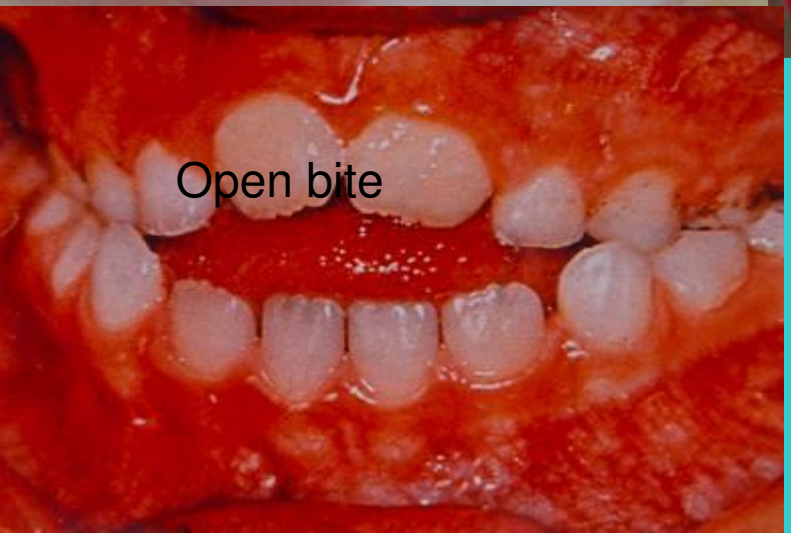




Angle I.


Crowding, narrowing, lack of place


Diasthema medianum

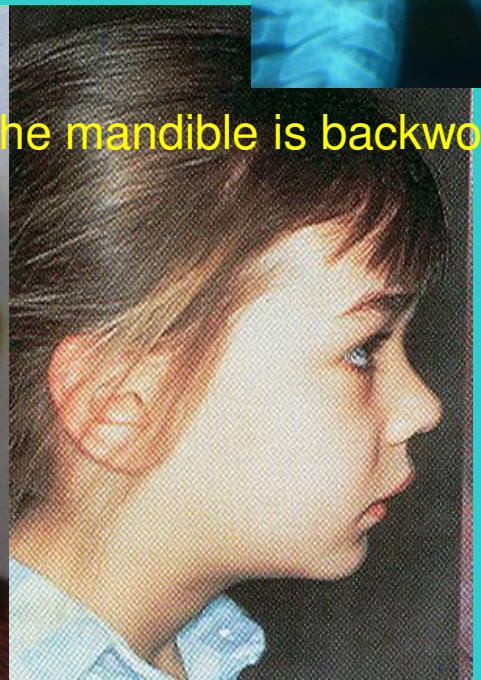

Open bite


Impacted wisdom teeth

Angle II. - Distocclusion

Angle II/1

Angle II/2

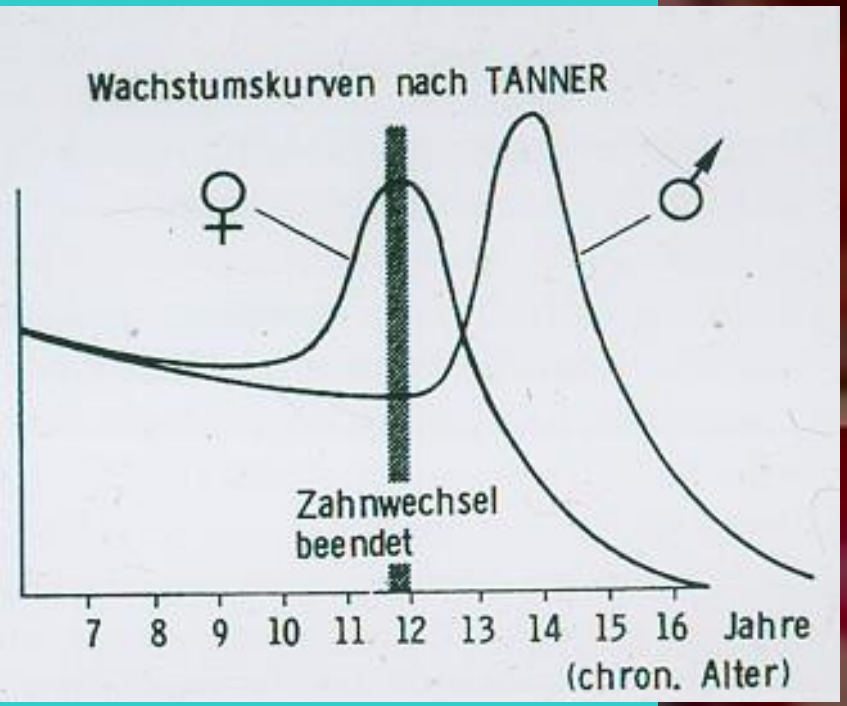


The mandible is backword or/and the maxilla is forward)


Beforee


After

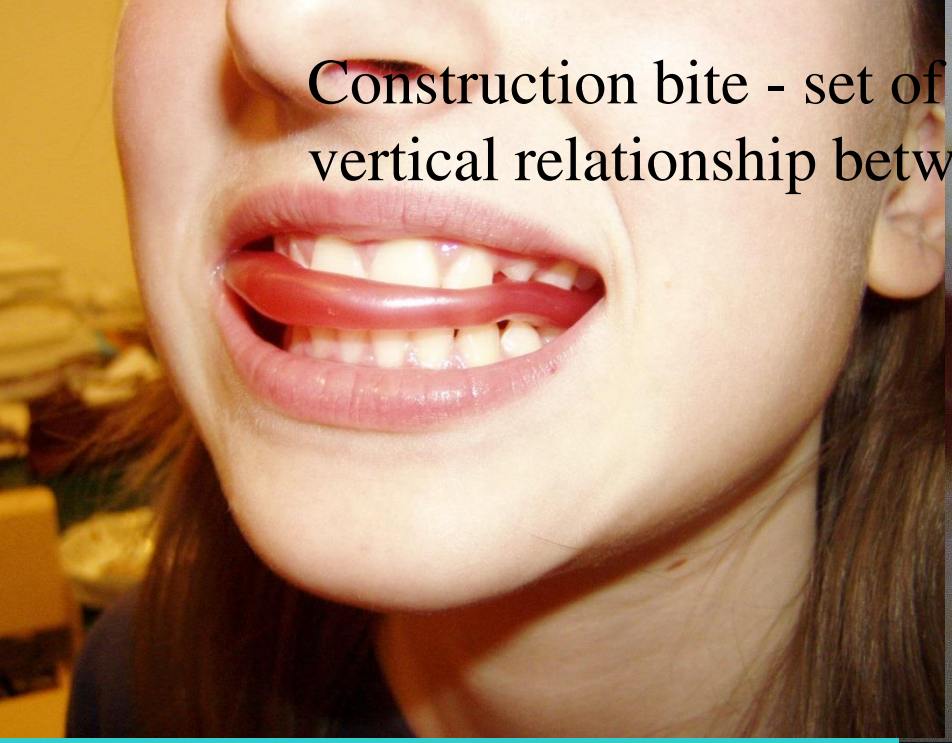
Functional jaw orthopaedics, bimaxillary, functional appliances

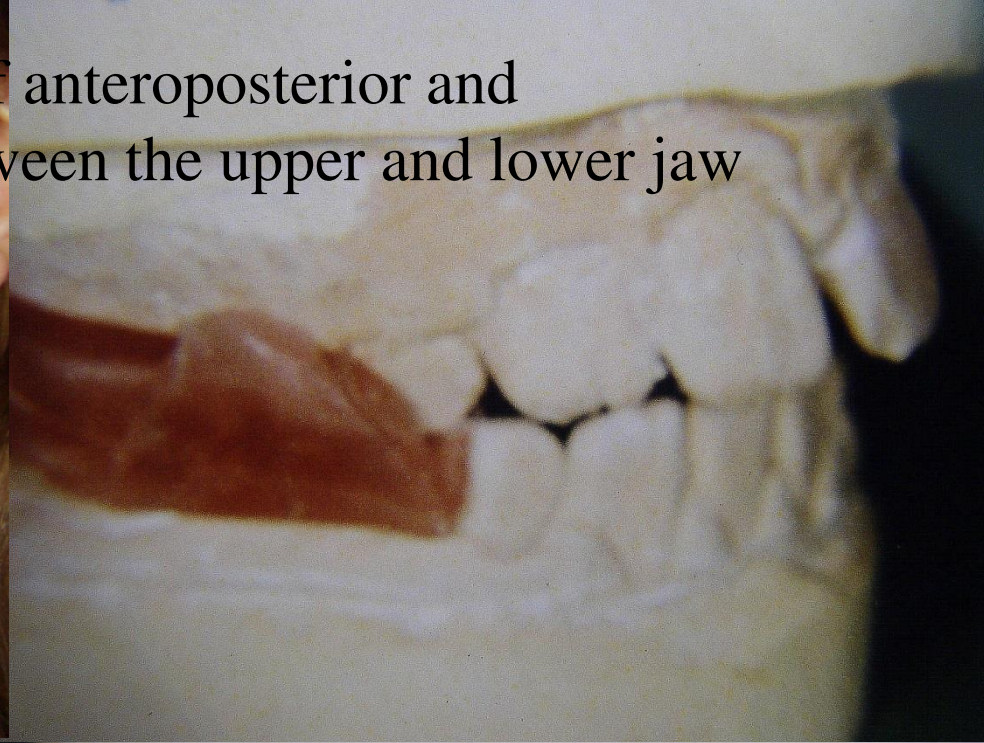


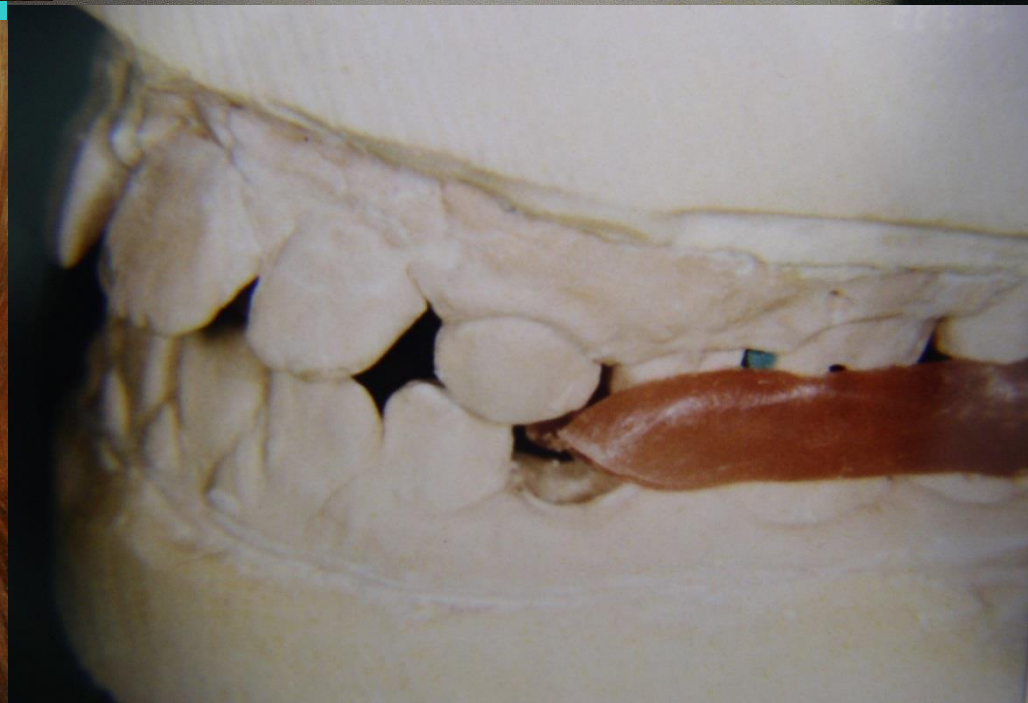
Functional jaw orthopaedics, bimaxillary, functional appliances

- Restructuring of TMJ
- Restructuring of dentoalveolar area
- New muscle balance

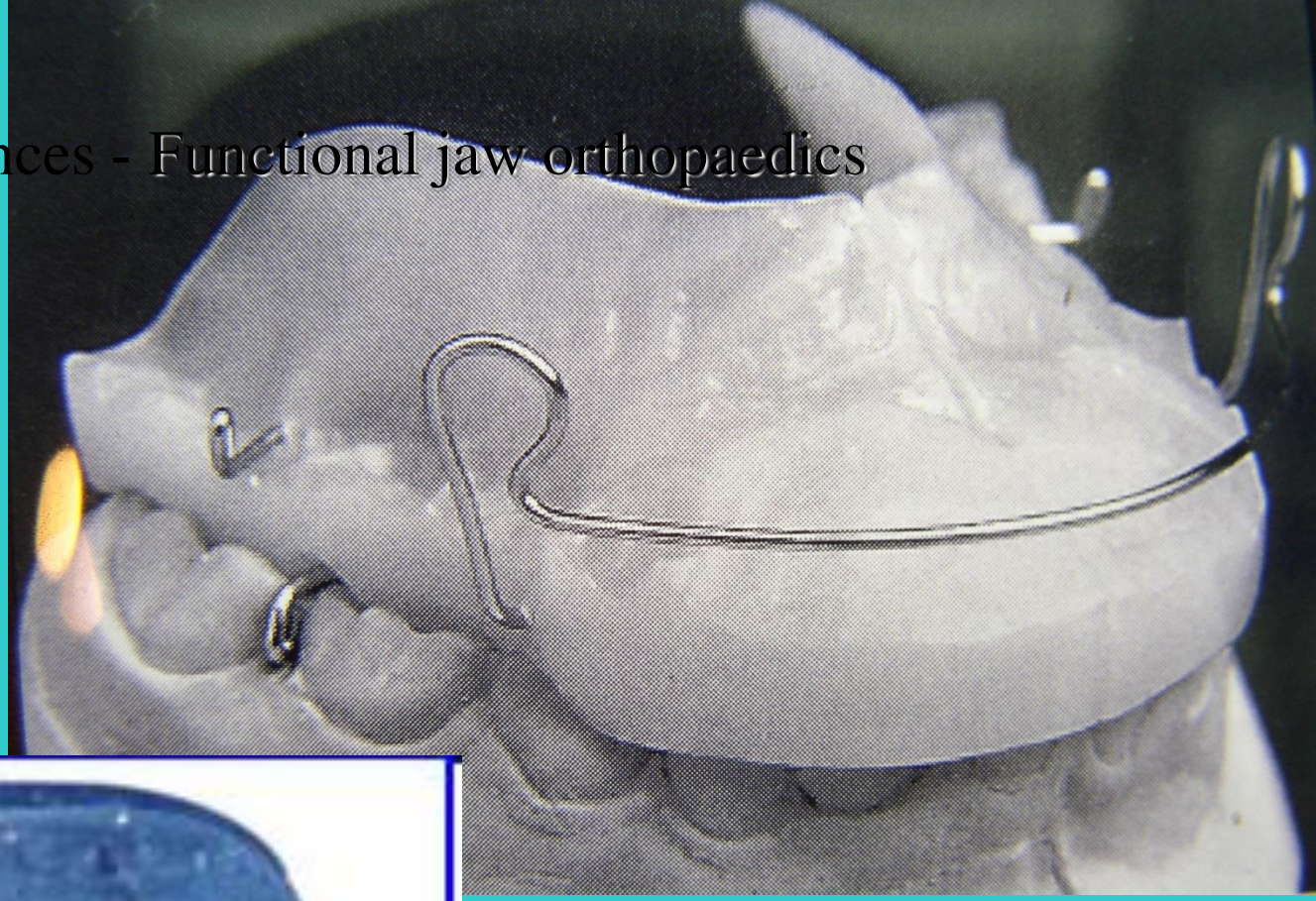
Construction bite - set of anteroposterior and vertical relationship between the upper and lower jaw







Bimaxillary appliances - Functional jaw orthopaedics



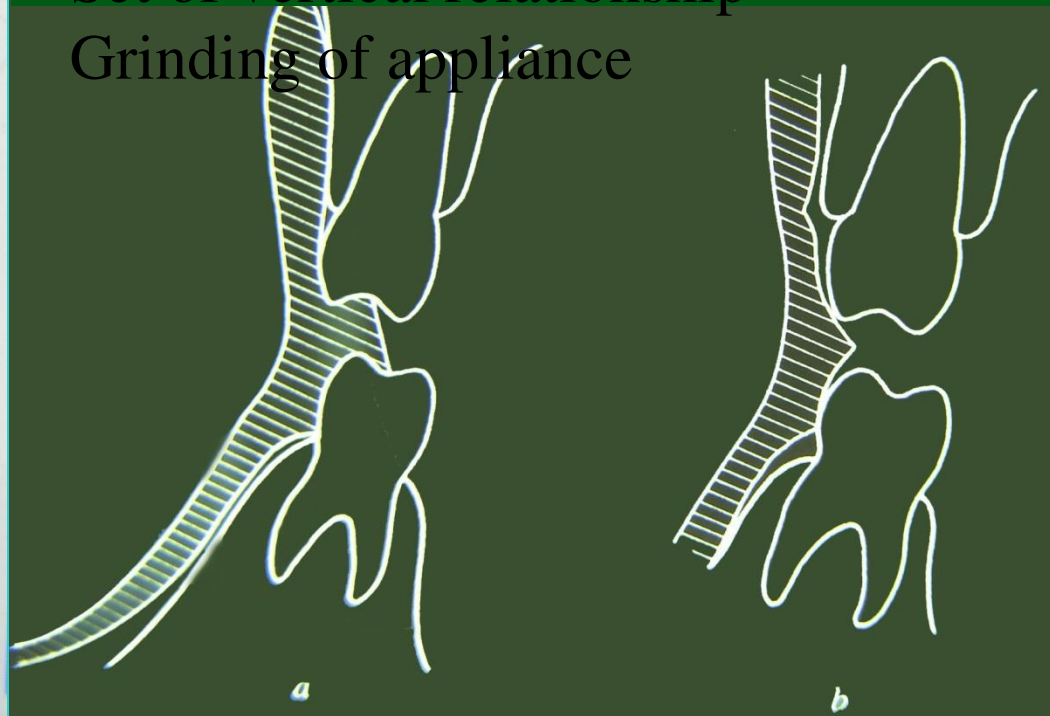
AKTIVATOR

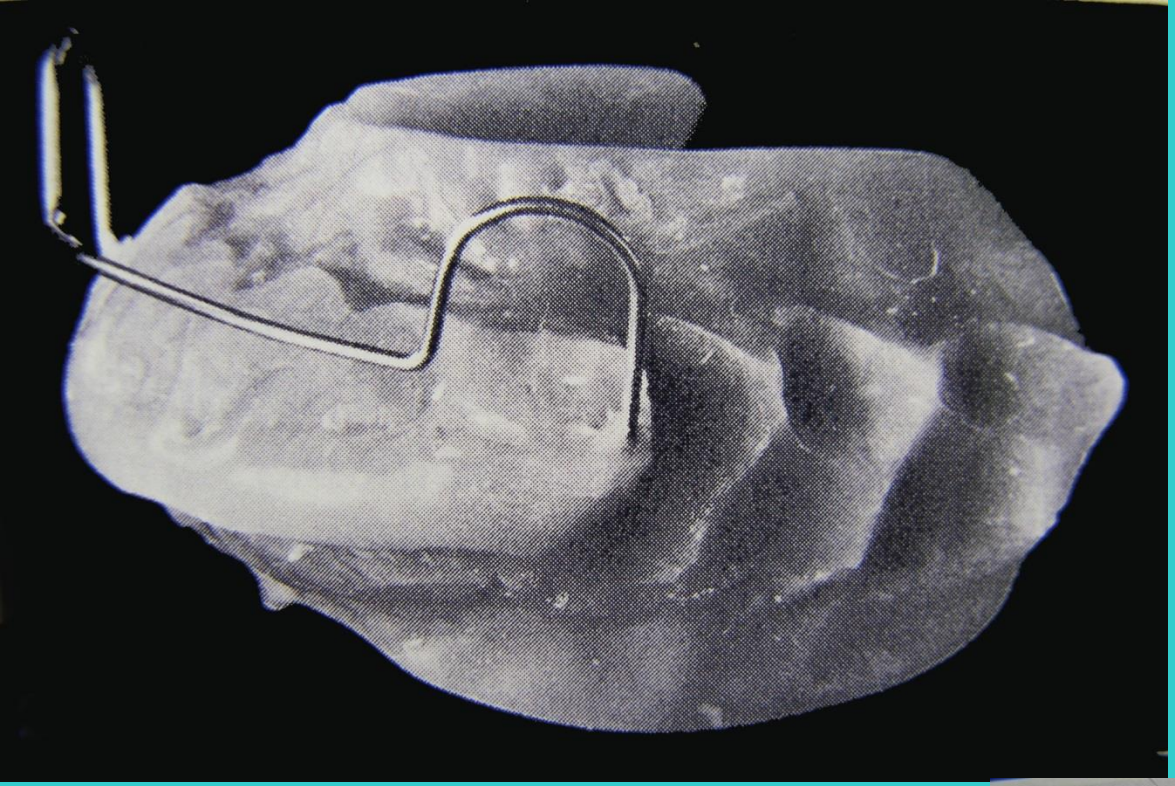
Fig. 11. Corrected incisor relationship, bilateral open bites.

Functional jaw orthopaedics

Set of vertical relationship

Grinding of appliance





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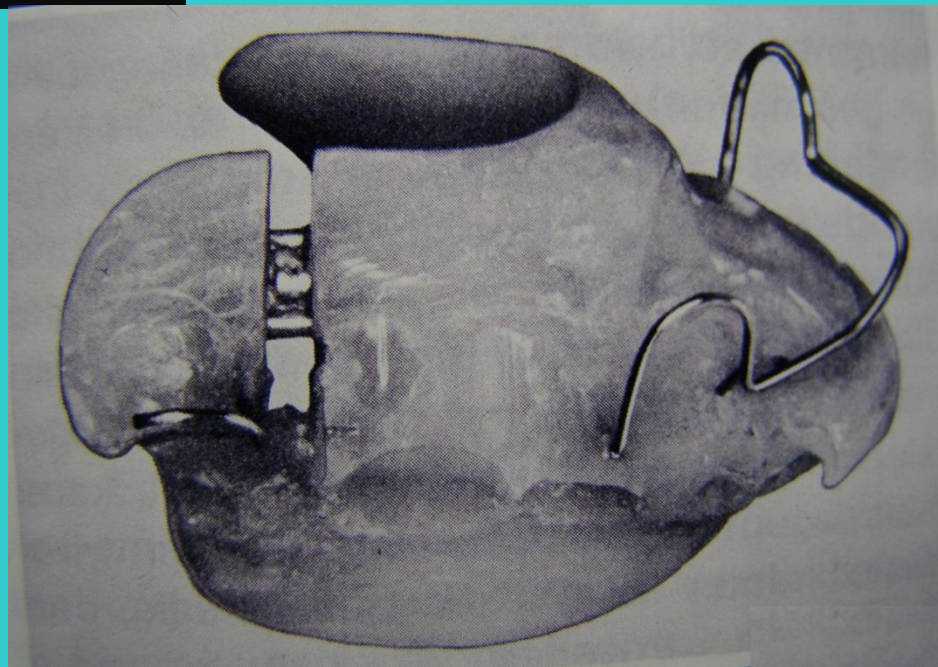


Fixed appliances for the treatment of II. class anomalies

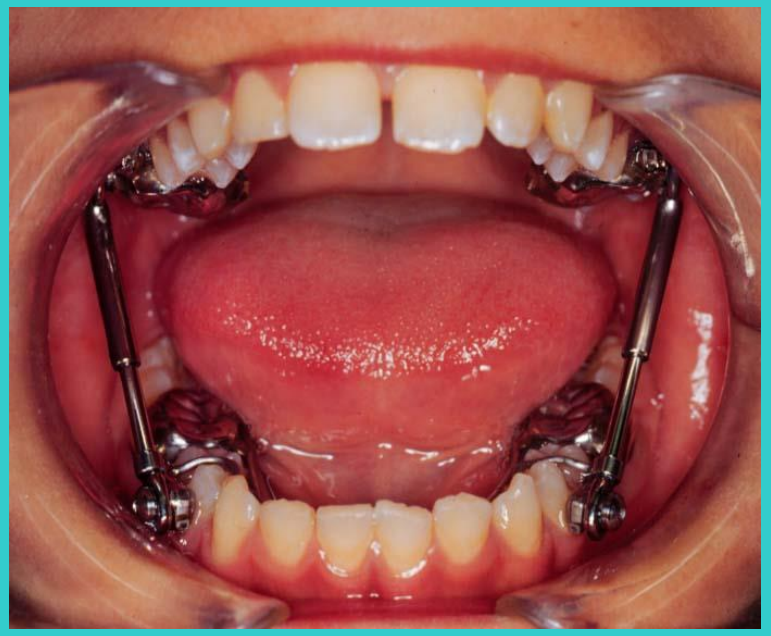
- Herbst-appliance
- Jusper Jumper
- Forsus spring stb.

CLASS II MALOCCLUSION
FUNCTIONAL APPLIANCES

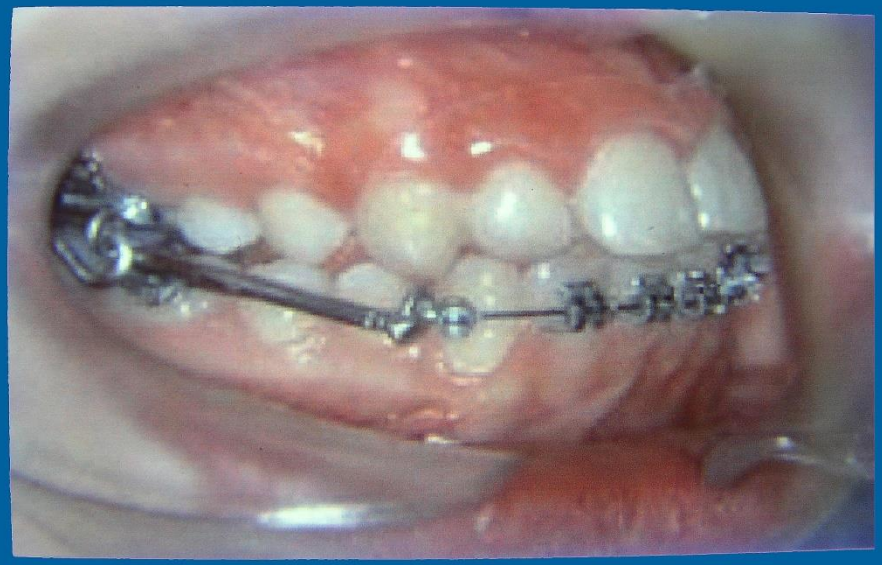
PERMANENT DENTITION
CLASS II DIVISION 1

HERBST APPLIANCE (FIXED)
MANDIBLE HELD IN PROTRUSION +
OPEN VERTICALLY

CLASS II MALOCCLUSION
FUNCTIONAL APPLIANCES



FIXED HERBST APPLIANCE



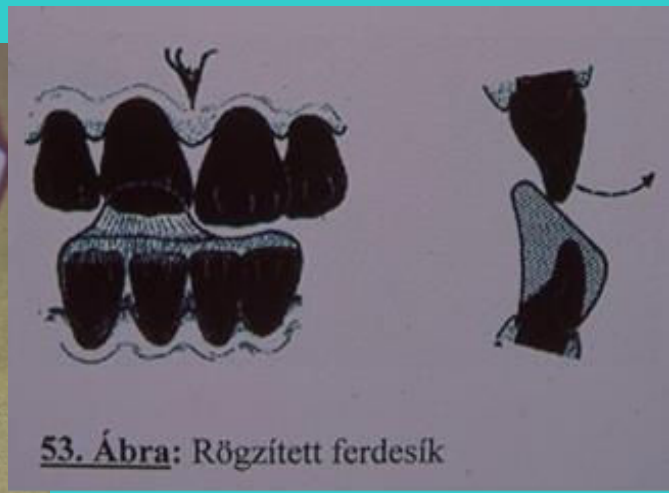
II. Class rubbers

Angle III – progenie - mesiocclusion

Orthodontic treatment in primary dentition

- **Progenia**
- **1.**appliance: chin cap

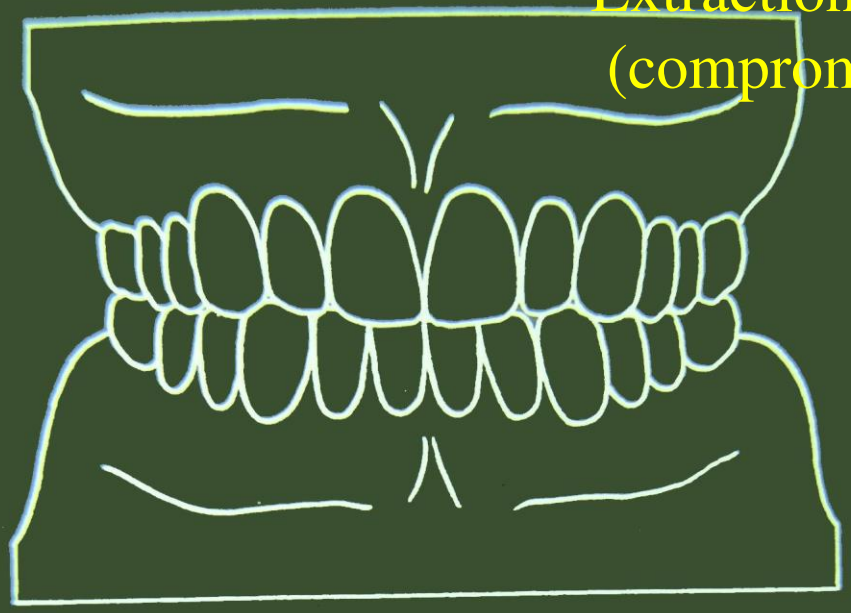
- 2. Inclined plane
- (against frontal crossbite)

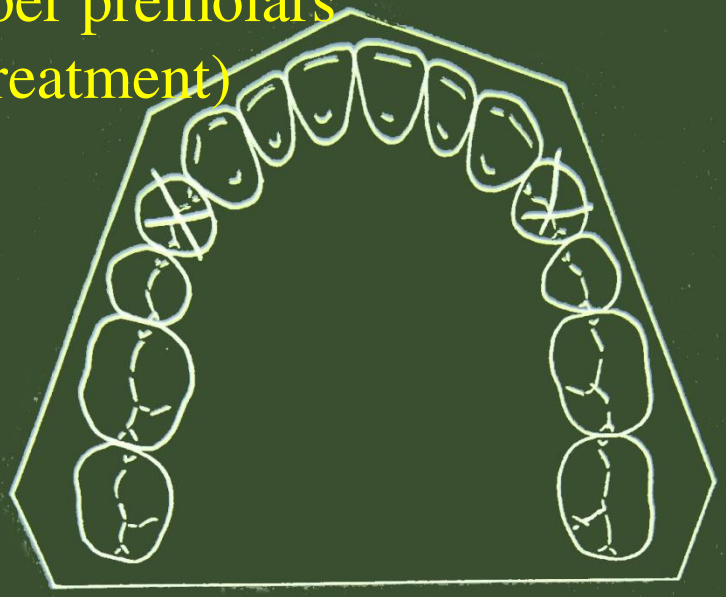


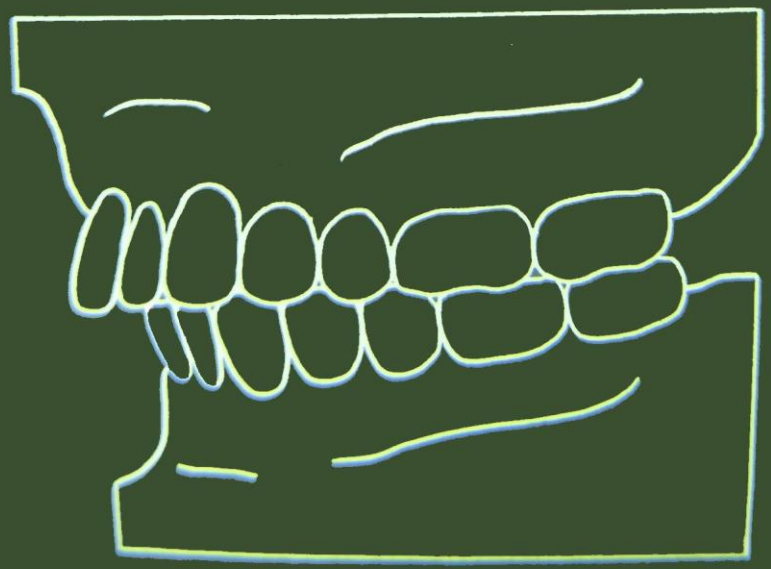
Headger and fixed appliance

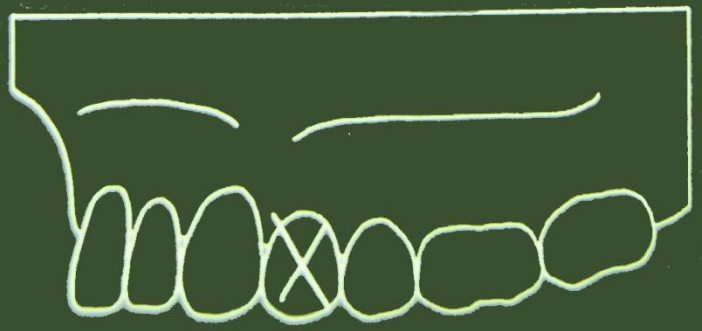
If the maxilla is responsible for the anomaly and in mild distalocclusion
Distalisation of upper molars
Prohibition of growing of upper jaw

Extraction of upper premolars (compromised treatment)









•Szisztémás extractio
•Kompenzáló extr. korai tejfog eltáv. után
•Bölcsesség fogak eltávolítása
•Metsző fogak extractiojának feltételei
•Felső második molárisok extractioja
•Praemolarisok extractioja
•Aszimmetrikus extractio indikációja
•Fogeltávolítás torlódás esetén
•Sagittalis eltérések esetén végzett extractiok

Extraction by sagittal anomalies

Compensation of sagittal anomalies

- medium degree Angle II
- low degree Angle III cases

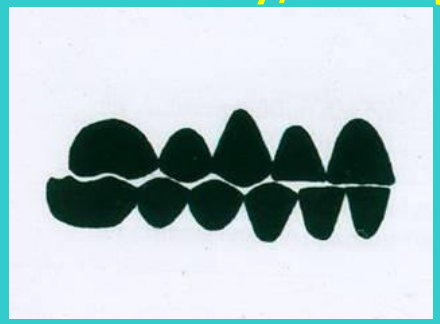
Extraction of upper premolars

Compensation of the sagittal anomalie

Reasons:

1. Sagittal anomaly, overjet, protrusion stb.

.



Anchcorage: Microvis implant

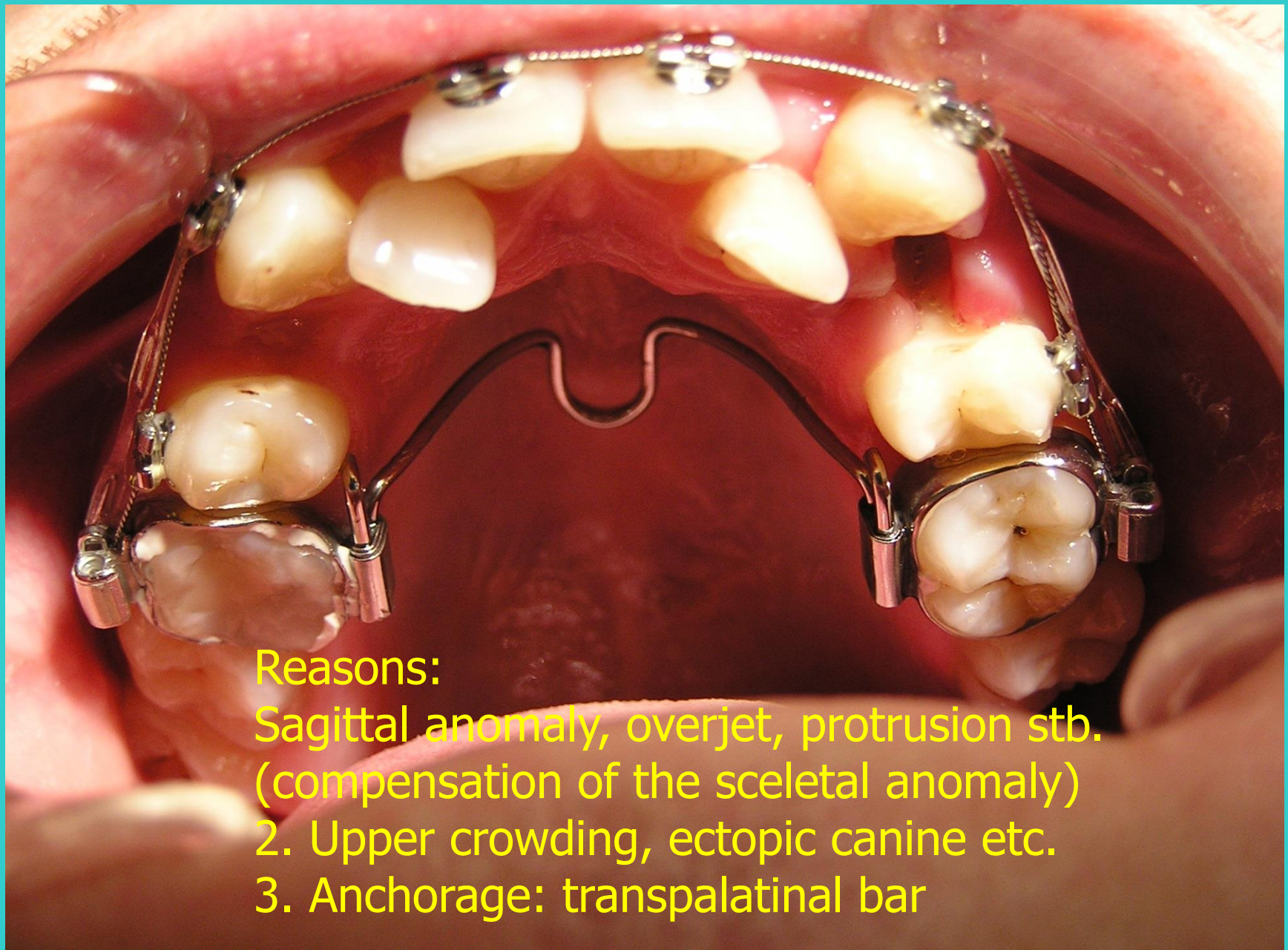
Extraction of upper premolars

Reasons:

Sagittal anomaly, overjet, protrusion stb.
(compensation of the sceletal anomaly)

2. Upper crowding, ectopic canine etc.

Extraction of upper premolars



Extraction of upper premolars

Compensation of the sceletal anomalie

Reasons:

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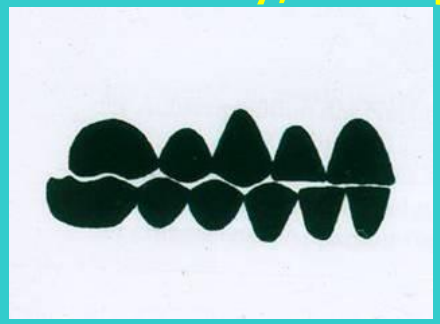


Anchcorage: Microvis implant

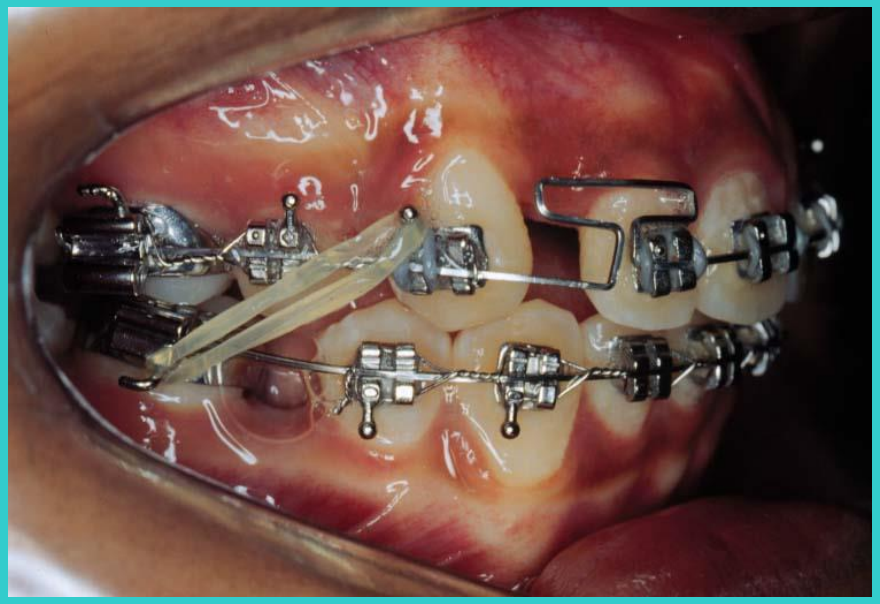
Face profile !!!

Child aged 10 and 12; extractions and fixed braces

Bird face

Retrognath face

CLASS II MALOCCLUSION
EXTRACTION
Intermaxillary anchorage



EXTRACTION OF
UPPER FIRST PREMOLARS +
LOWER SECOND PREMOLARS

Surgical solutions

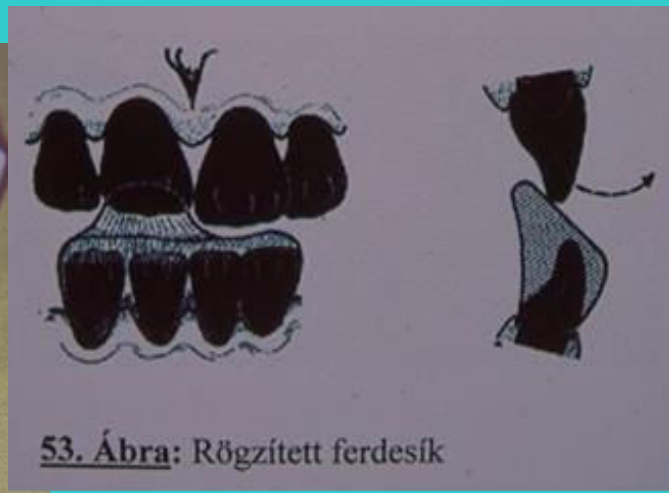
Műtéti előkészítés

Angle III – progenie - mesiocclusion

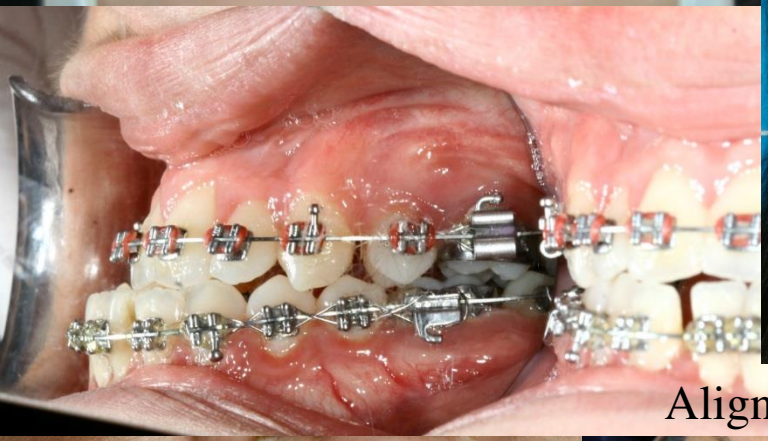
Orthodontic treatment in primary dentition

- **Progenia**
- **1.**appliance: chin cap

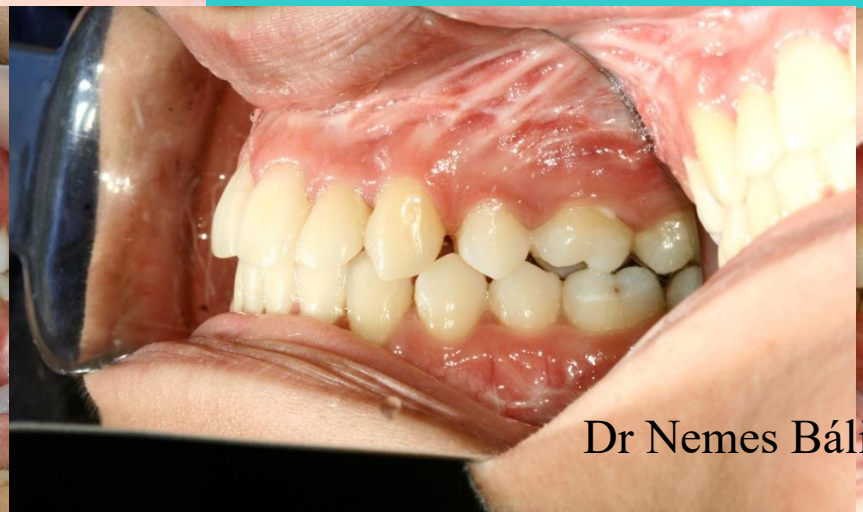
- 2. Inclined plane
- (against frontal crossbite)



Real progeny - surgery



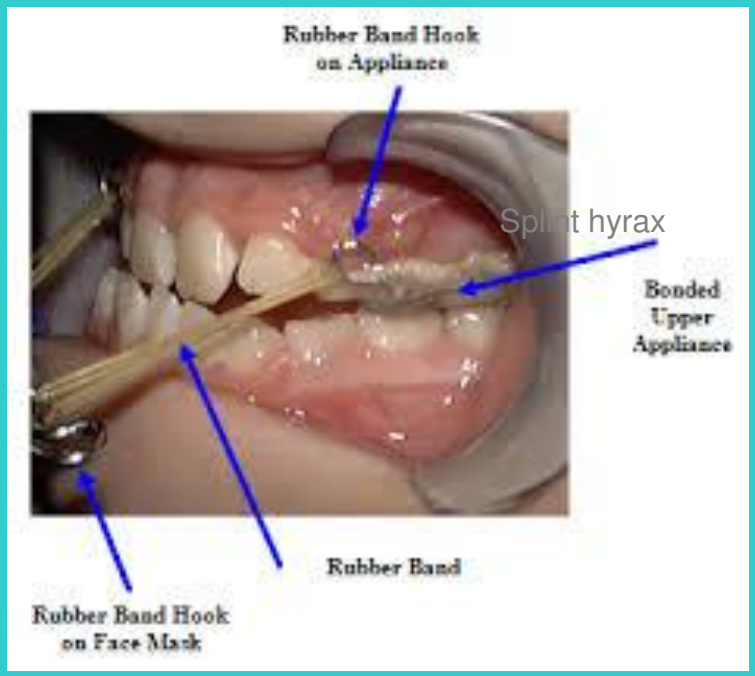
Aligned dentures the sizes of the arches are fit to each other

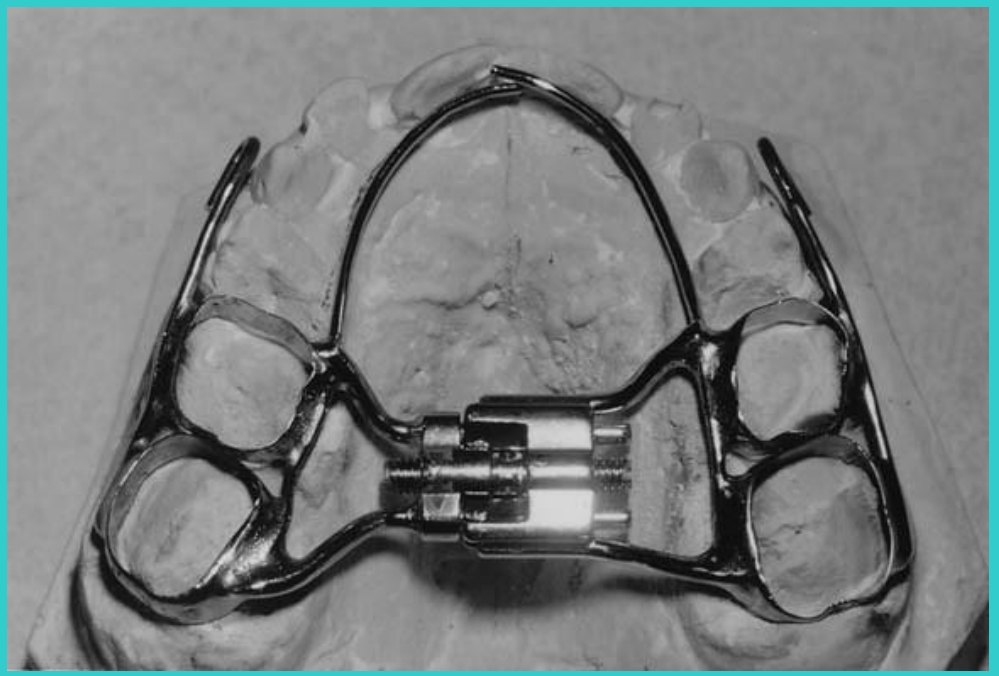


Dr Nemes Bálint esete

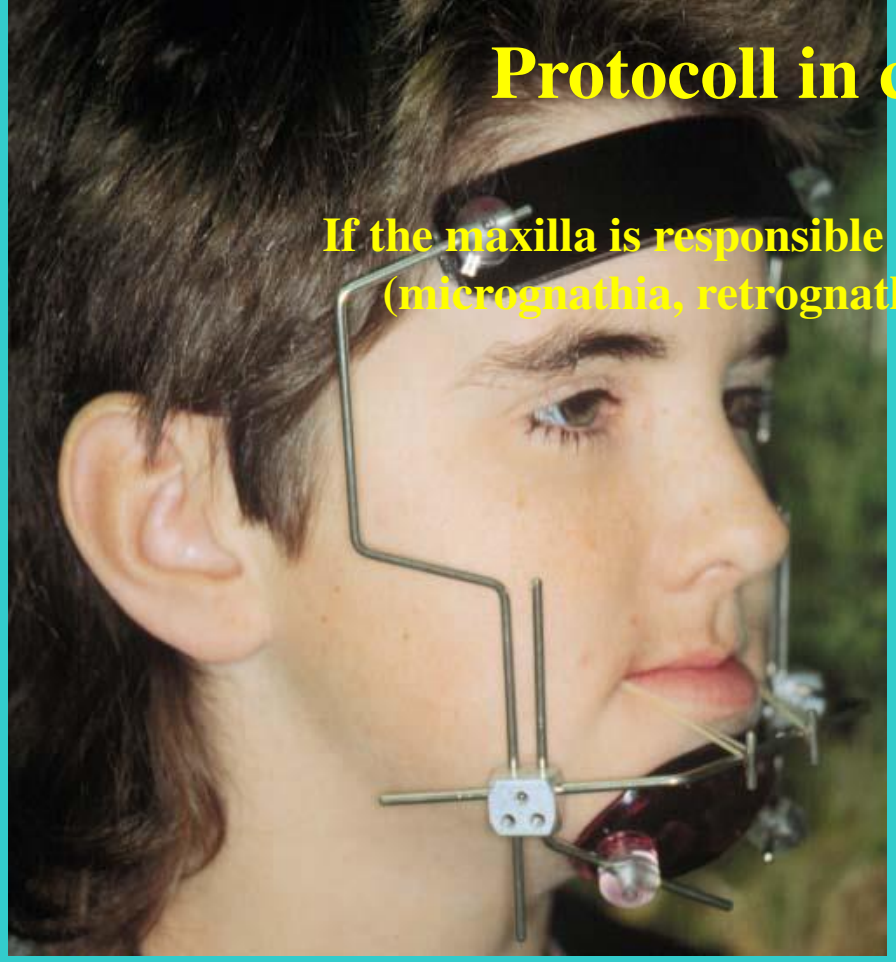
Protocoll in III. class cases

- Hyrax and
- Reverse headger





Protocoll in class III. cases



If the maxilla is responsible for the anomaly
(micrognathia, retrognathia f.e. after the surgical closure of cleft palate)

PROTRACTION of the maxilla
HYRAX +FACE MASK
(DENTAL + SKELETAL)

Premolar extractions III.class

Assimmetric anomaly

Extraction of lower permanent incisors

Bimaxillary protrusion with lower crowding, I. class

2 upper premolars and 1 lower incisor are extracted

Kenza LAHLOU, Aalloula EL HOUSSAINE

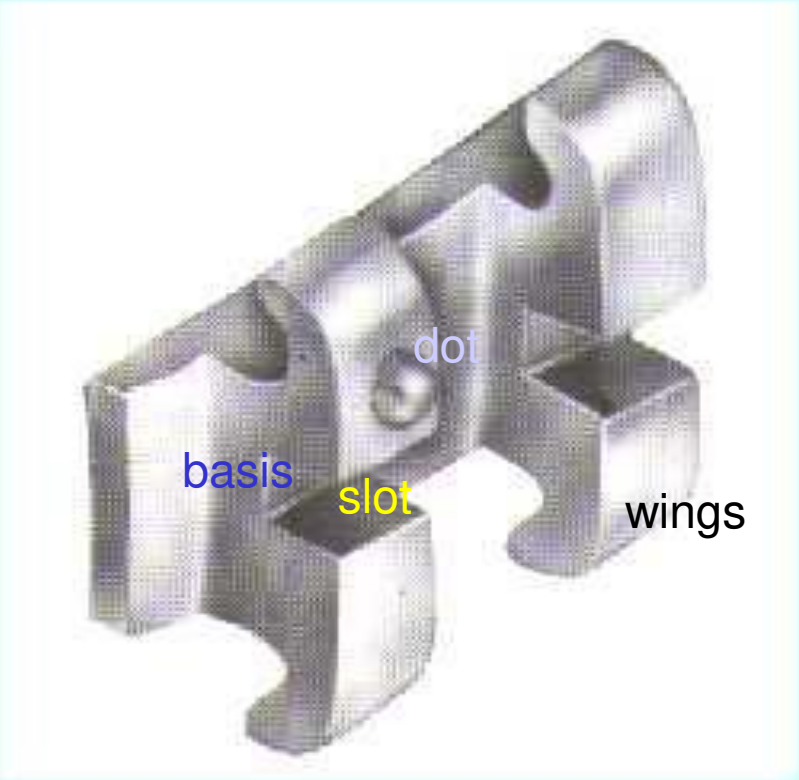
Angle III – progenie - mesiocclusion

Elements of fixed appliances

Direkt bonding system (multibond, multibracket appliance)

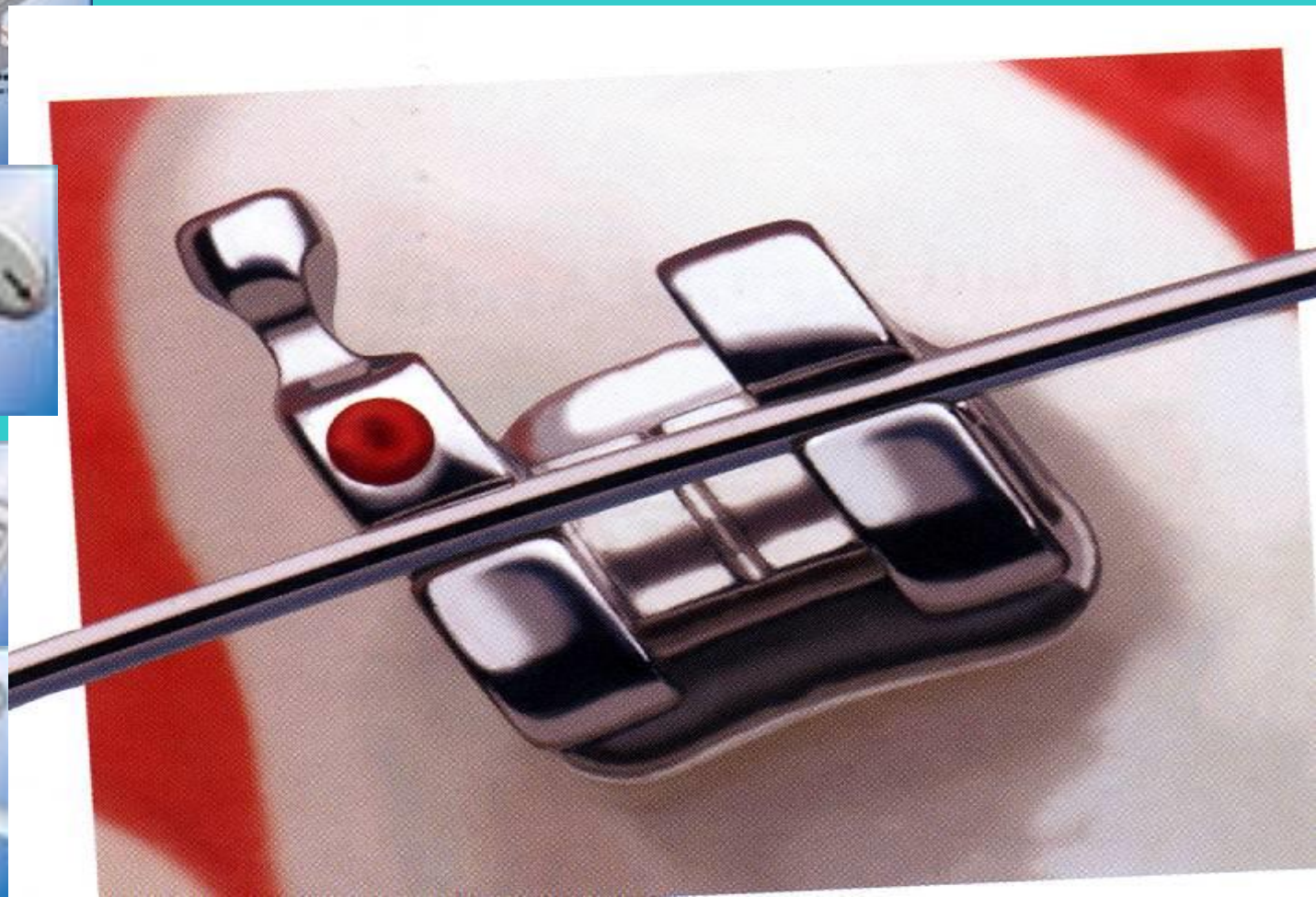
Components of the Multiband Appliance

- Rigid connectors, called molar tubes and brackets
- Archwires, and other elastic sources of force
- Auxiliaries (Everything else needed to get the job done.)



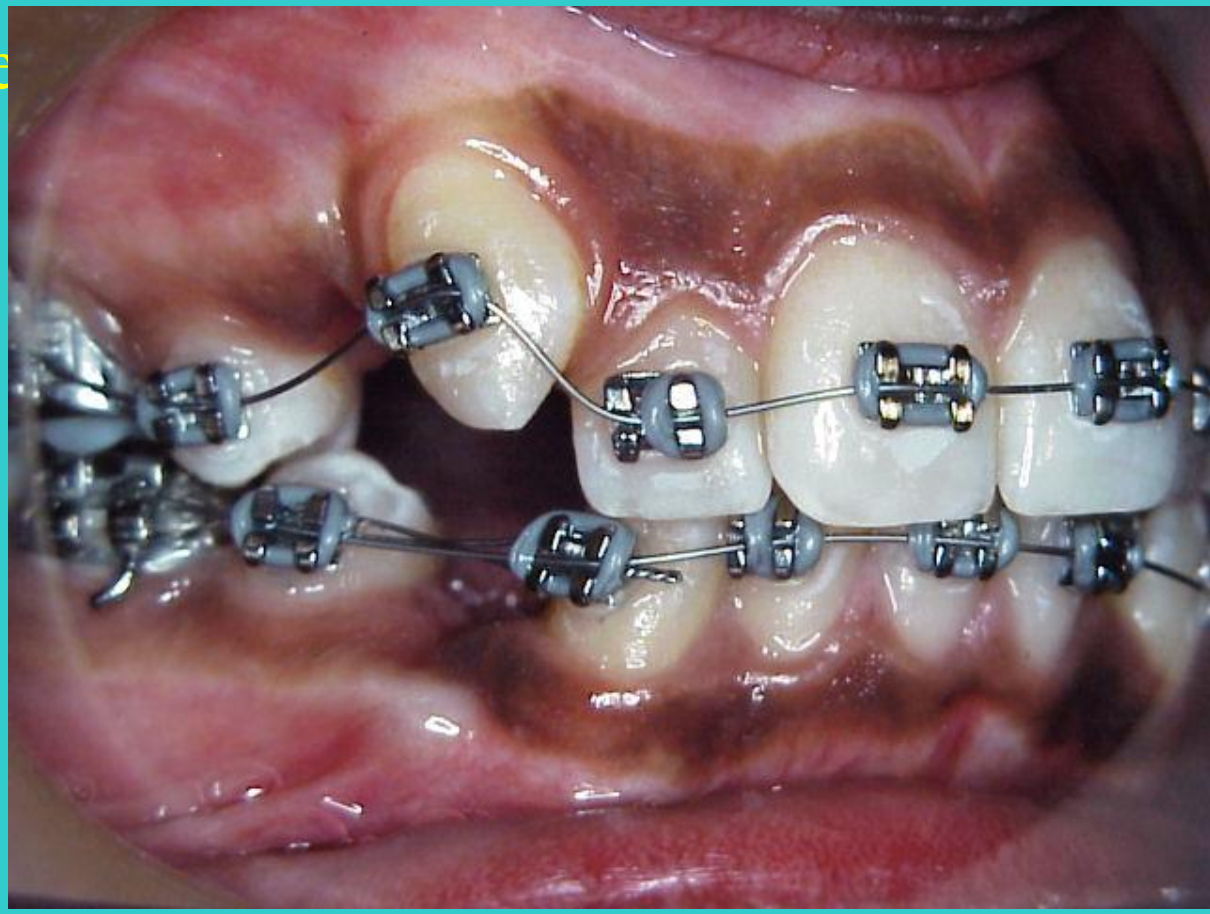
Dot is always on the distogingival wing of the bracket

METAL BRACKETS

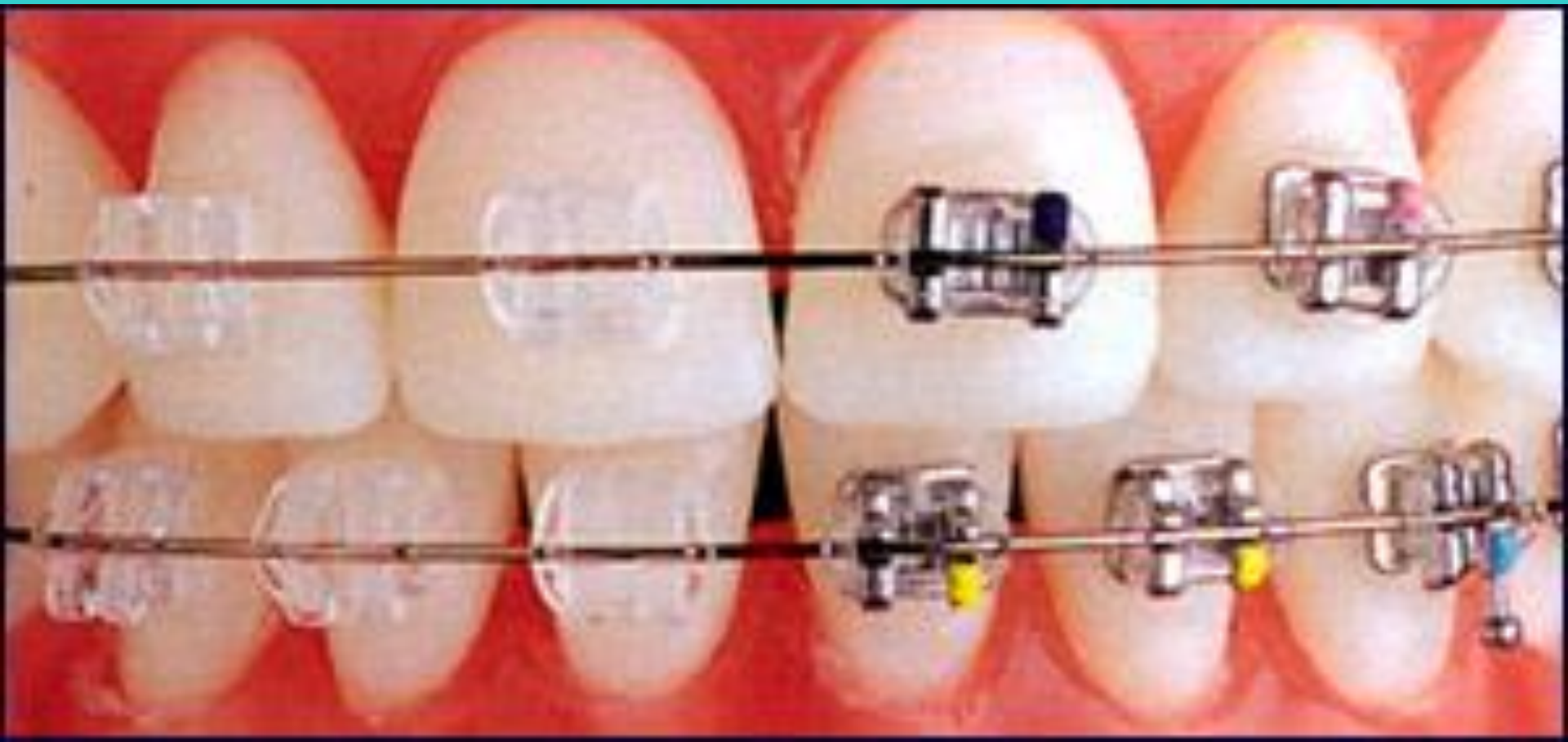


Metalbrackets

- Stainless steel bracke
- Titanbrackets
- Gold brackets



Ceramic brackets



Ceramic brackets

- Disadvantages:
  - expensive
  - fragile
  - difficult to remove the brackets
  - more difficult to apply ligatures

Advantages:

- esthetic

Ligatures

Elastic ligatures (rubbers)

Metal ligatures

Elastic chain (for space closer)

Placing Orthodontic Bands

- Three major steps in banding:
  - separation of adjacent teeth
  - sizing and fitting the band to the tooth
  - cementation and cleanup

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Direct bonding tubes

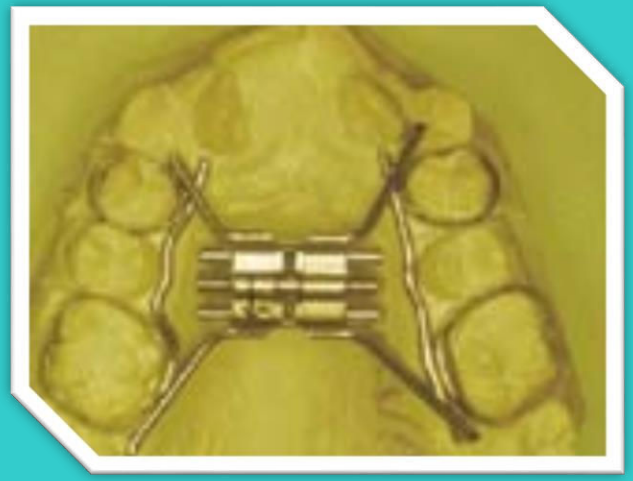
Headgear

Anchorage
Distalisation of molars
Treatment of vertical anomalies

Fixed expanders – Quad-helix

Fixed expanders – Transpalatal bar

Fixed expanders - Hyrax



Hyrax

Indication:

- -serious narrowing of the upper arch
- -bilateral or unilateral cross bite
- -treatment of cleft palate (scar-tissue enlargement)
- hyrax has a sceletal affect (childhood, puberty, 8-14 ages)
- Expansion in serious II. and III. class cases

Hyrax is used in mixed and permanent dentition, while children are growing.

After the end of the development hyrax can't be used (alone)

Affect:

- - ripping („breaking") of the sutura palatina mediana

Case I

narrowing, lack of place

Case I

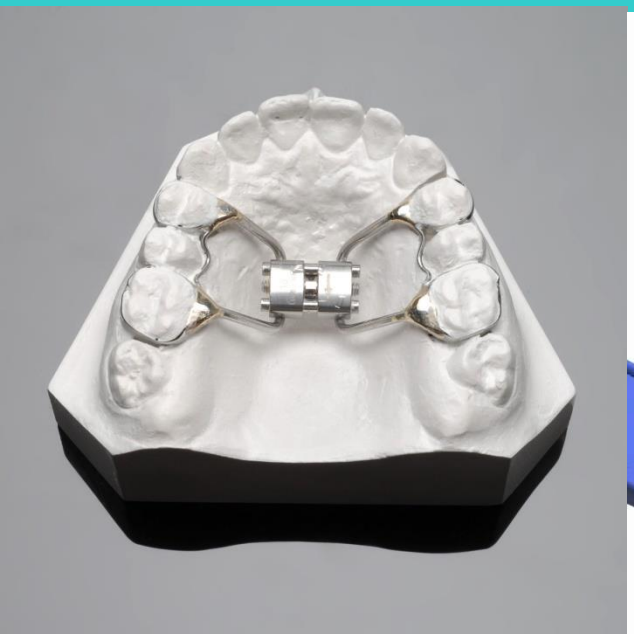
Gap between the central incisors shows the correct result (shows the sceletal affect)

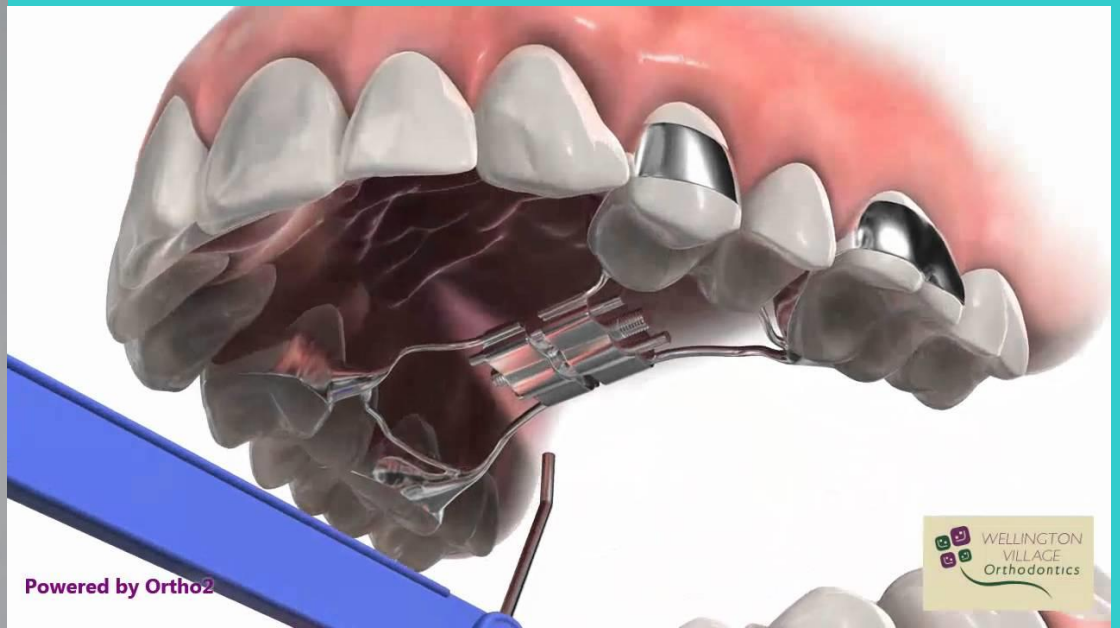
Hyrax – permanent dentition

Stucture in permanent dentition:

-Metal bands on teeth 14,16,24,26,

6 or 12 mm expanding screw



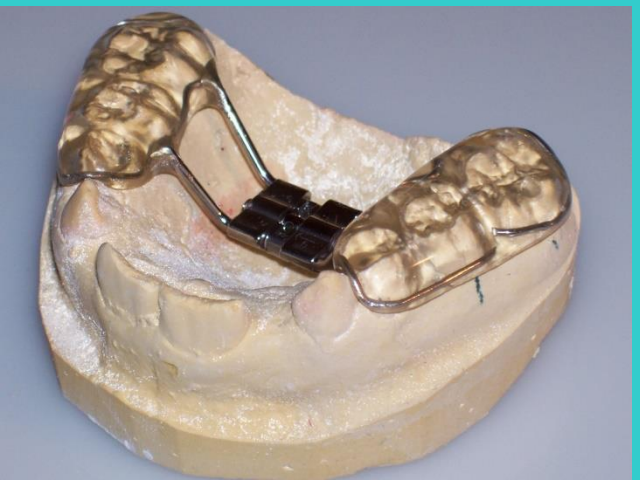


Hyrax – mixed dentition

Structure in mixed dentition:

- Acrylic splint on the lateral teeth (canines, primary molars)

6 or 12 mm expanding screw



Fixed expanders - Hyrax

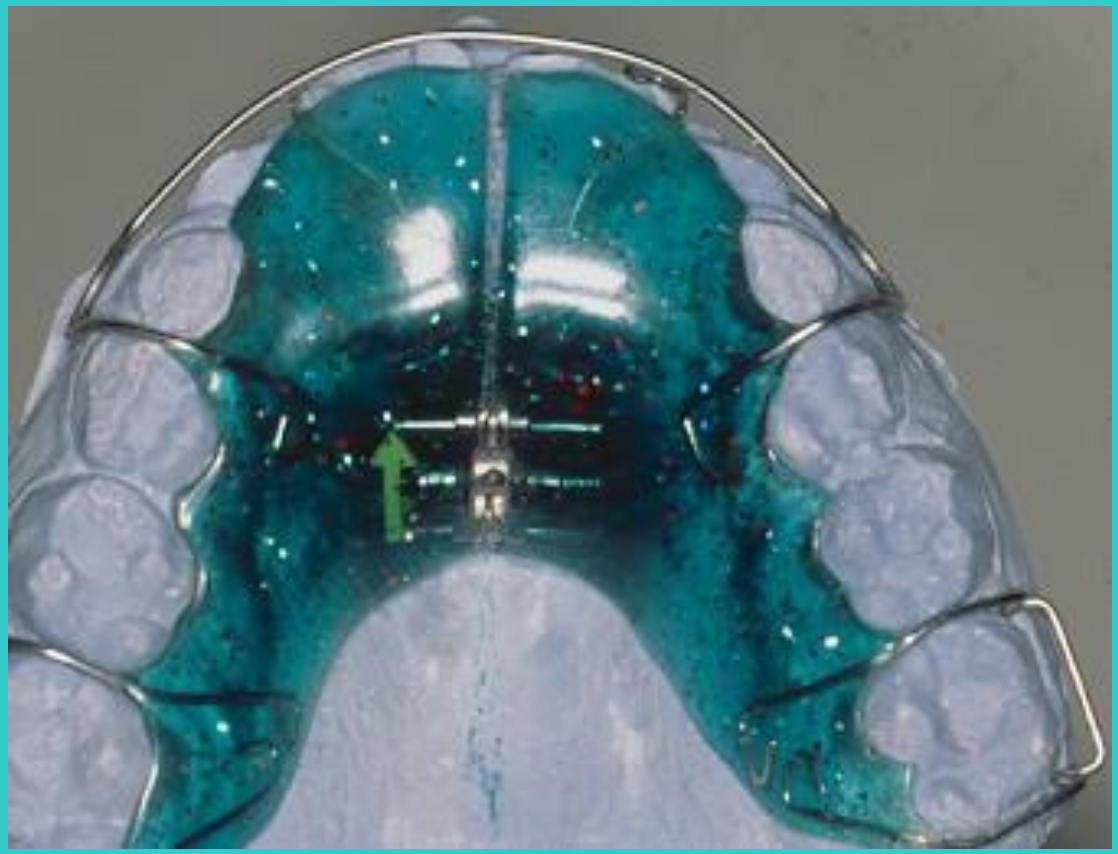
Dystractor

Hibrid-hyrax

SARME = Surgically assisted rapid maxillary expansion, dystractios osteogenesis

Transversal problems

Active acrylic plates (in mixed dentition)



REMOVABLE APPLIANCES: ACTIVE AND PASSIVE PLATES

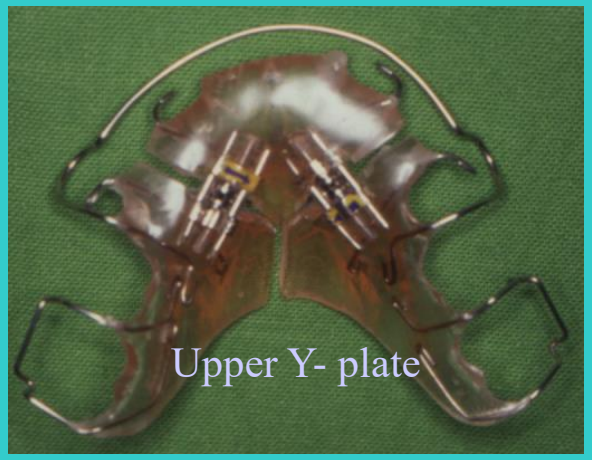
mainly in mixed dentition

The grouping of the plates

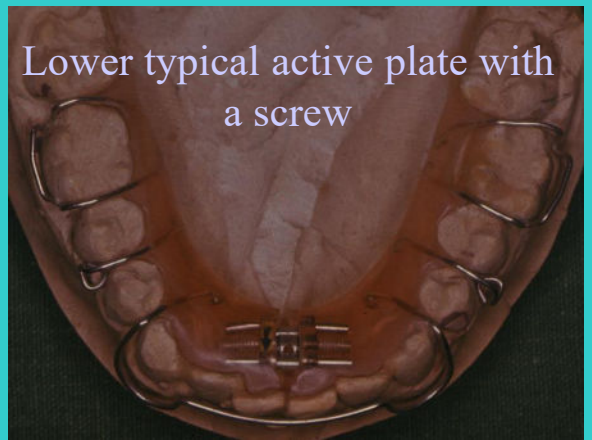

Upper passive plate


Lower passive plate


Upper typical active plate with a screw and inclined plane


Upper Y- plate


Upper atypical active plate with a screw and occlusal biteraiser


Lower typical active plate with a screw


Lower Y- plate


Lower atypical active plate with a srew

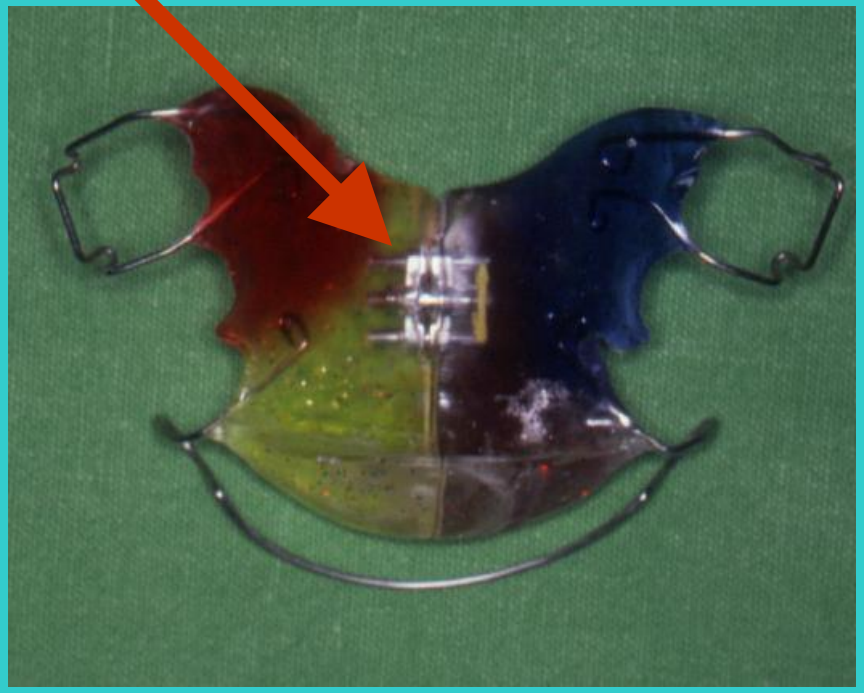
Grouping the plates

Passive

Upper passive (retention) plate

Screw !

Active



Upper typical active plate with a screw and inclined plane

The elements of the plates
Upper passiv (retention) plates

- Acryl basic plate
- Labial bow
- Clasps
- Active elements

(Hawley) retenciós lemez

The elements of the plates
Lower passiv (retention) plate

Acryl basic plate

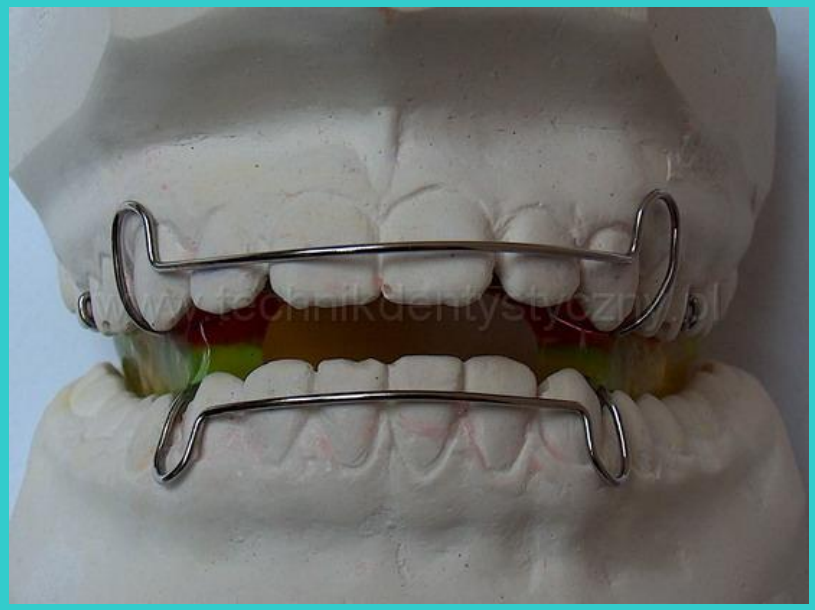
Labial bow

Clasps

Active elements

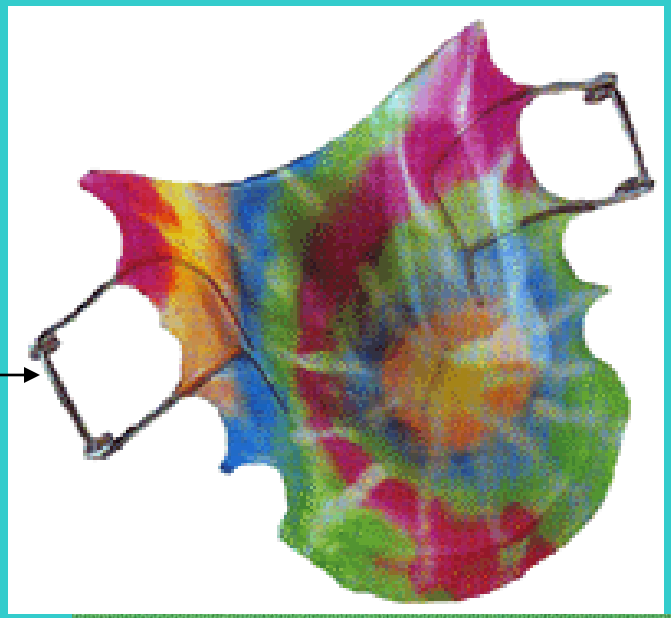
The elements of the plates

- Acryl basic plate
- Labial bow
- Clasps
- Active elements



The elements of the plates

Acryl basic plate
Labial bow
Clasps
Active elements



Adams clasp

Adams clasp

Adams clasp

The elements of the plates

Acryl basic plate
Labial bow
Clasps
Active elements

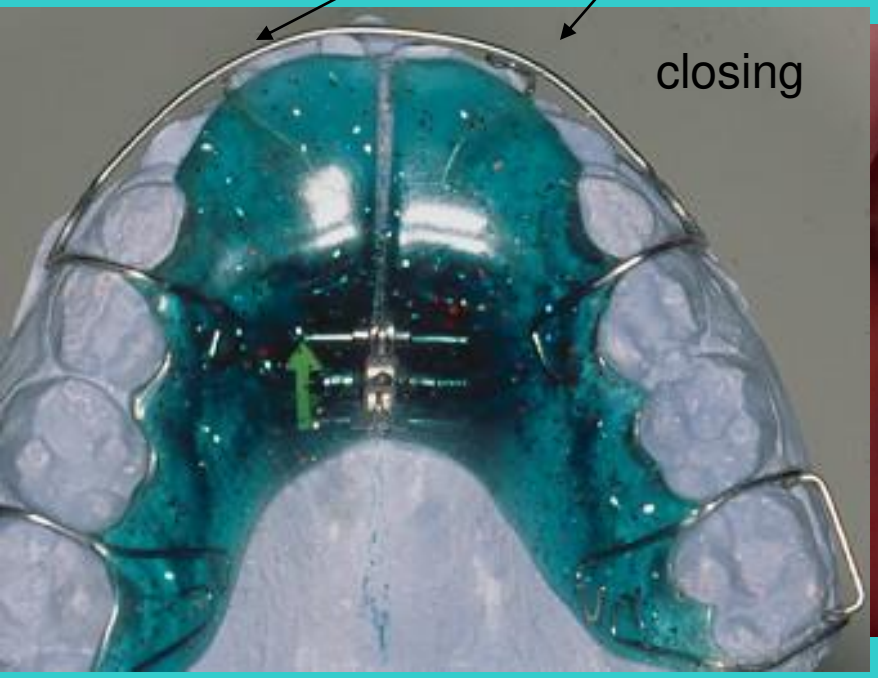
Arrow clasp

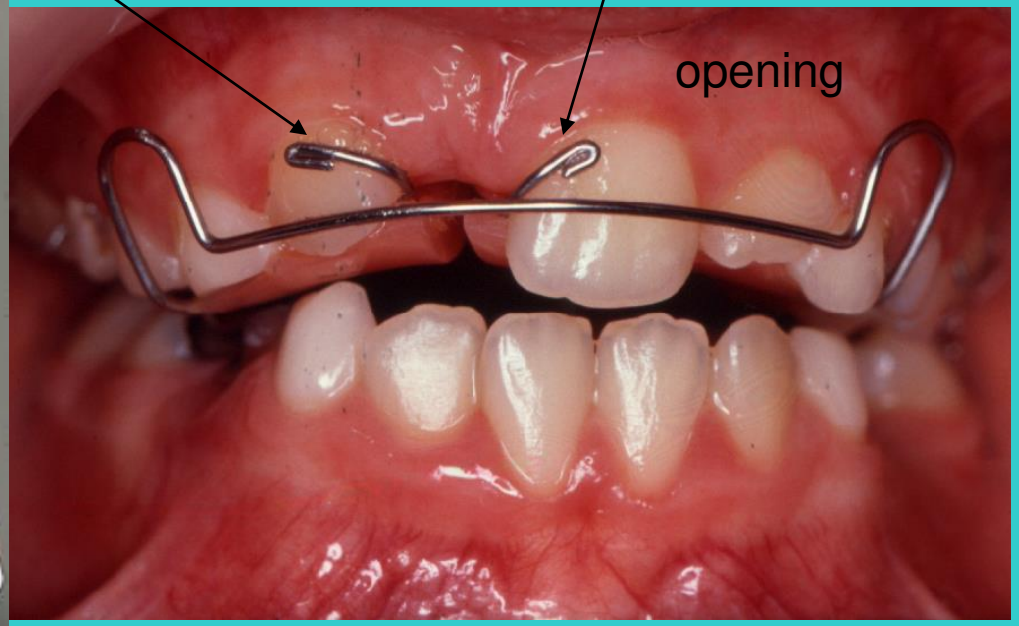
Arrow clasp

The elements of the plates

Acryl basic plate
Labial bow
Clasps
Active elements-springs

Free-ended or finger springs





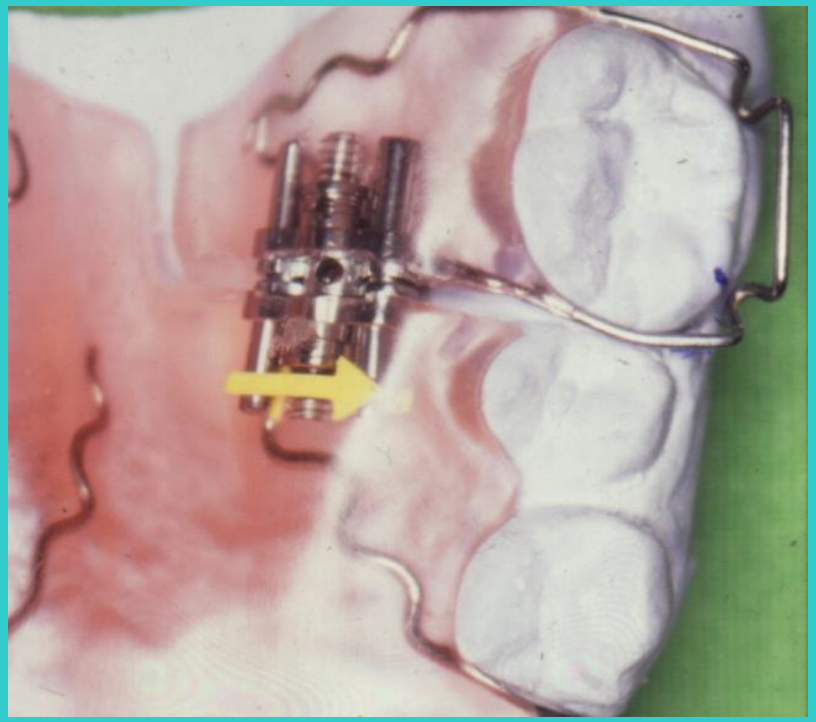
The elements of the plates

Acryl basic plate
Labial bow
Clasps
Active elements

•console-like springs

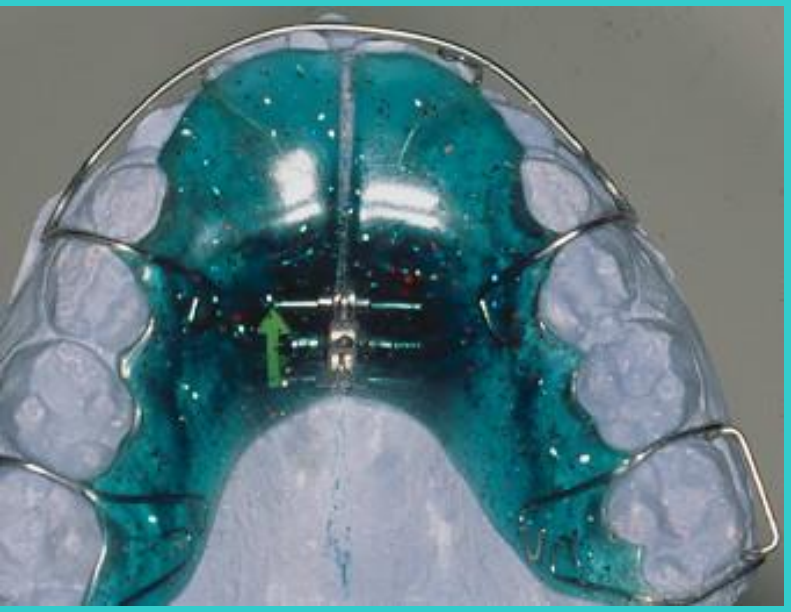
Active plates

The screws

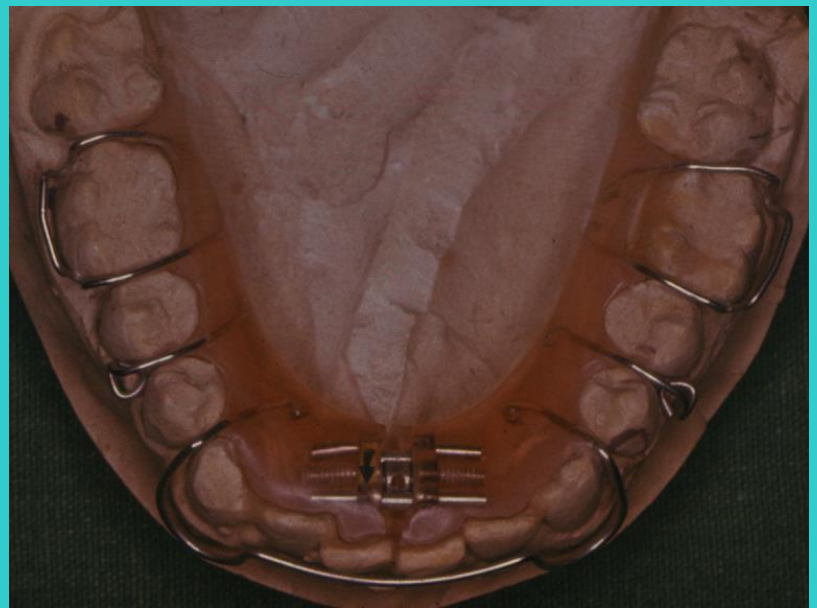


Activ plates

- Upper typical (symmetrical) activ plate

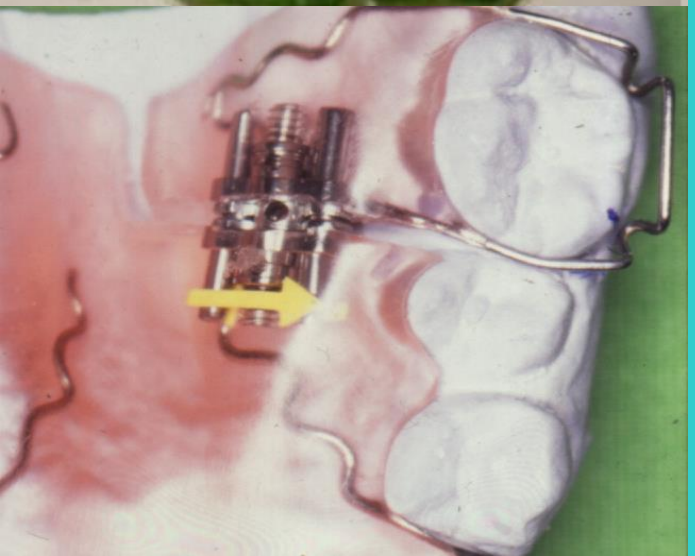


Lower typical (symmetrical) activ plate



Activ plates

Upper atypical active plate



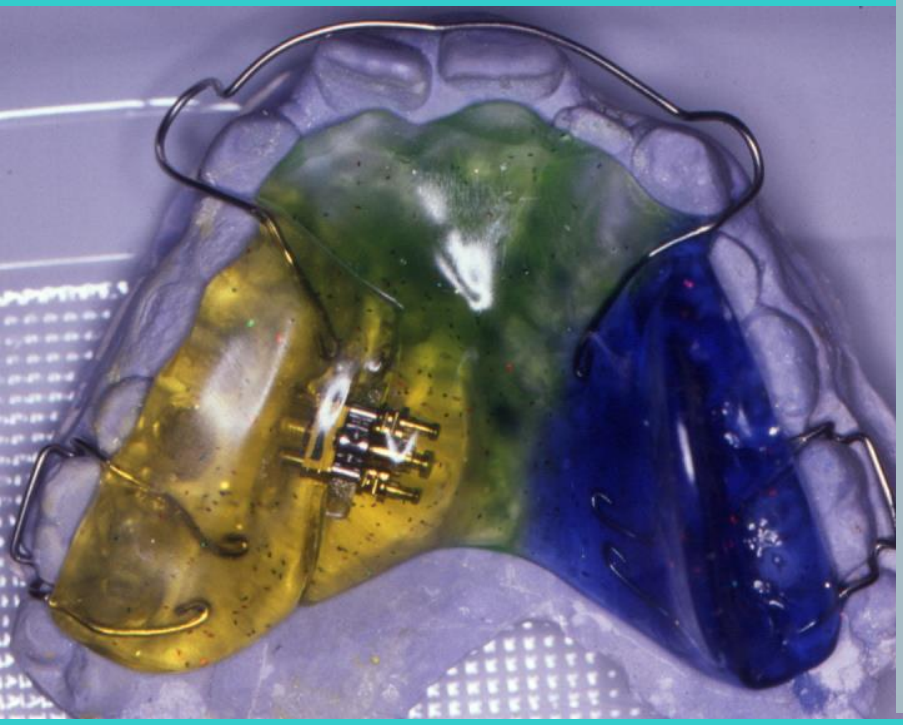
Lower atypical active plate with

Active plates
Y-plate

Upper Y-plate

Lower Y-plate

Active plates



Upper atypical active plate with a screw and occlusal biteraiser

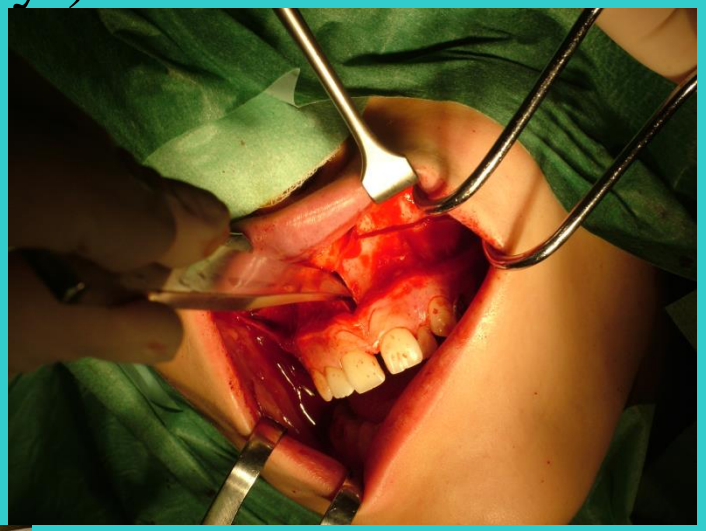
(lateral crossbite)

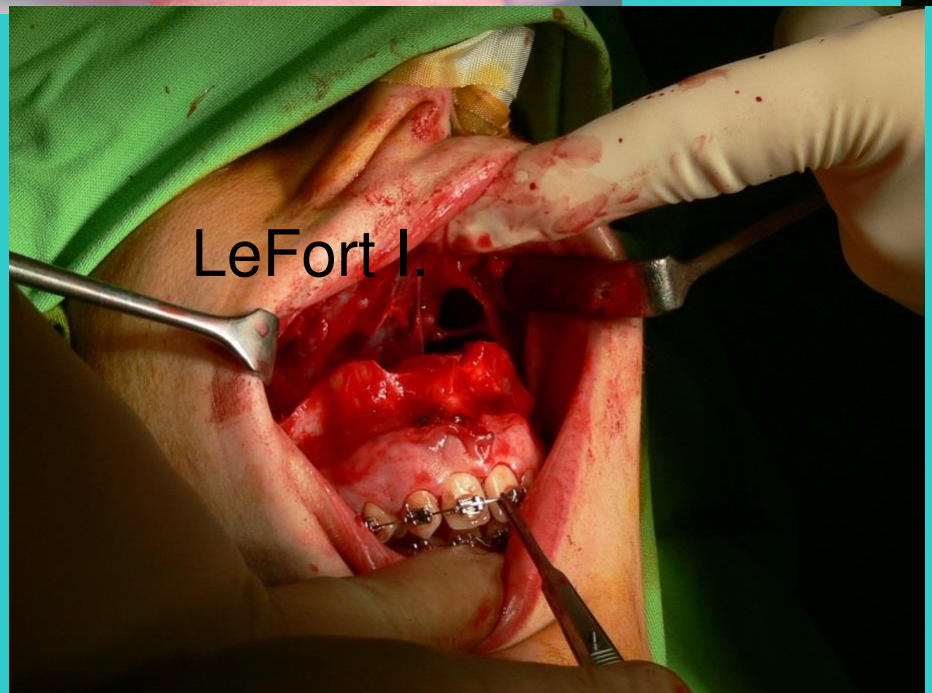
The elements of the plates
Bite raising plane

thick acrylate behind the upper incisors ⟶
intrusion of lower incisrs

Surgical solution in adulthood

(after 18y.)





Vertical anomalies

Deepbite

(sceletal or dentoalveolar ?)

Open bite

Bite raising plane
(on the upper appliance)

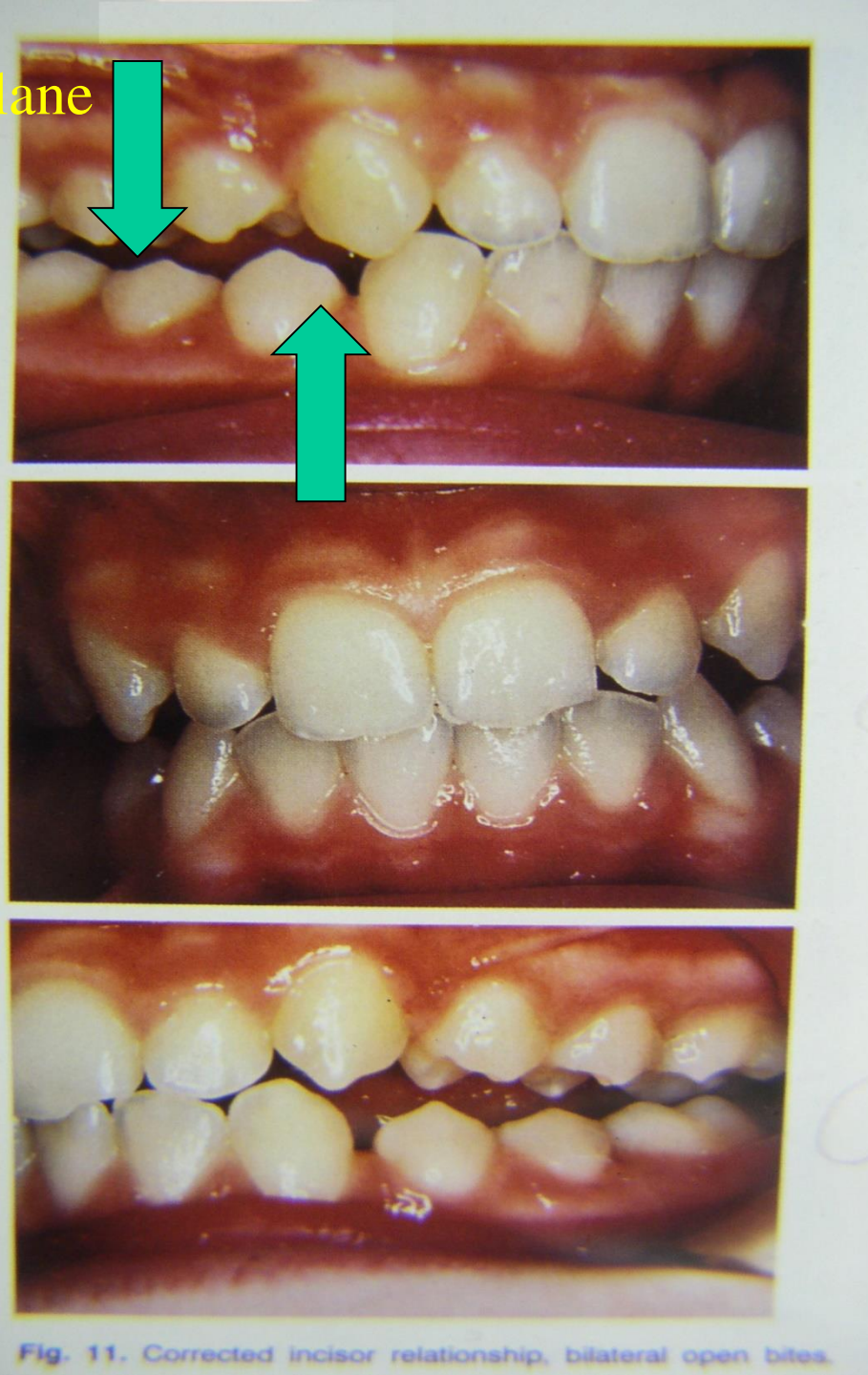
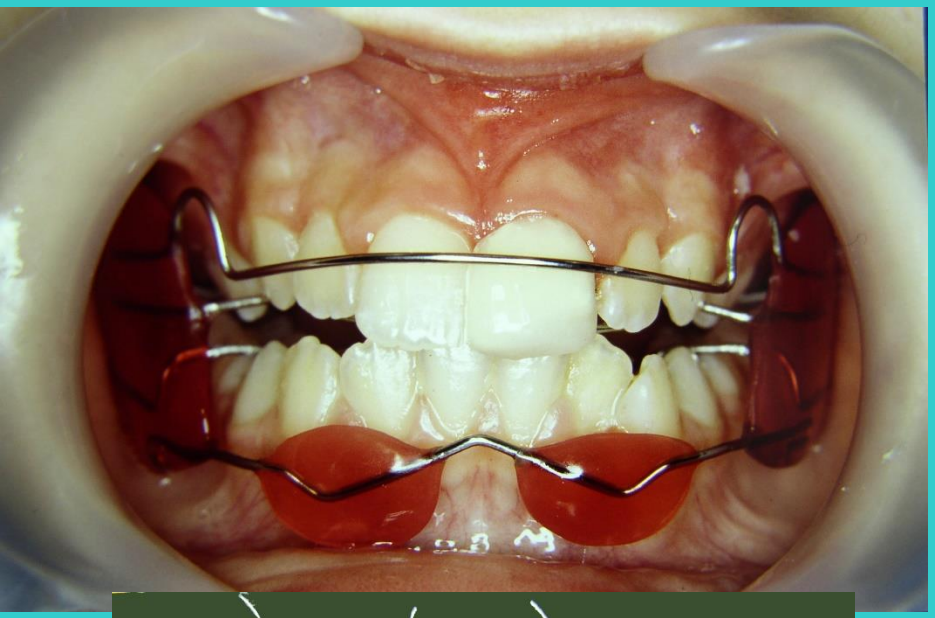
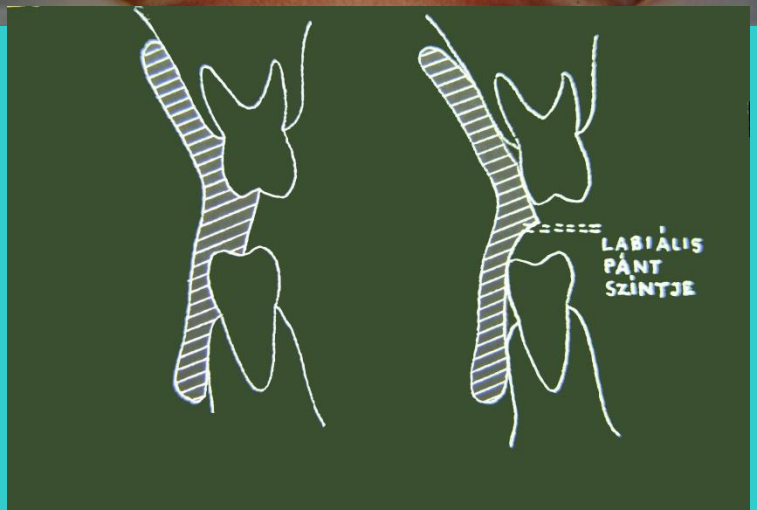


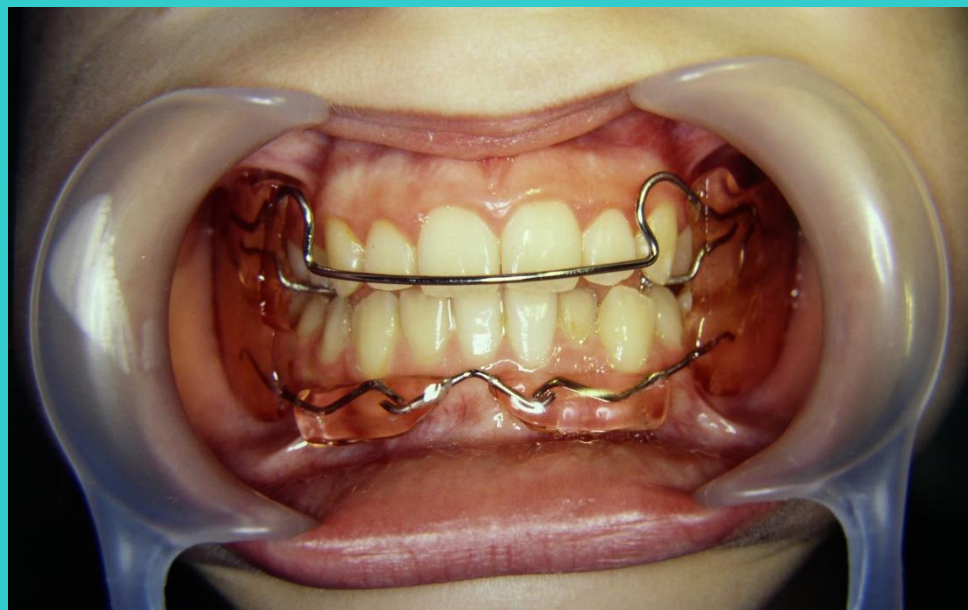
Fig. 11. Corrected incisor relationship, bilateral open bites.

Bimaxillary, functional appliances

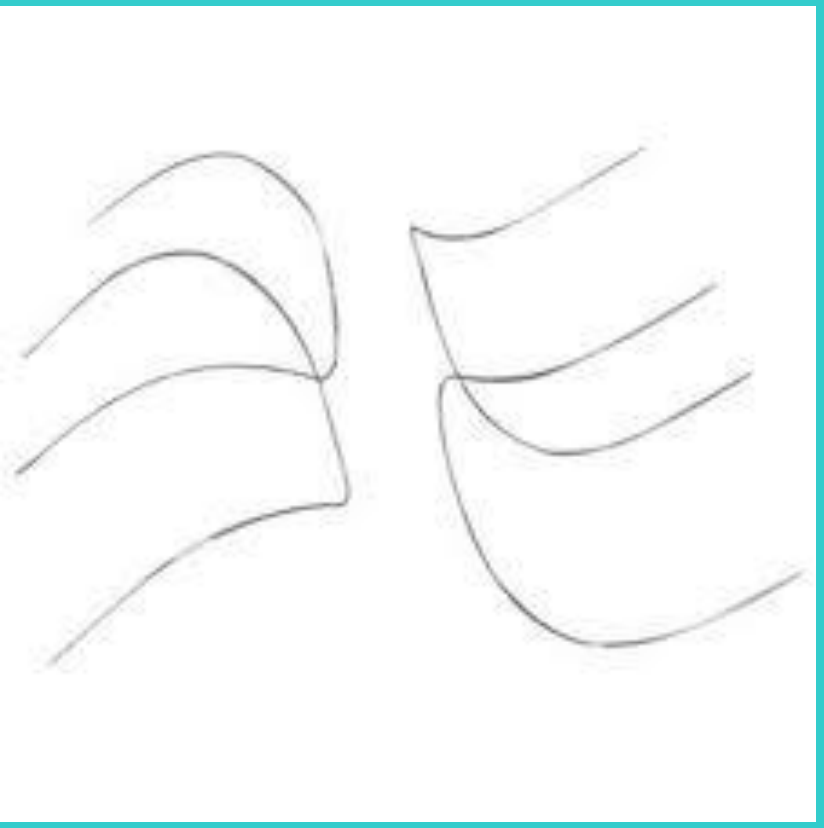


Frankel- appliance





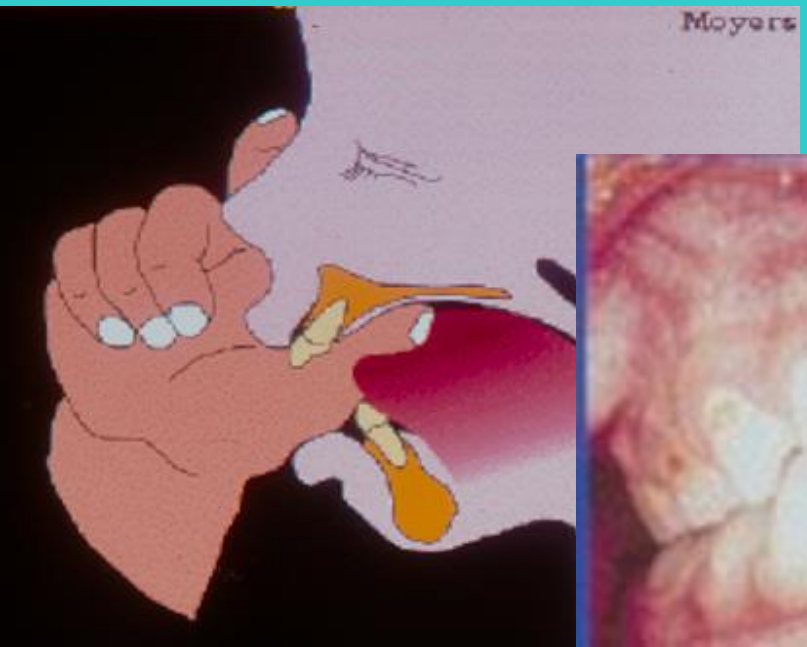
Anti Spee (curve) wires



Open bite

- **Consequences of <u>thumb sucking</u>**

- **Open bite**
- **Protrusion of upper incisors**
- **Retrusion of lower incisors**
- **- Distalocclusion**



Habit breakers

Keserű anyagok ujjszopás ellen

INTERCEPTIVE ORTHODONTICS

Local factors: THUMB SUCKING

- At what age should treatment be started?

-Da Silva et al (1991) "from the 5th year of age"

-Proffit (1993) "before the eruption of permanent incisors"

-Houston (1993) " by 7-8 years of age "

-Mills (1982) "before permanent dentition"

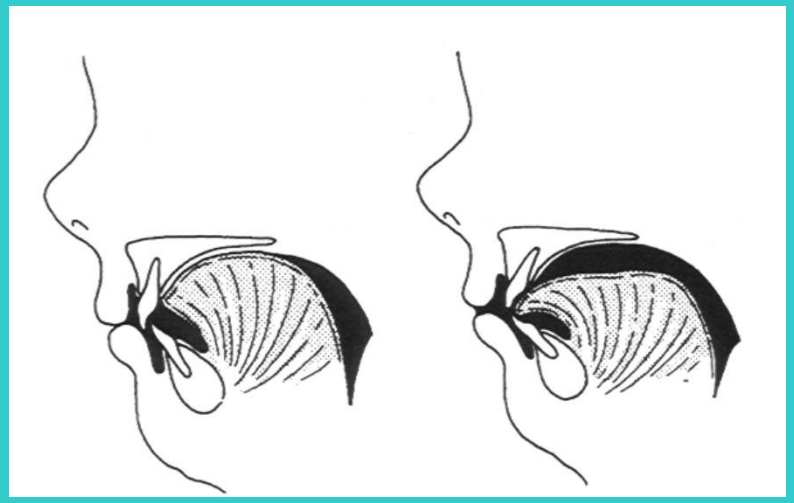
-Larsson (1987) "before pubertal growth spurt"

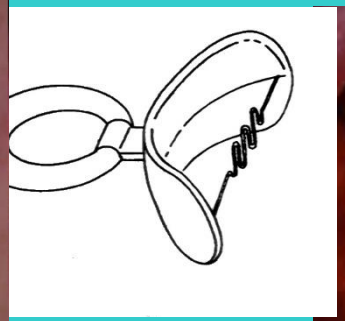
Appliances against bad habits

LOGOPÉDUS !!

DEGLUTITIO INFANTILIS

Tongue thrust swallow



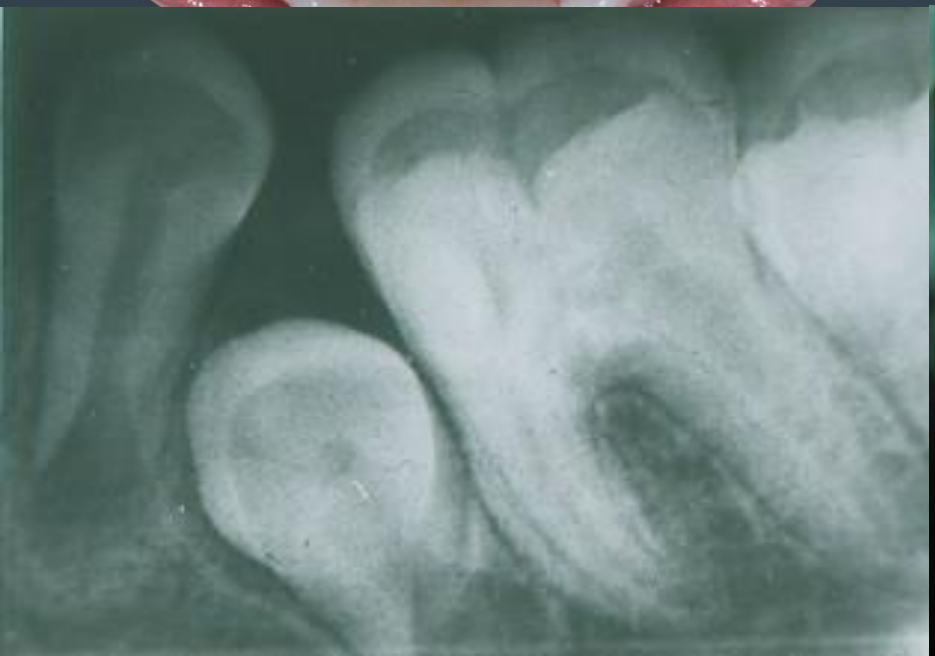


5- Intermaxillary rubbers, miniimplant
Bite closure

- Hereditary sceletal open bite: surgery !!!

Thank you for your attention !

Primary teeth extractions



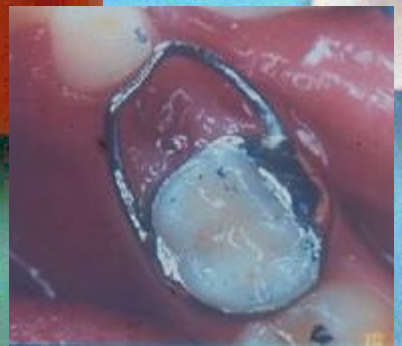
Basic Space Maintainers

- **NANCE** (Transpalatal Arch with Acrylic Button Stop on Palate)
- **LOWER LINGUAL HOLDING ARCH** (LLHA)
- **BAND/CROWN** and **LOOP**
- **DISTAL SHOE**

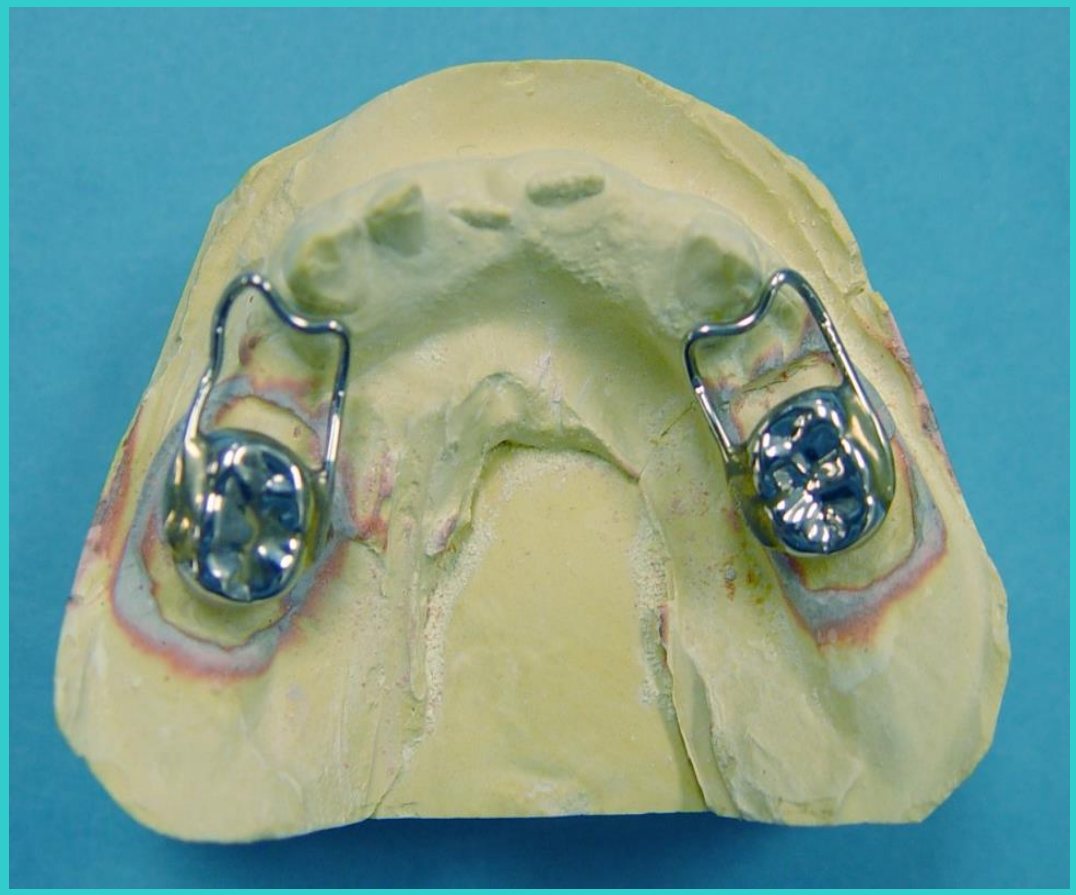
NANCE (Transpalatal Arch with Acrylic Button Stop on Palate)

BAND/CROWN and LOOP

BAND/CROWN and LOOP



BAND/CROWN and LOOP



LOWER LINGUAL HOLDING ARCH (LLHA)

- Omega Loops in area of premolars allow slight adjustment to fit appliance

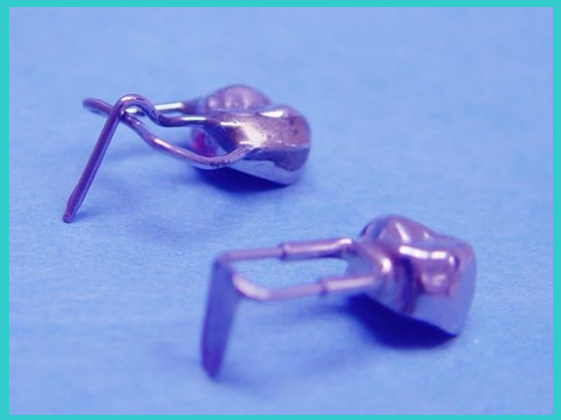
LOWER LINGUAL HOLDING ARCH (LLHA)

- Mandibular incisors often erupt lingually and are pushed forward by the tongue or lingual arch

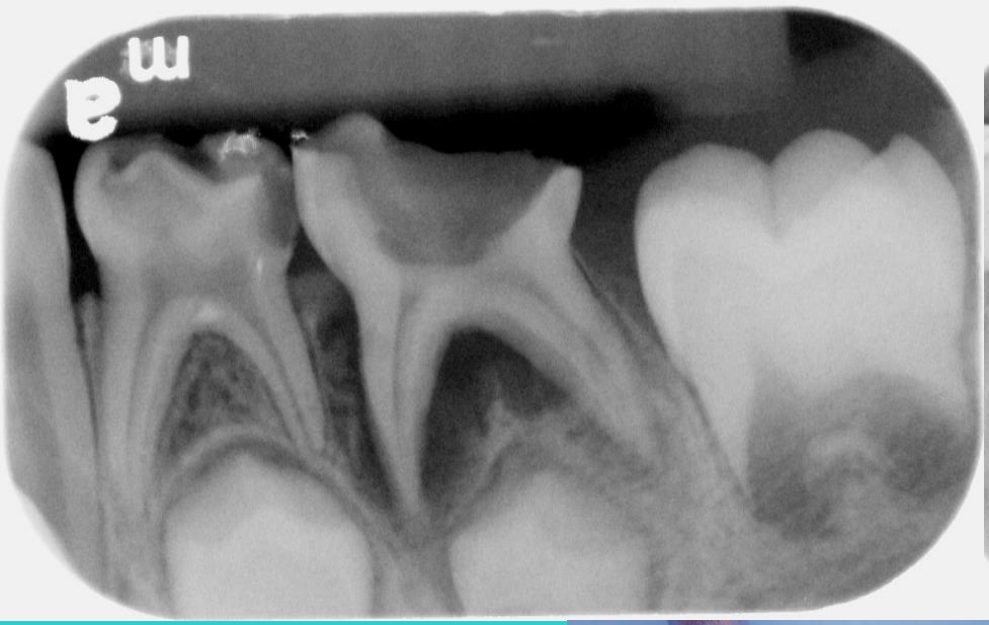
Transzpalatal bar

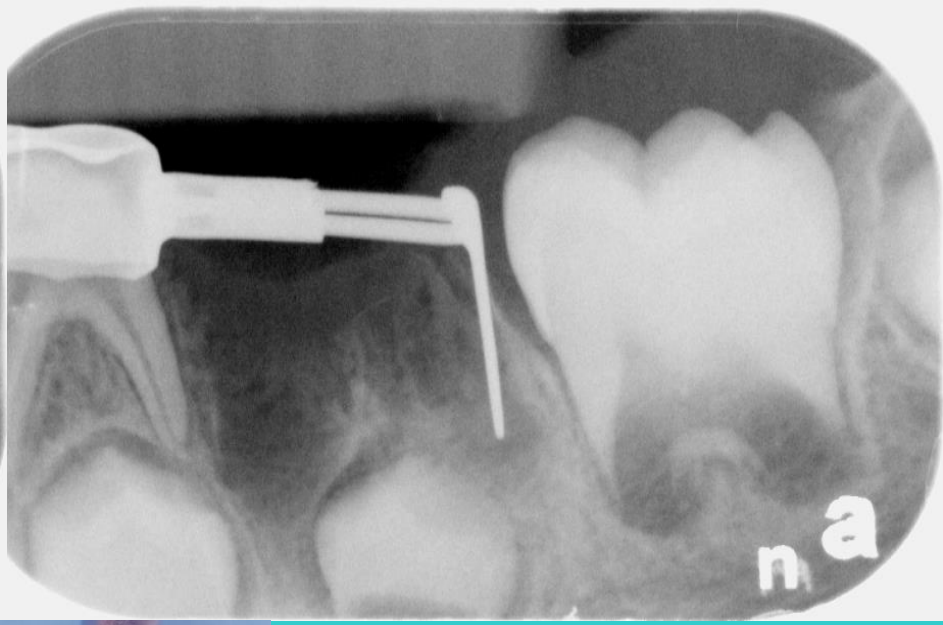
Distal Shoe

- Before the eruption of the first molar



Distal Shoe

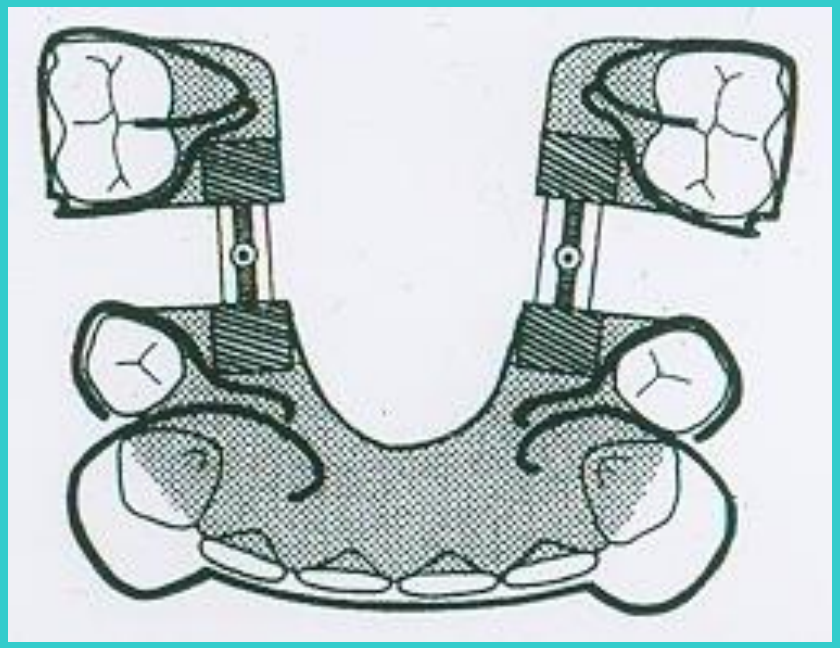




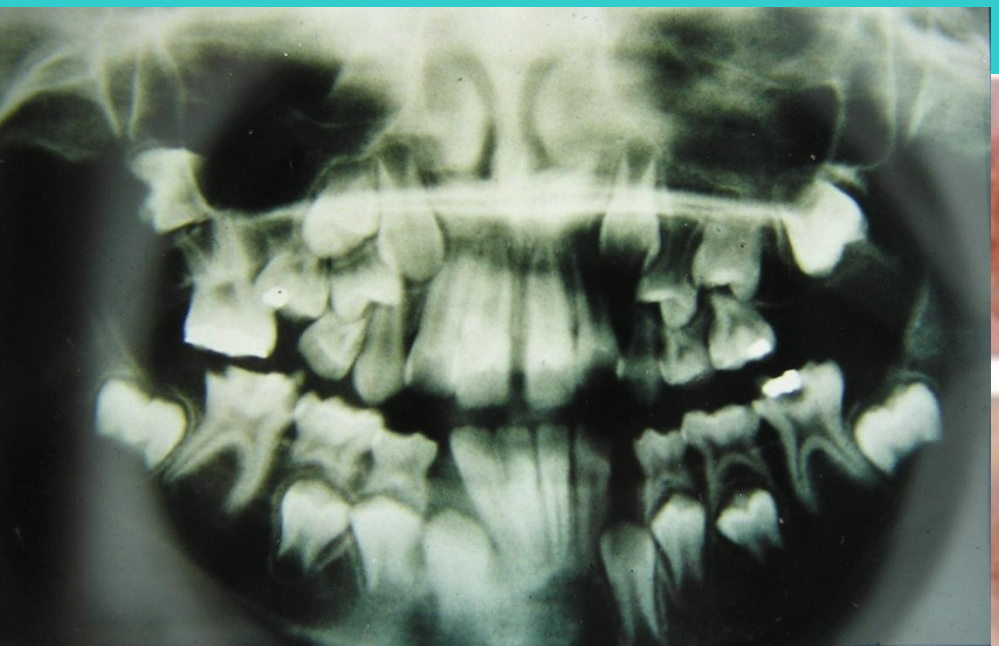
Removable space maintener

Passive

Active

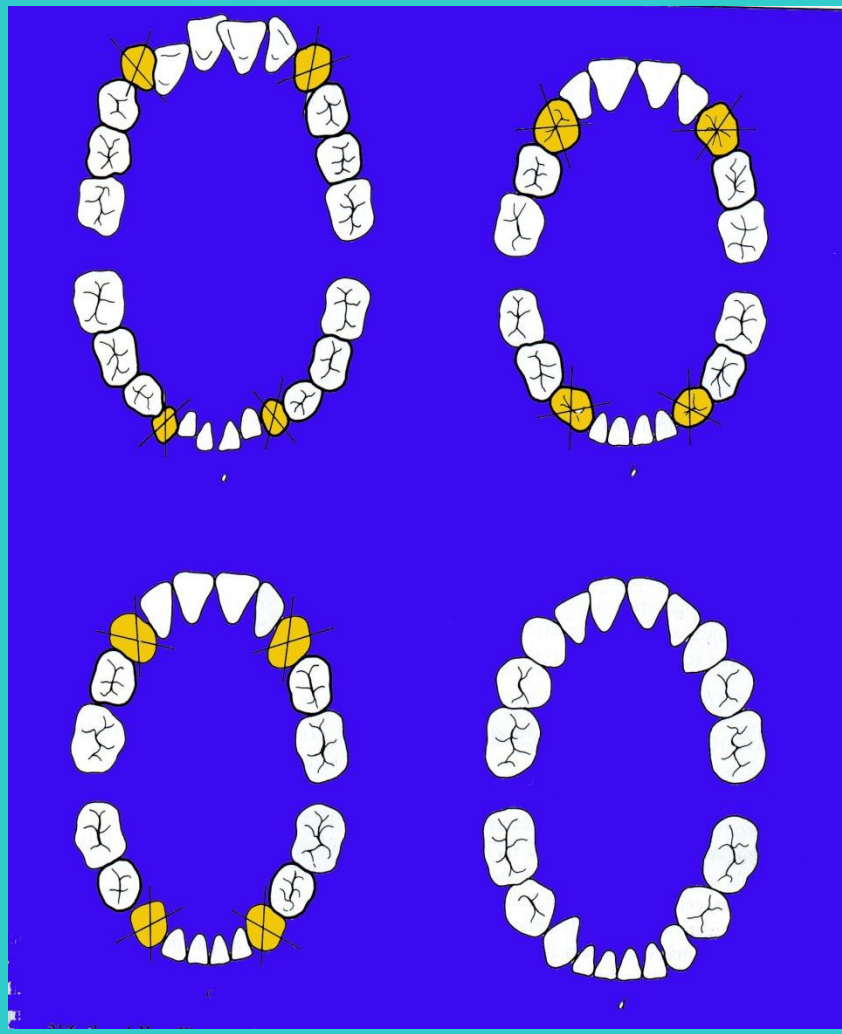


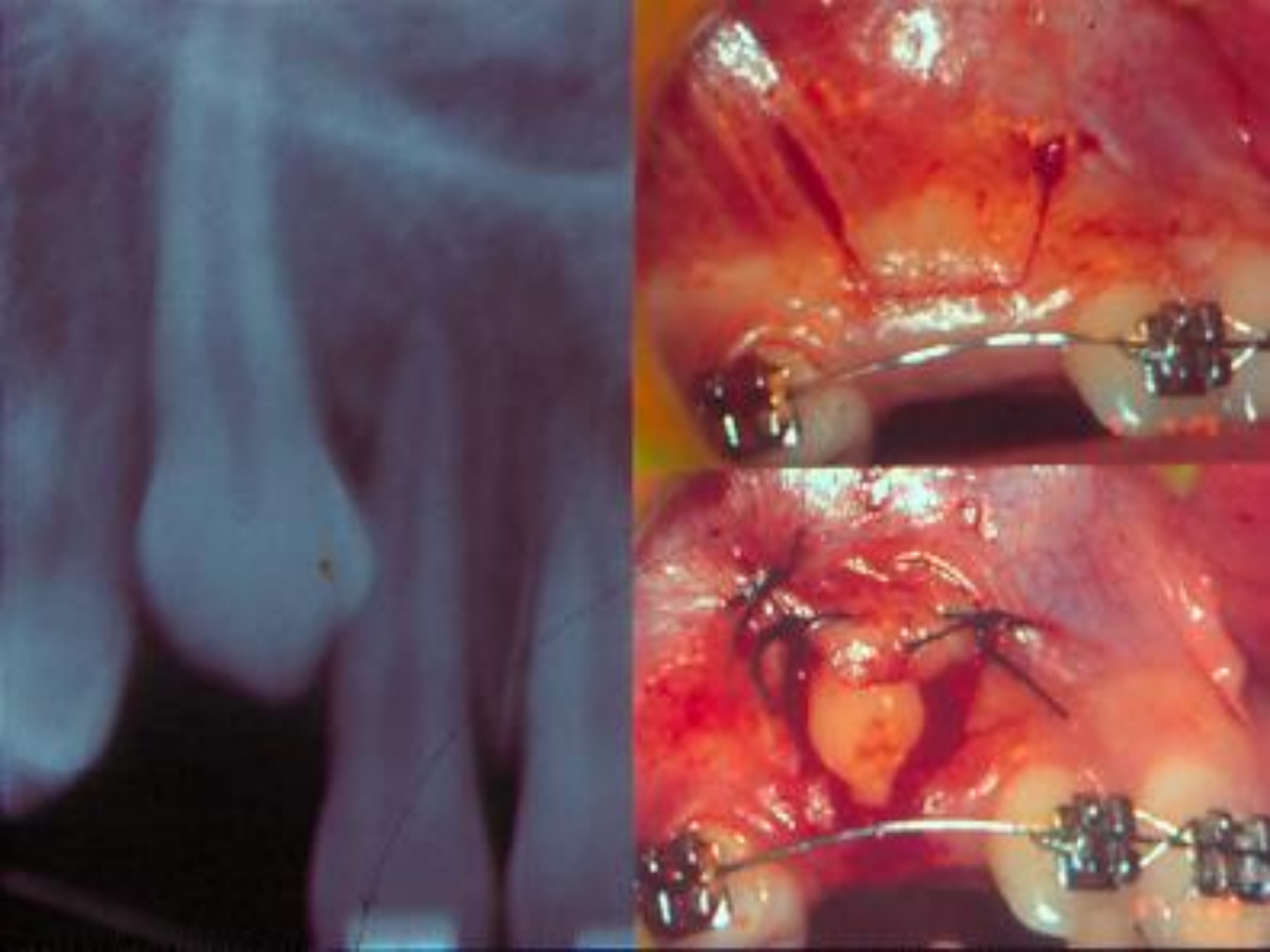
Early loss of the primary canines (never extract primary canines, because you will loose the place of the permanent canine)

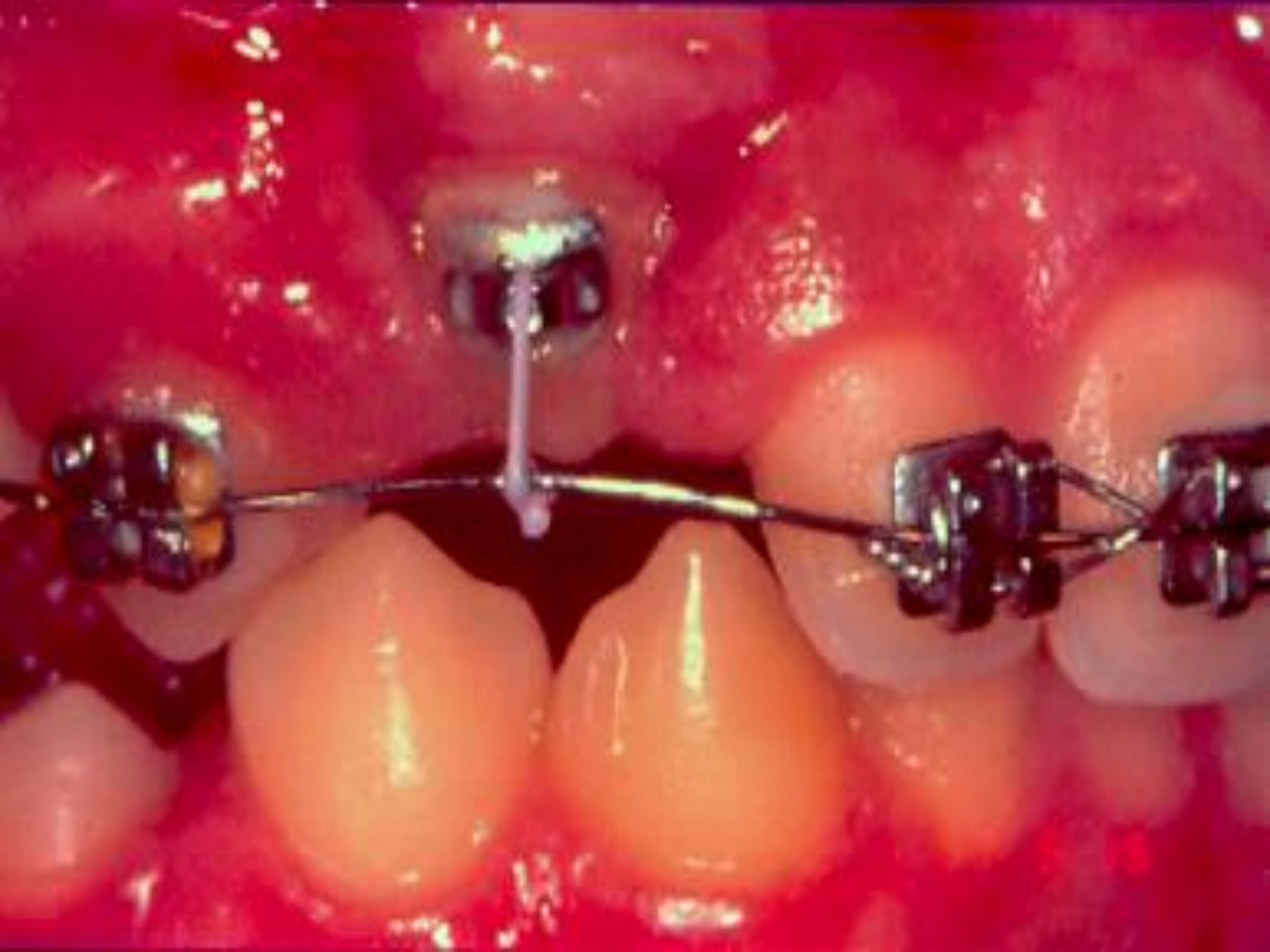


Hotz serial extractions

- primary canines
- primary first molars
- permanent first premolars








'98 3 13

Possibilities by missing teeth

- Reimplantation (after accidents)
- Bridge
- Implantation
- Space closure with fixed orthodontic appliance
- Preprosthetic orthodontic treatment +prosthetic solution

Correction of the abutment tooth

Indication of preprosthetic orthodontic treatment

- Correction of the tooth axis
- Space opening for bridge or implantatum
- Treatment of crossbite
- Alignment of impacted teeth
- Treatment of the consequences of parodontopathia

Pillérfogak tengelykorrekciója

Correction of the axis of the abutment tooth


Correction of the axis of the abutment tooth

Indication of preprosthetic orthodontic treatment

- Correction of the tooth axis
- **Space opening for bridge or implantatum**
- Treatment of crossbite
- Alignment of impacted teeth
- Treatment of the consequences of parodontopathia

Space opening with fixed appliance

Case 3

Case 3

Preprosthetic orthodontic treatment, opening the space

Case 3

Preprosthetic orthodontic treatment, opening the space

Case 4

Preprosthetic orthodontic treatment, opening the space

Preprosthetic orthodontic treatment, opening the space

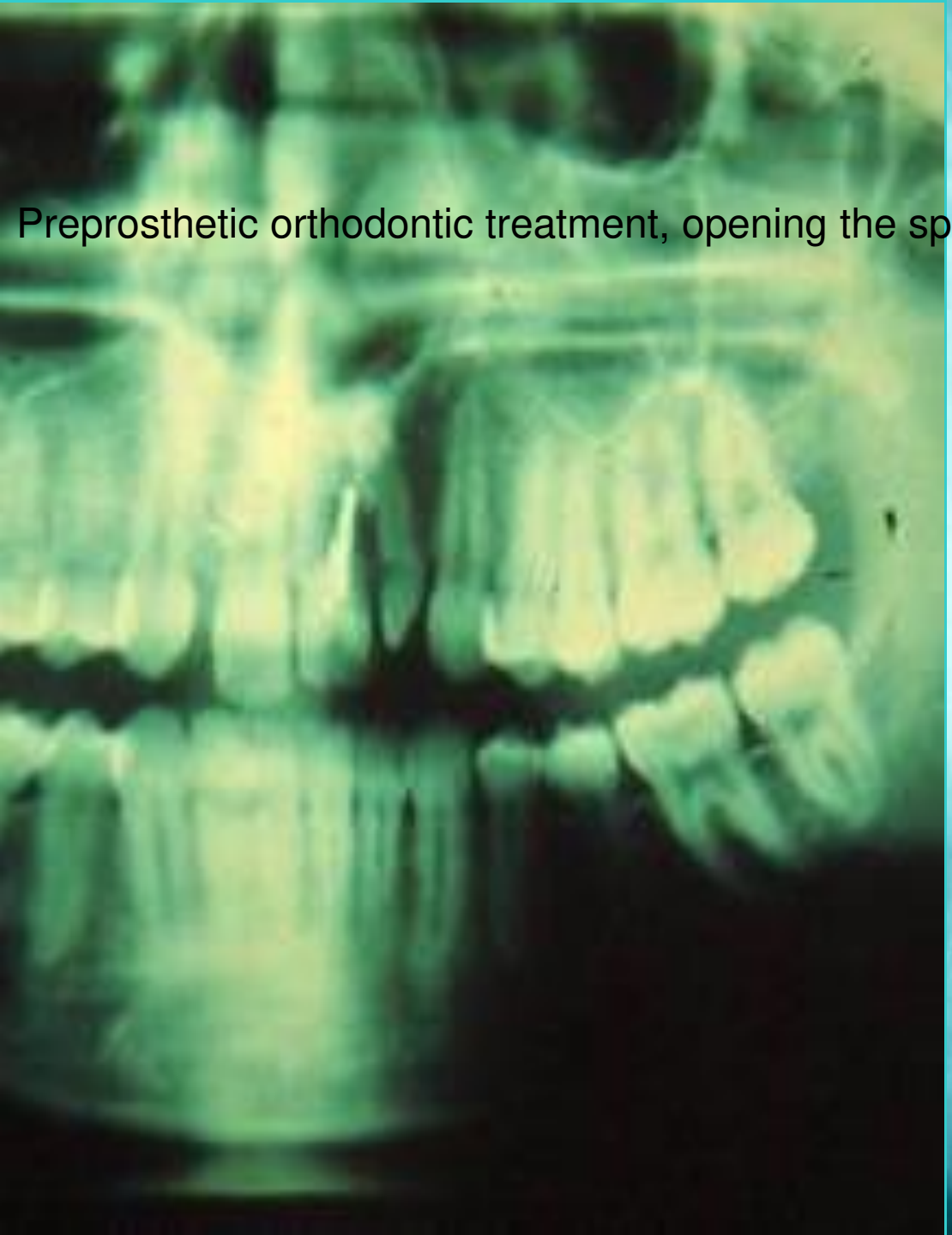
Case 4

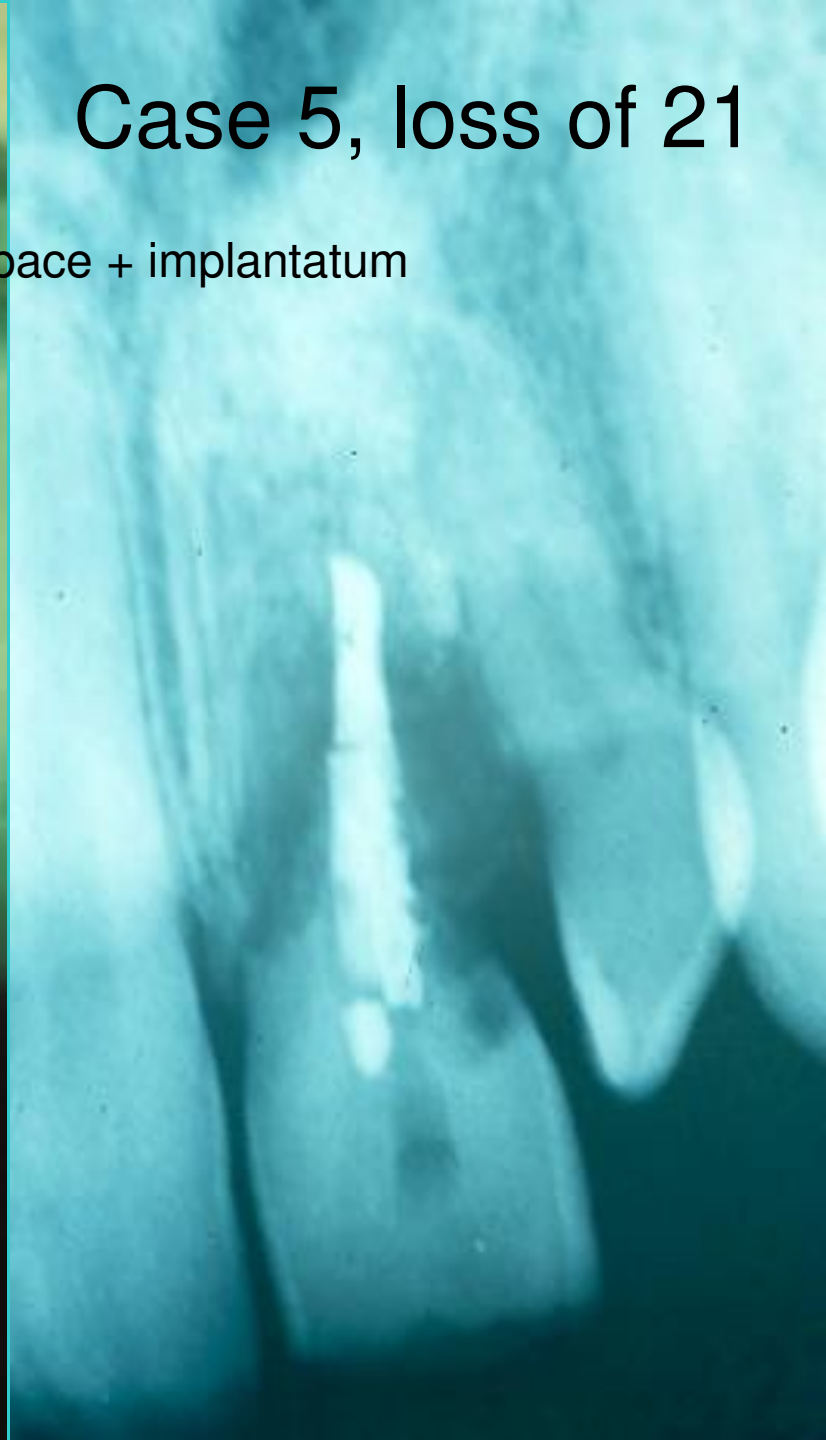
Preprosthetic orthodontic treatment, opening the space

Case 4

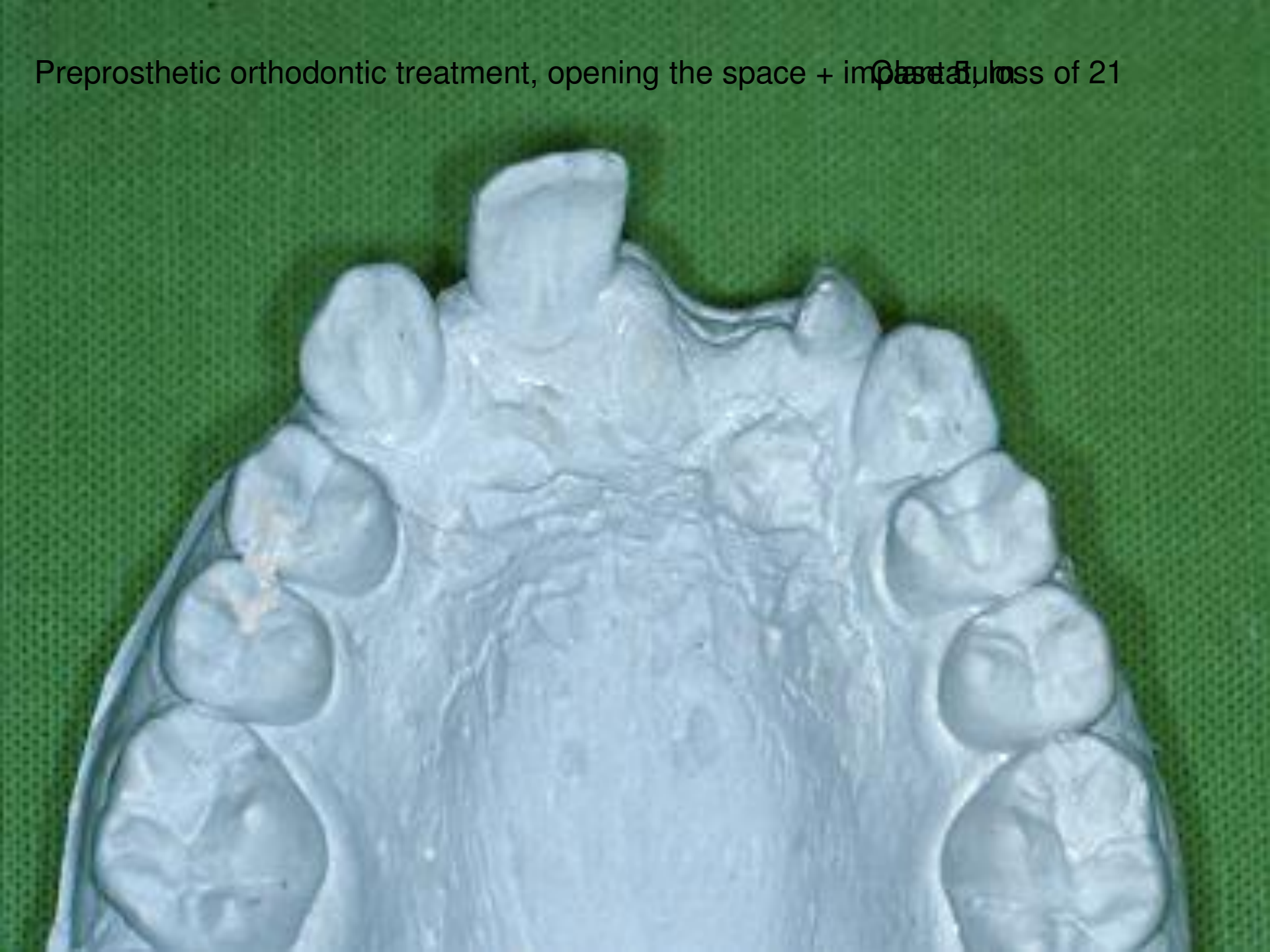
Case 5, loss of 21

Preprosthetic orthodontic treatment, opening the space + implantatum



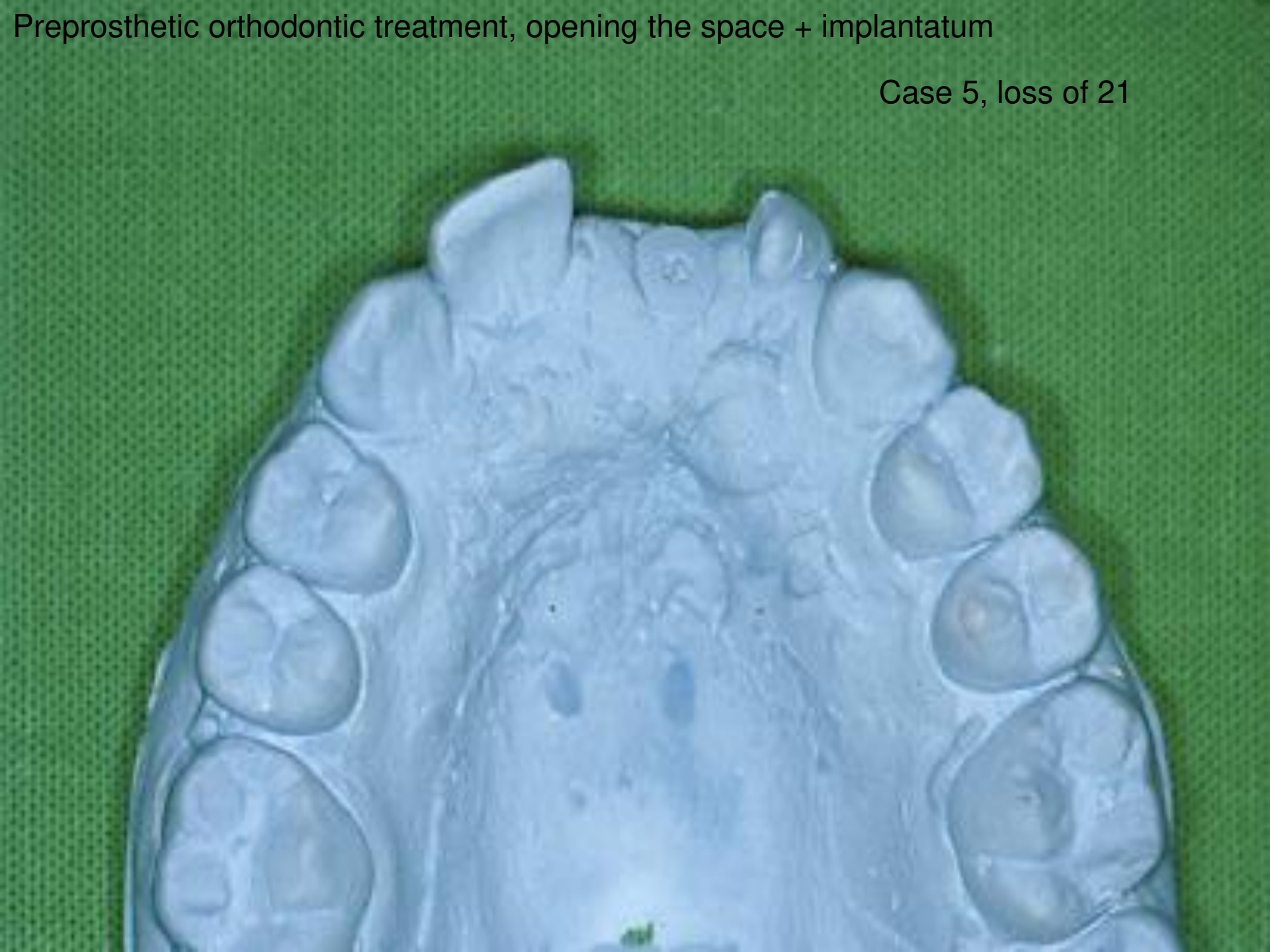


Preprosthetic orthodontic treatment, opening the space + implant, Class II, loss of 21

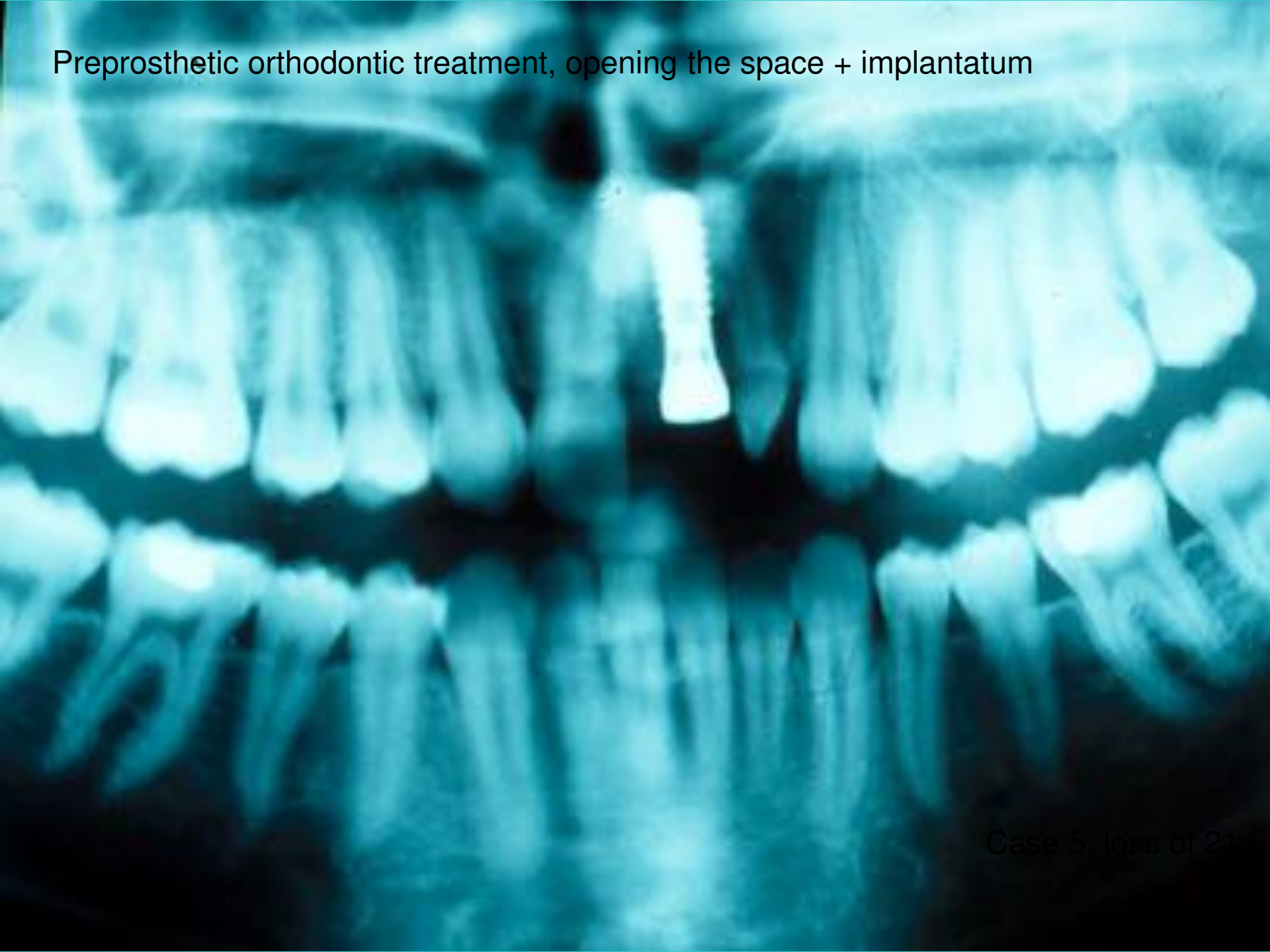


Preprosthetic orthodontic treatment, opening the space + implantatum

Case 5, loss of 21



Preprosthetic orthodontic treatment, opening the space + implantatum



Case 5, loss of 21


Preprosthetic orthodontic treatment, opening the space + implantatum
Case 5, loss of 21

Case 5, loss of 21 Preprosthetic orthodontic treatment, opening the space + implan

Preprosthetic orthodontic treatment, opening the space + implant case 5, loss of 21


Preprosthetic orthodontic treatment, opening the space
Case 6

Preprosthetic orthodontic treatment, opening the space

Case 6

Preprosthetic orthodontic treatment, opening the space

Case 6

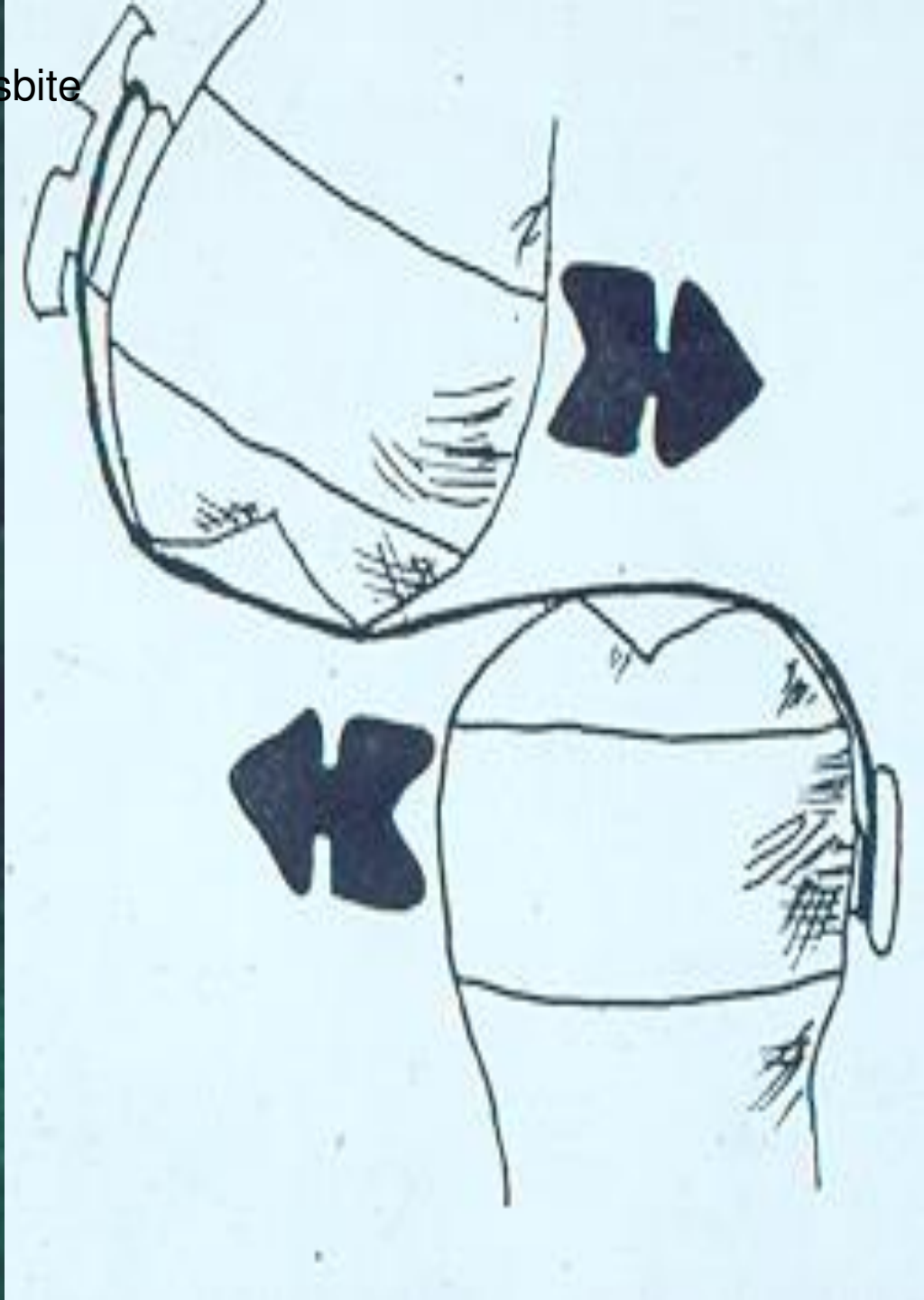
Indication of preprosthetic orthodontic treatment

- Correction of the tooth axis
- Space opening for bridge or implantatum
- **Treatment of crossbite**
- Alignment of impacted teeth
- Treatment of the consequences of parodontopathia

Metszőfogak keresztharapásának kezelése

Preprosthetic orthodontic treatment, crossbite

Preprosthetic orthodontic treatment, crossbite



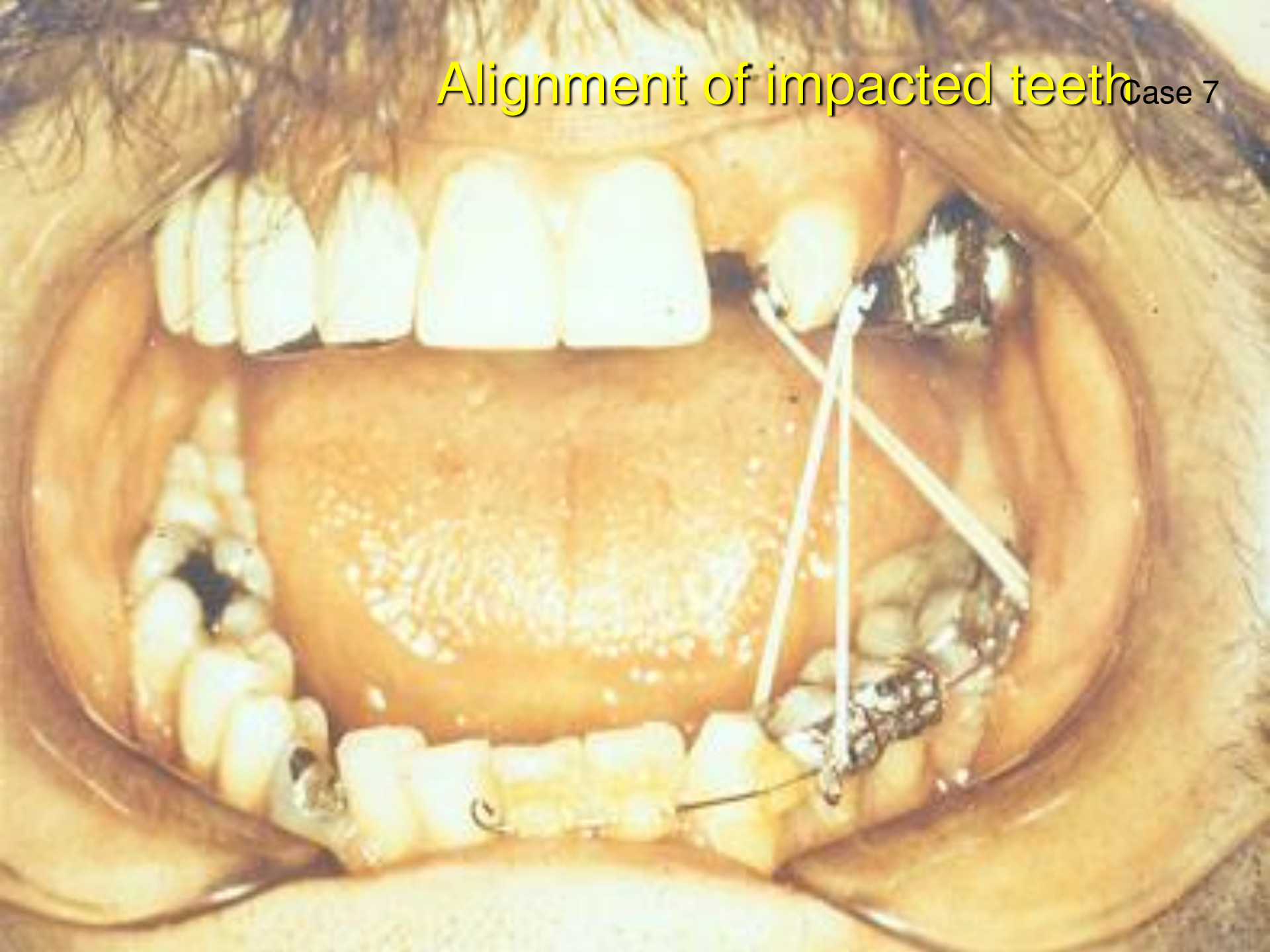
Indication of preprosthetic orthodontic treatment

- Correction of the tooth axis
- Space opening for bridge or implantatum
- Treatment of crossbite
- Alignment of impacted teeth
- Treatment of the consequences of parodontopathia

Alignment of impacted teeth Case 7

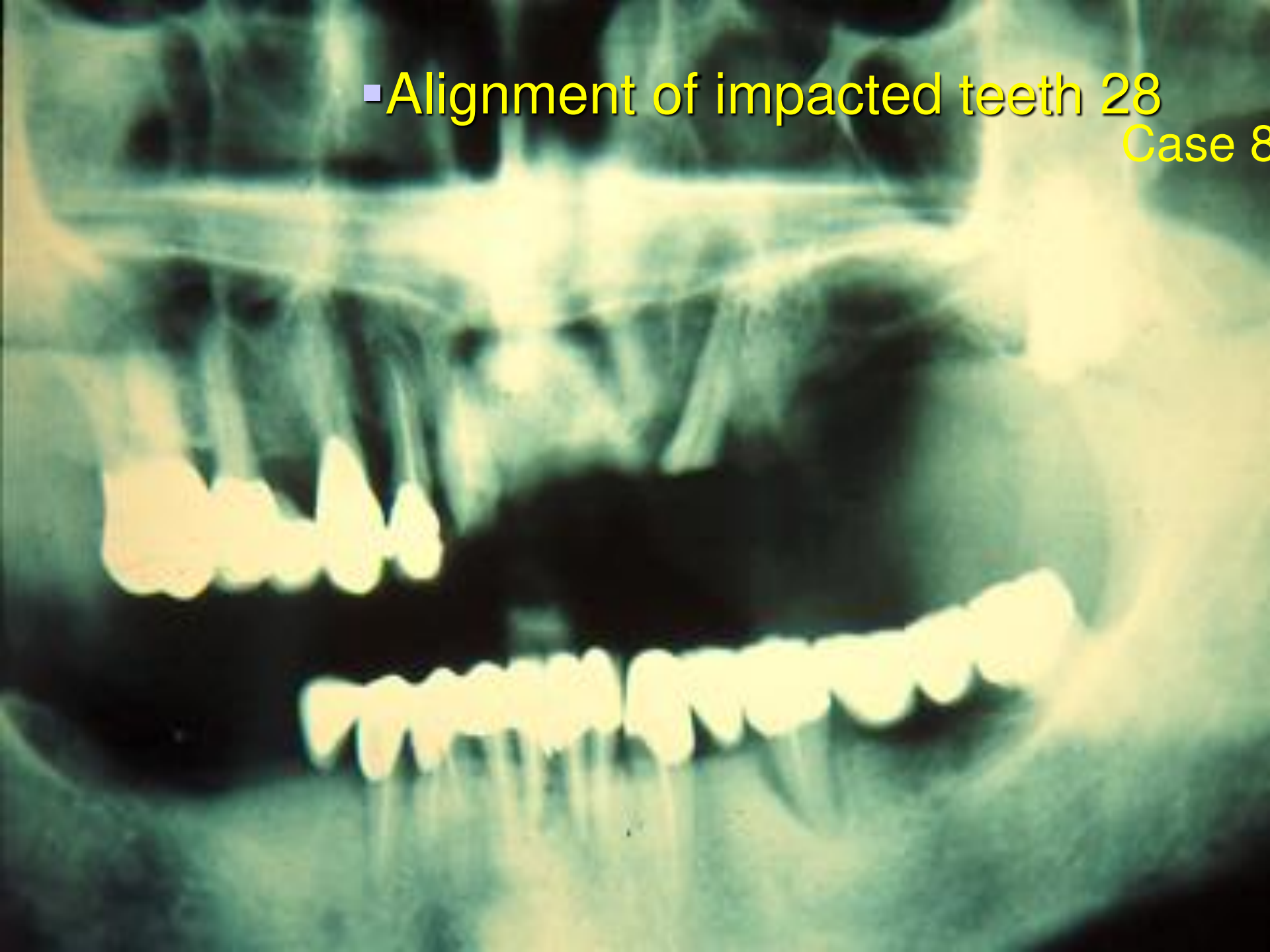
Alignment of impacted teeth

Case 7



Alignment of impacted teeth + bridge

Case 7


Alignment of impacted teeth 28
Case 8

- Alignment of impacted teeth 28

Case 8

Alignment of impacted teeth 28

Case 8

Alignment of impacted teeth 28

Case 8

Alignment of impacted teeth

Case 8

Alignment of impacted teeth 28 + bridge

Case 8

Alignment of impacted teeth 28

Case 8

Indication of preprosthetic orthodontic treatment

- Correction of the tooth axis
- Space opening for bridge or implantatum
- Treatment of crossbite
- Alignment of impacted teeth
- Treatment of the consequences of parodontopathia

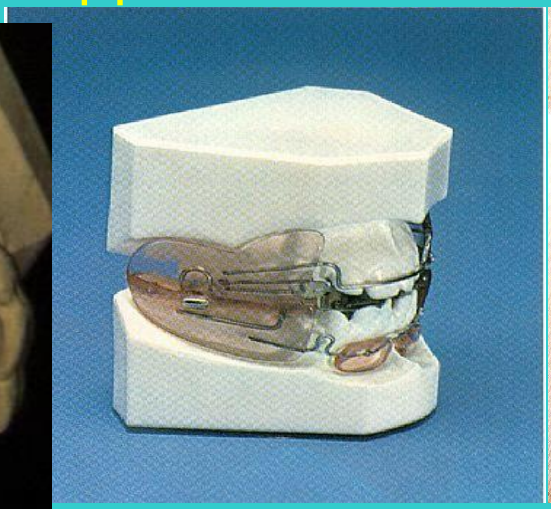
Treatment of parodontopathia

Treatment of parodontopathia

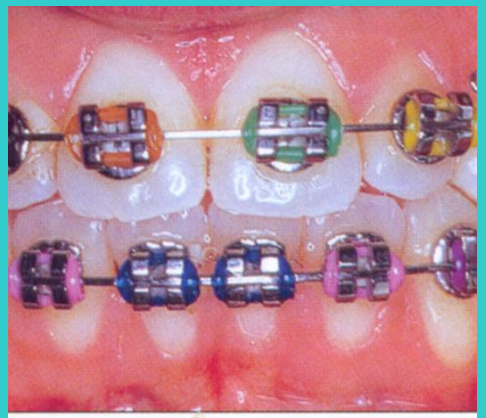
Grouping of the orthodontic appliances

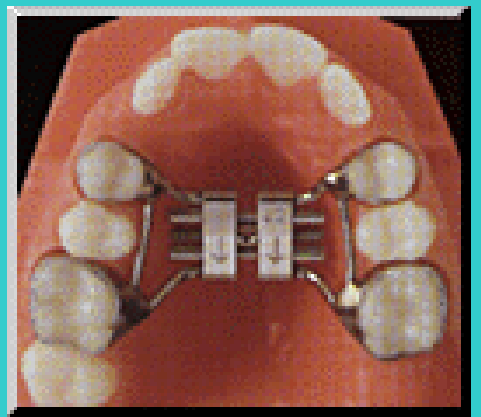
Removable appliances



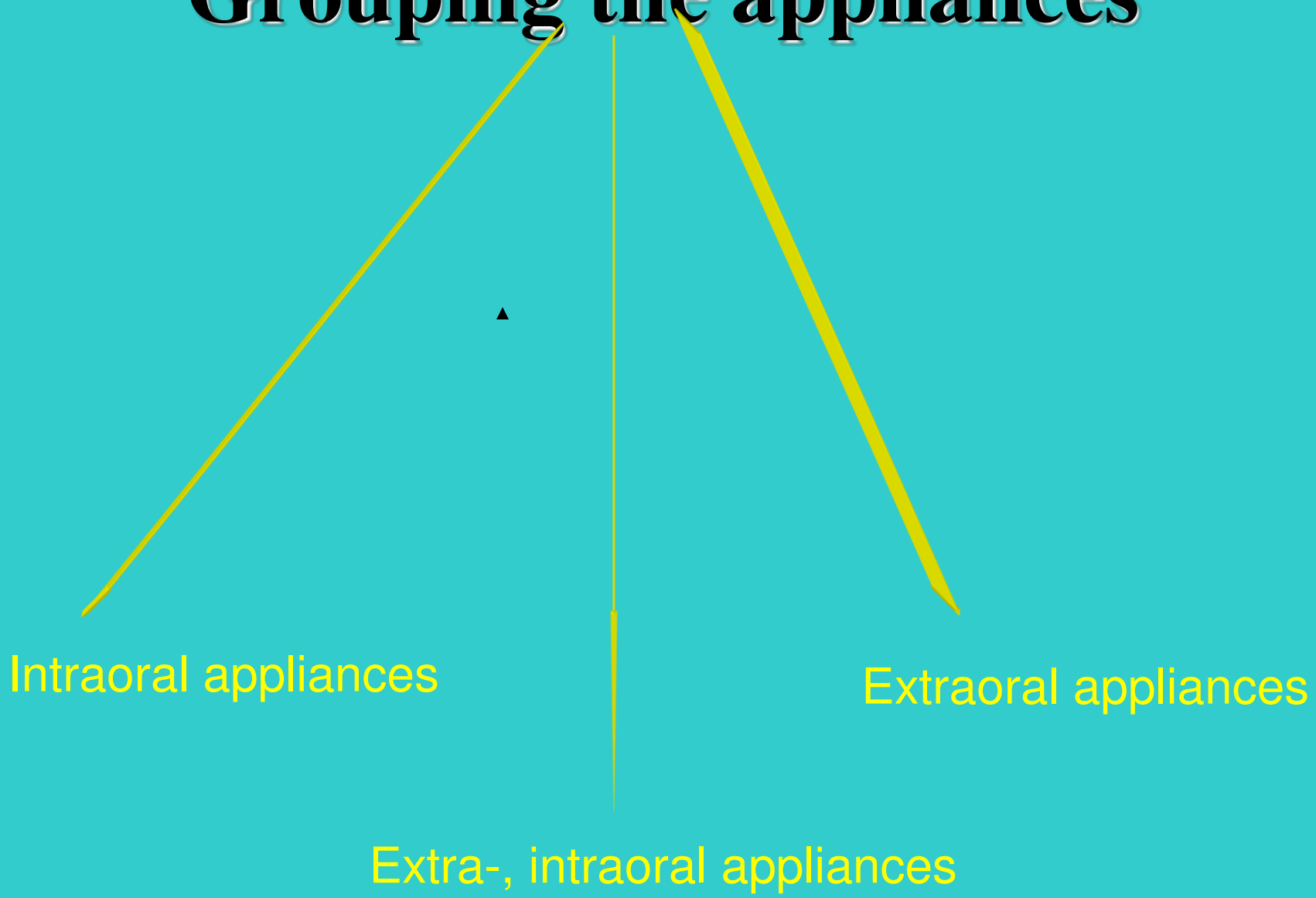



Fixed appliances

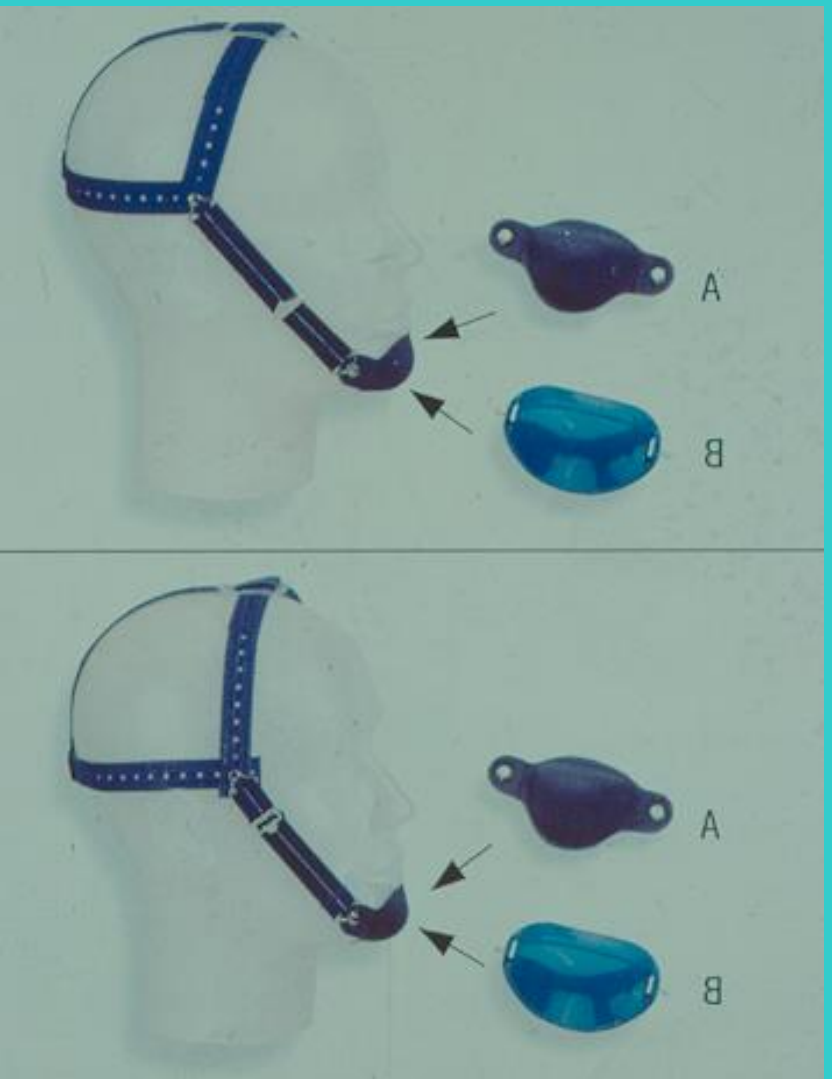




Grouping the appliances



Chin cap – against progenie, (extraoral)



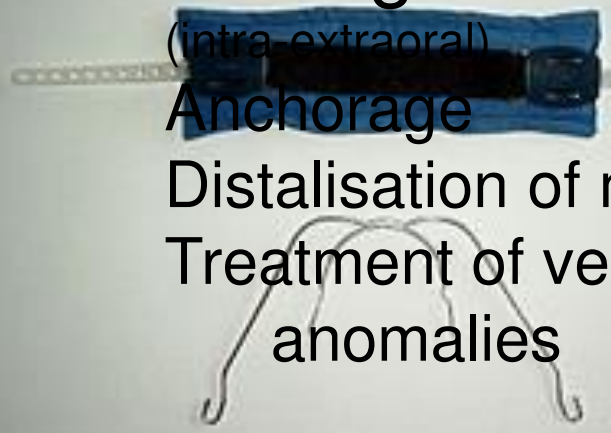
Headgear

(intra-extraoral)

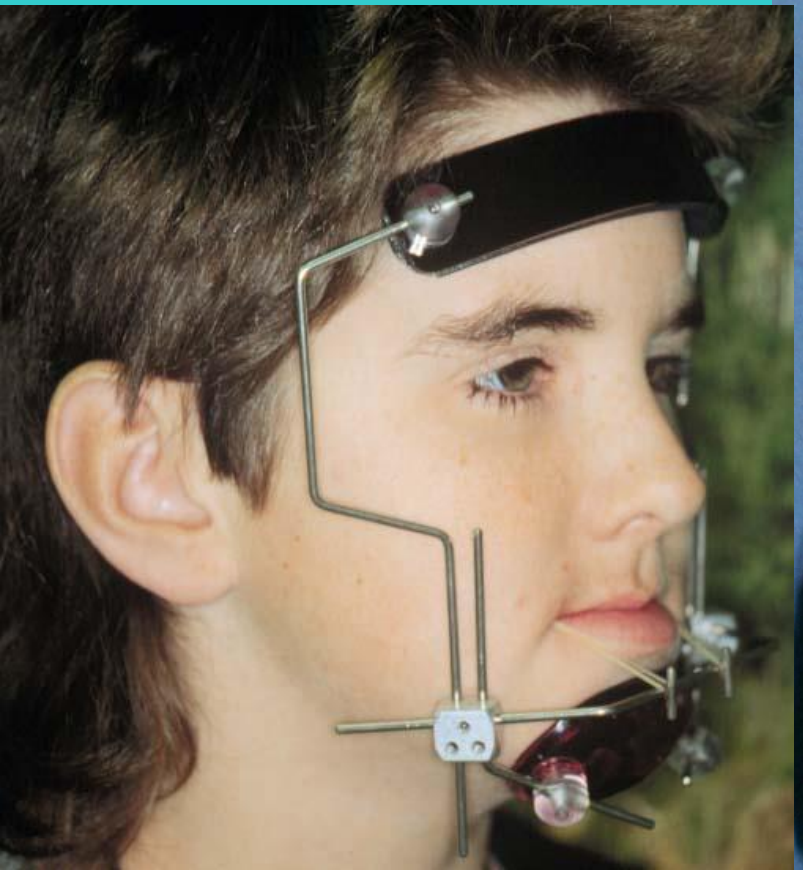
Anchorage

Distalisation of molars

Treatment of vertical anomalies



Reverse Headger Facemask (intra-extraoral)



Indirect bonding

Indirekt bonding

Removing Fixed Appliances

- Bands are lifted off the tooth with band removing pliers
- Metal brackets are easily removed by gently squeezing them with How pliers
- Ceramic brackets must be removed with great care to avoid enamel fracture.
- Residual cement and adhesive is removed with a scaler or metal finishing bur. or rubbers

Quad-helix

Hyrax

Fixed appliances for the treatment of II. class anomalies

- Herbst-appliance
- Jusper Jumper
- Forsus spring stb.

Orthodontic Implants Anchorage

Orthodontic Implants
Anchorage

Four premolars extraction

Four premolars extraction

UPPER ARCH

LOWER ARCH

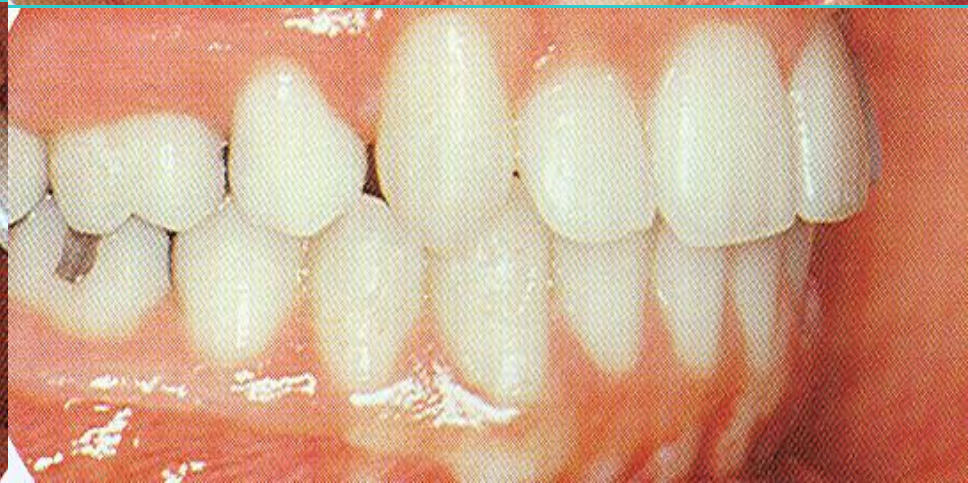
Four premolars extraction

POST-TREATMENT

Two upper premolars extraction

The canine has to be always in correct position !!

Angle II./2

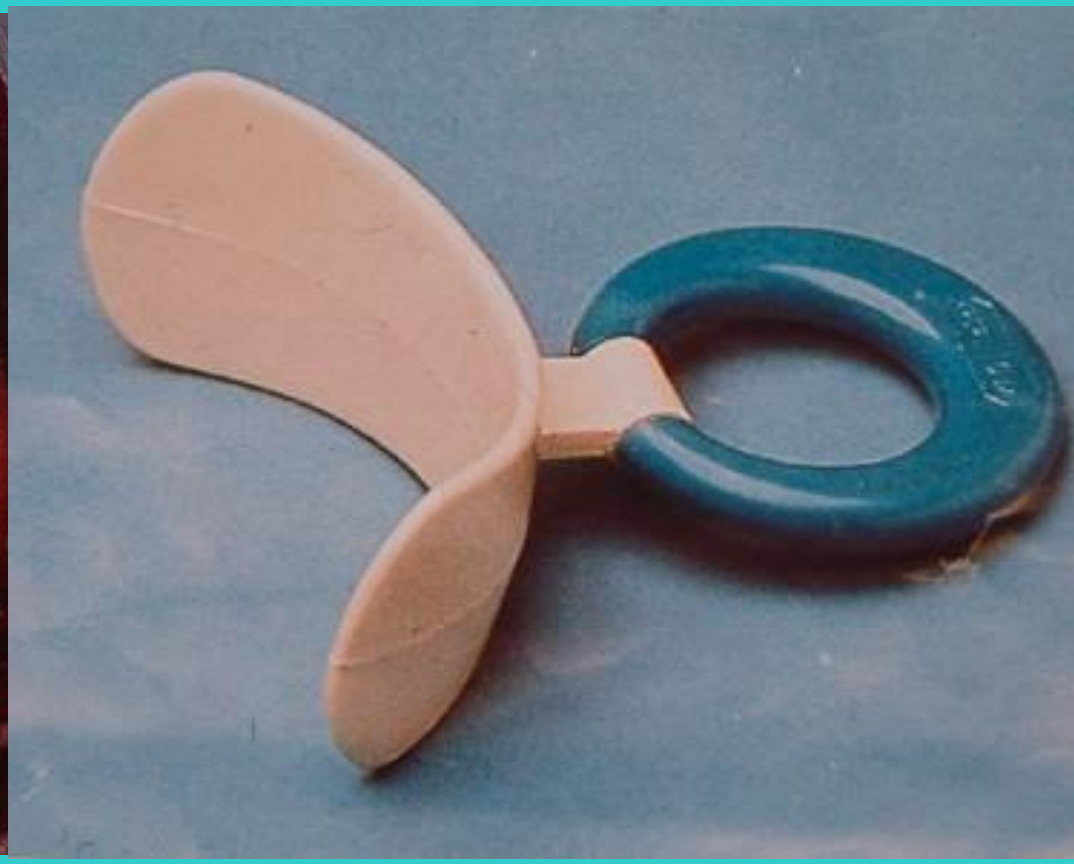


One lower incisor extraction

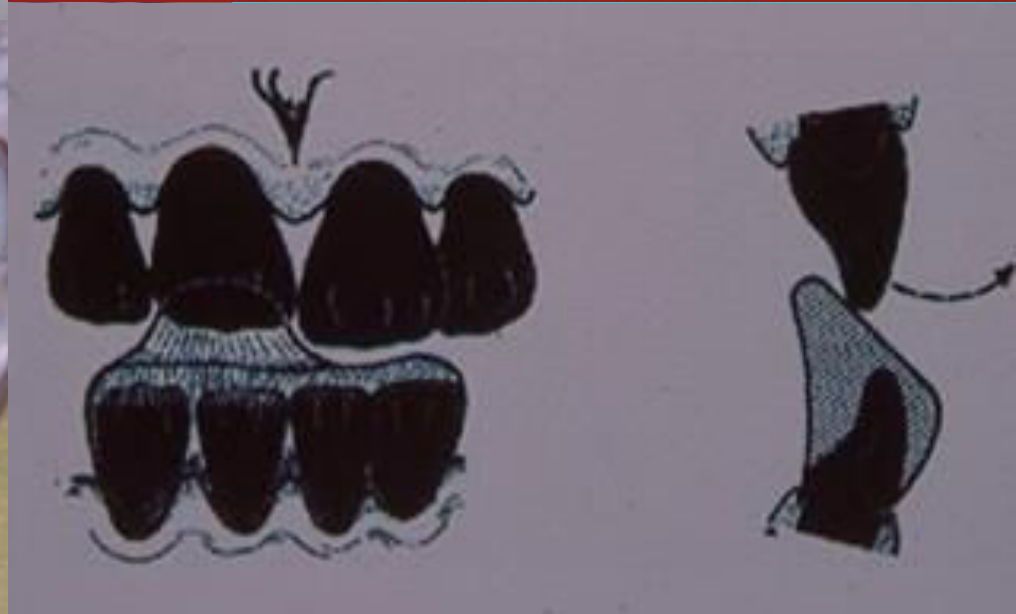
Extraction of wisdom tooth

Orthodontic indication

Oral screen



Inclined plane



Retention

- *There is only one way to completely avoid relapse. At the end of treatment, remove the braces, polish the teeth, make study models and take photographs. And then take the patient out the back door of the office and shoot him. (Dr. Tom Graber DMD,* South African Dental Congress. August 1992.)

Retention

- Treatment with fixed appliance: 1-3
- The length of retention should be twice longer than the activ treatment

1 év > 2 év

Retainers

Retainers

Retainers - Essix retainer

Retainers - Positioner

Retainers - Barrer-retainer

- Treatment with fixed appliance: 1-3 (4-5) years

- The length of retention is twice longer than the activ treatment

1 év > 2 év