

The Defects of teeth and dental rows. Peculiarities of children's dentures

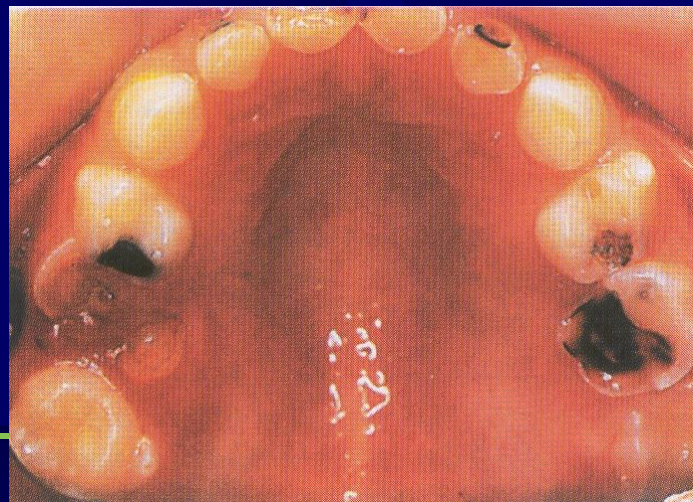
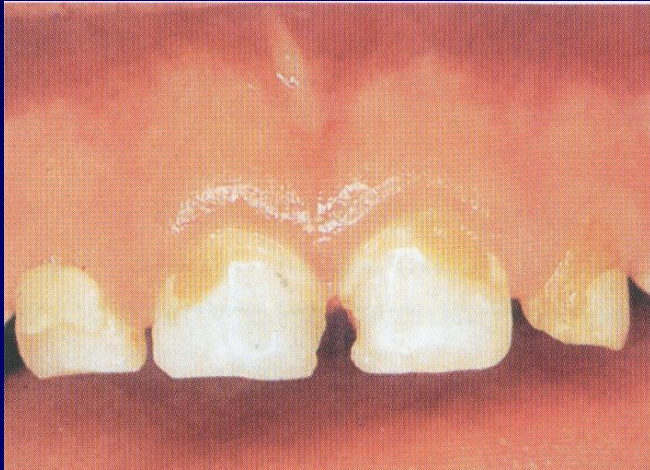
Poltava
2024

Plan of lecture

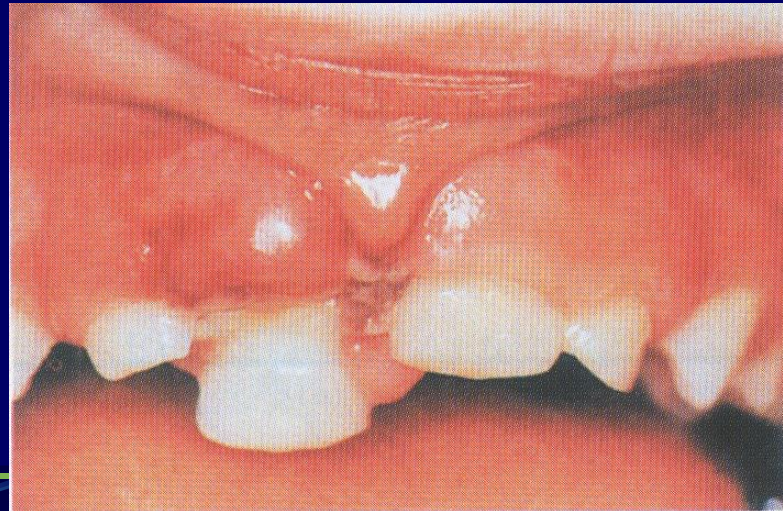
- ◆ Etiology
- ◆ Pathogenesis
- ◆ Clinics
- ◆ Treatment
- ◆ Prevention

Etiology of teeth loss

decay



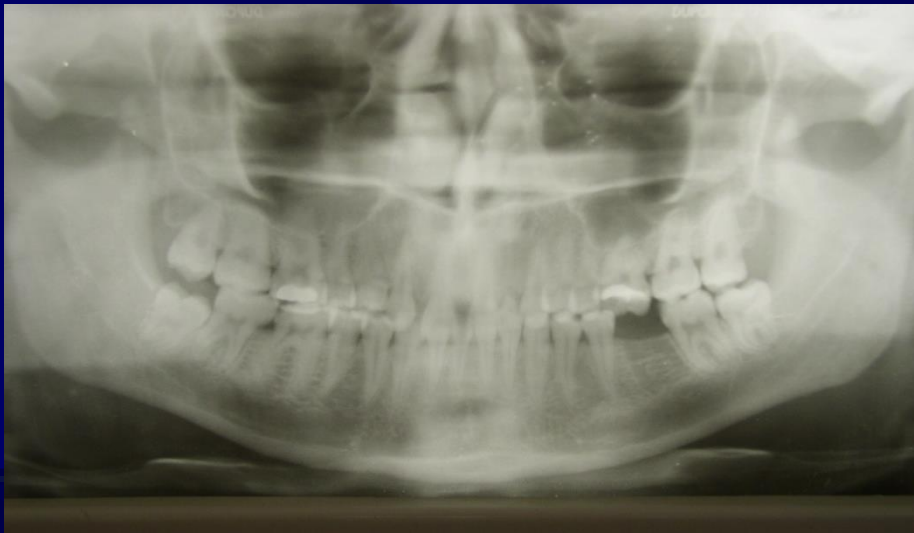
trauma



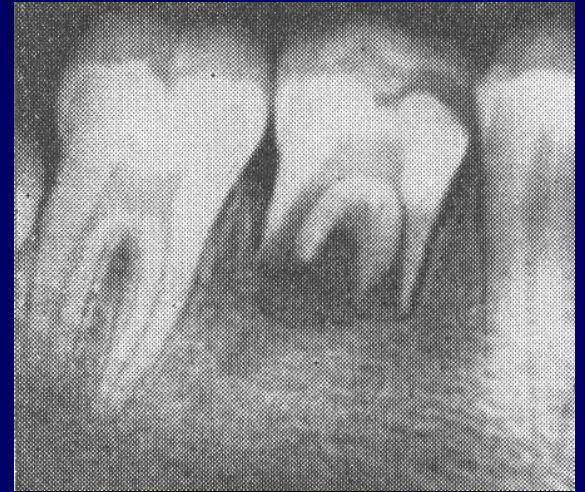
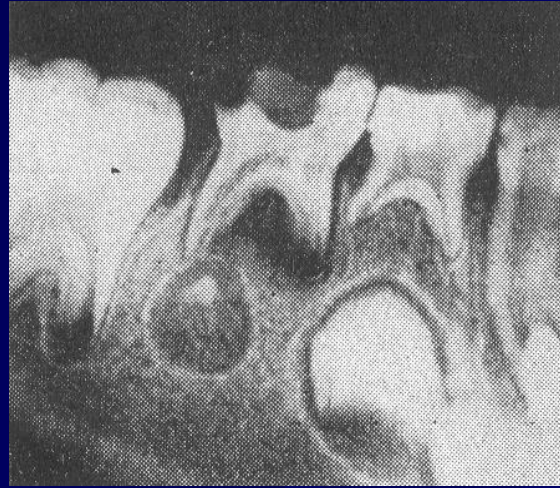
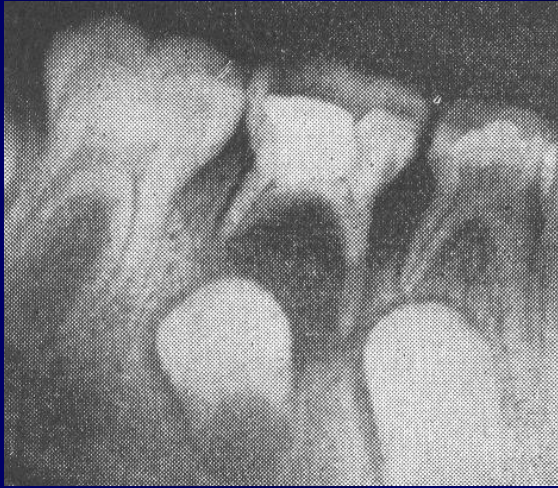
hypoplasia



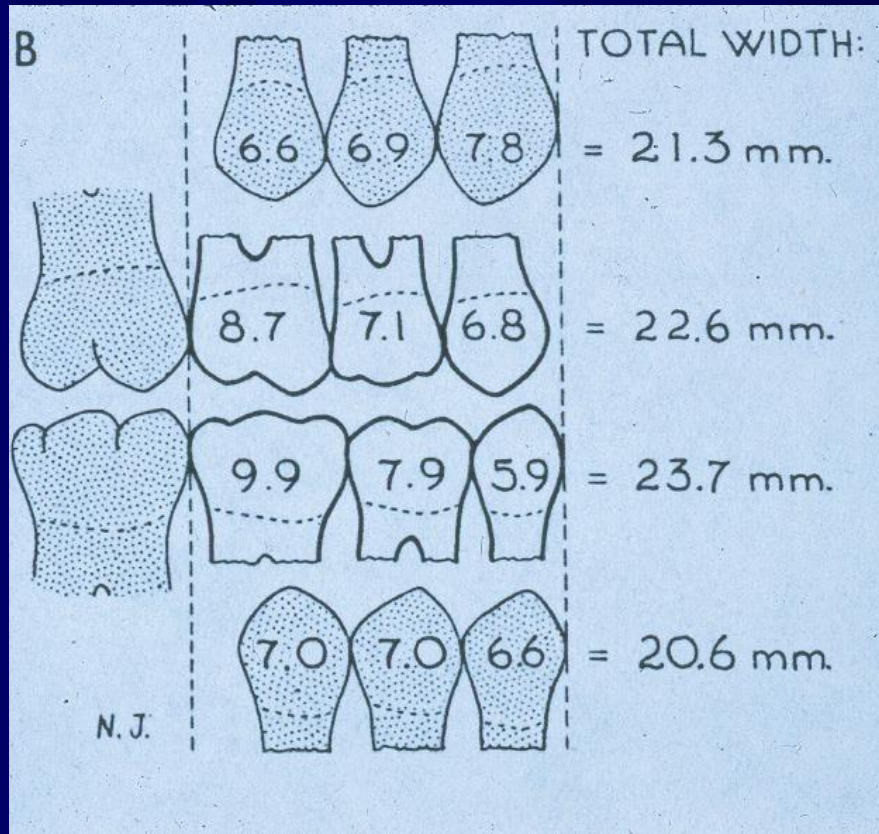
adentia



inflammation

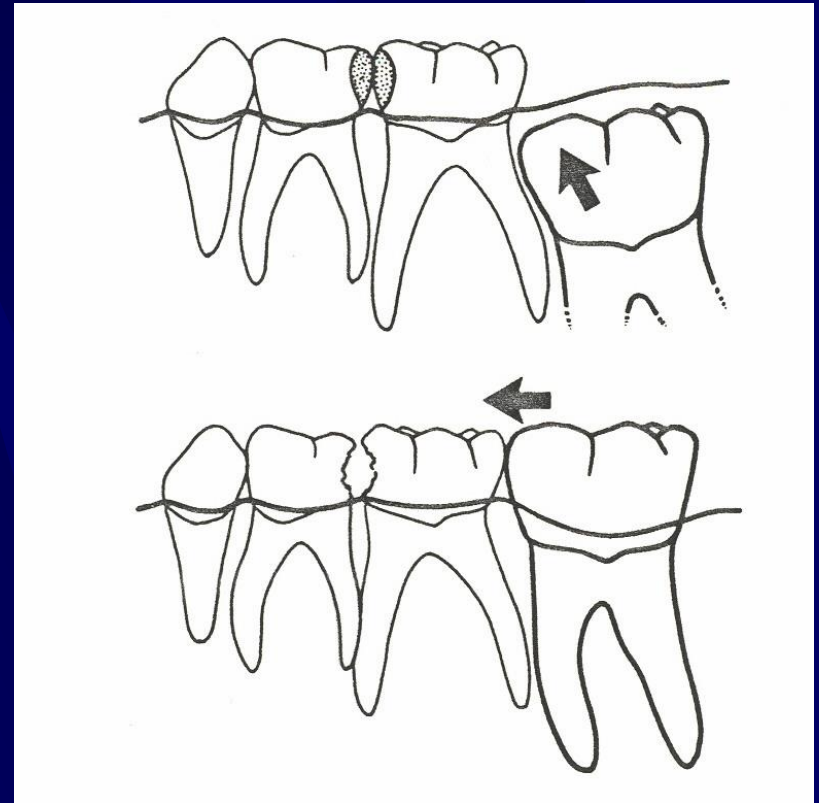


Leeway Space and...



Space loss in primary and mixed dentitions

- ◆ “first line of defense” = Class II restorations
- ◆ Natural tooth is the best space maintainer



COMPLICATIONS, DEVELOPING BECAUSE OF PREMATURE LOSS of TEETH

- ◆ mastication disorders
- ◆ speech and swallowing disorders
- ◆ Forming of flat-type of face at the loss of teeth in a frontal area
- ◆ decreasing of bite's height and forming of the shortened dental arches at the early loss of teeth in lateral areas
- ◆ TMJ disorders
- ◆ Development of the secondary deformations of bite:
 - it is teeth displacement toward a defect;
 - it is the dento - alveolar lengthening;
 - it is inclination of teeth toward a defect.

TASKS OF CHILD'S DENTURES:

- ◆ Restore defects of separate teeth or dentitions.
- ◆ Providing of correct growth and development of jaws.
- ◆ Maintenance of place for eruption of permanent teeth
- ◆ Renewal of oral cavity's functions : mastication, swallowing and speech.
- ◆ Conforming of prosthetic appliances to the aesthetic requirements.
- ◆ Prevention of malocclusion development.
- ◆ At presence of malocclusion: simultaneous restoration of defect and treatment of malocclusion.

CLASSIFICATION OF CHILD'S DENTURES :

1. Prosthetic appliances which restore the defects of hard tissues of separate teeth:

- ◆ a) inlay;
- ◆ b) onlay
- ◆ c) veneers;
- ◆ c) artificial crowns.
 - prophylactic - at traumatic defects of crown's parts without integrity in tooth cavity (temporal or therapeutic crowns);
 - reconstruction of the anatomic form of tooth
 - fixings or support (included in the construction of orthodontic appliances)
- ◆ Cast post and core

CLASSIFICATION OF child's dentures :

2. Prosthetic appliances which substitute for the defects of dentitions:

- ◆ a) bridge dentures (with one or with two supports - extensible);
- ◆ b) partial removable plate denture;
- ◆ c) complete removable plate denture;
- ◆ d) clasp dental prosthesis;
- ◆ e) space- maintainers dentures;
- ◆ f) dentures with the function of growth factor.

3. Prosthetic appliances for substituting for the palate's defects:

- ◆ a) obturator by Il'ina - Markosyan (at the partial clefts of hard and soft palate);
- ◆ b) swimming obturator by Kez, Chasovskay and other (at the complete one- and bilateral clefts of lip, alveolar process, hard and soft palate);
- ◆ c) preformative plates;
- ◆ d) protective plates.

4. Post-resection dentures are dentures for substituting of postoperative jaws defects.

Requirements to child's dentures and their features :

- ◆ Dentures must be simple in making.
- ◆ Must not worsen the hygiene of oral cavity.
- ◆ Must answer aesthetic requirements.
- ◆ Must restore the functions of oral cavity.
- ◆ Must restore the physiological balance of oral cavity.
- ◆ Must prevent the development of different malocclusion.
- ◆ Must not hinder development and growth of jaws, forming of dental arches.
- ◆ To serve not only for substituting for the defect of dental row but also for treatment of malocclusion in the case of their presence.

Indications to substituting for the defects of crowns in the period of temporal bite followings:

- ◆ Aplasia and hypoplasia of temporal molars.
- ◆ Subtotal and total posttraumatic defects without opening of tooth cavity.
- ◆ Tendency to development of the denta- alveolar lengthening and deformation of occlusal plane.
- ◆ Elimination of hard tissues at dysplasia by Stenton-Kapdepon.

In the period of mixed dentition :

- ◆ hypoplasia of first permanent molars.
- ◆ Subtotal and total posttraumatic defects of central and lateral incisors of both jaws.

In the period of permanent bite:

- ◆ Considerable destruction of separate teeth crowns because of caries, hypogenesis of enamel, fluorosis, pathological elimination etc.
- ◆ Aesthetic prothesis at anomalous development of form, sizes, colors, and sometimes and positions of separate teeth.

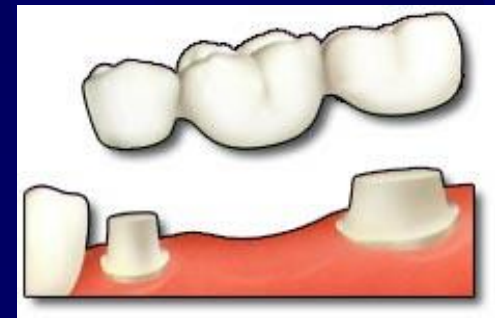
- ◆ Crown – usually covers the clinical crown of the natural tooth

- ◆ Can create “ $\frac{3}{4}$ crowns”



- ◆ Bridge – replaces missing tooth/teeth

- ◆ Abutment vs. Pontic
- ◆ Cantilever, Maryland



INDICATIONS TO CROWNS APPLICATION :

1. considerable destruction of tooth because of caries, his complications or another reasons.
2. At pathological dental abrasion for warning of development of further elimination.
3. At form, color, structure anomalies of teeth.
4. For fixing of different orthodontic or maxillufacial appliances.
5. For a splintage at the diseases of paradontium and at the breaks of jaws.
6. Aesthetic indications (porcelain, plastic and combined crowns).



INDICATIONS TO CROWNS APPLICATION :

7. For fixing at treatment bridge-dentures, that supporting crowns



8. for coverage of teeth which need for clasps, especially if it is necessary to change their clinical form.



CONTRA-INDICATION

- teeth with the chronic inflammation in paradontium,
- teeth with the expressed pathological mobility (III degree);
- at the bad general state of health.

Features of child's crowns:

- ◆ teeth under a crown (temporal or permanent) are not prepared. We made the physiological separation (the metallic ligature wire or elastic separators).
- ◆ In the case of necessity possible insignificantly to prepare a cutting edge or occlusal surface.
- ◆ A crown must not enter into gingival groove.
- ◆ For making crowns for temporal and permanent use the thin-walled metal cap in 0,11 - 0,15 mm.



VINEER

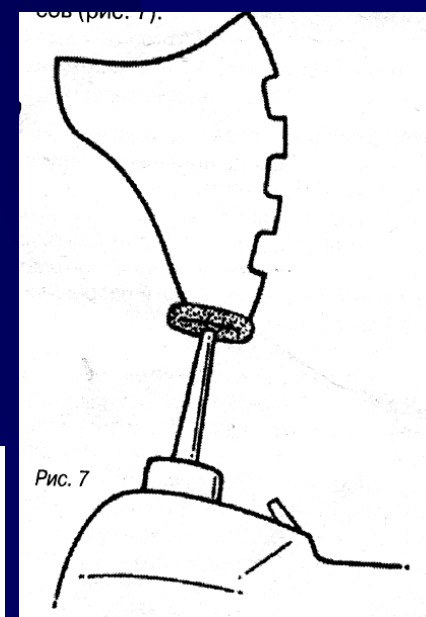
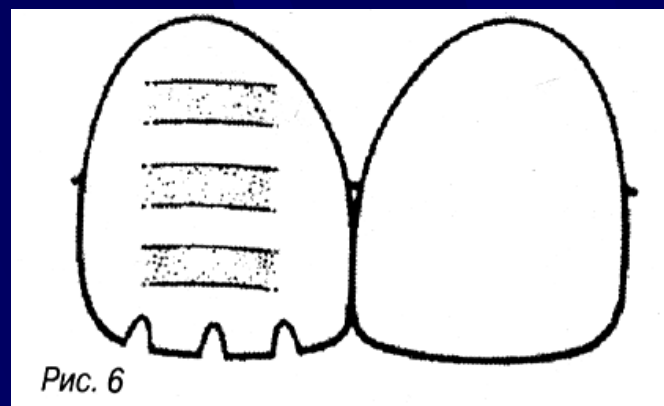
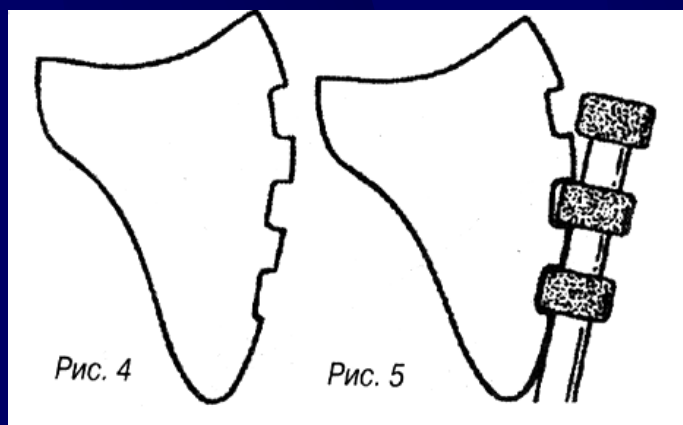
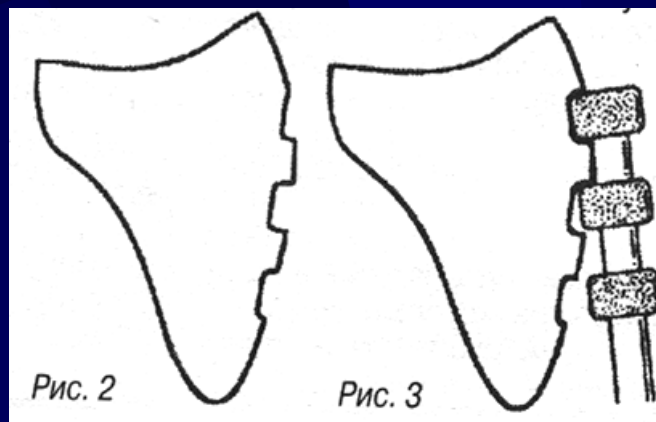
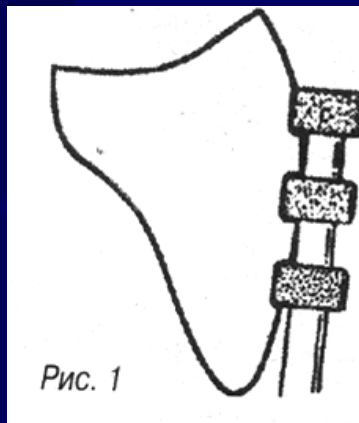
are small dentures, use for renewal of vestibular surface of frontal group permanent teeth because of:

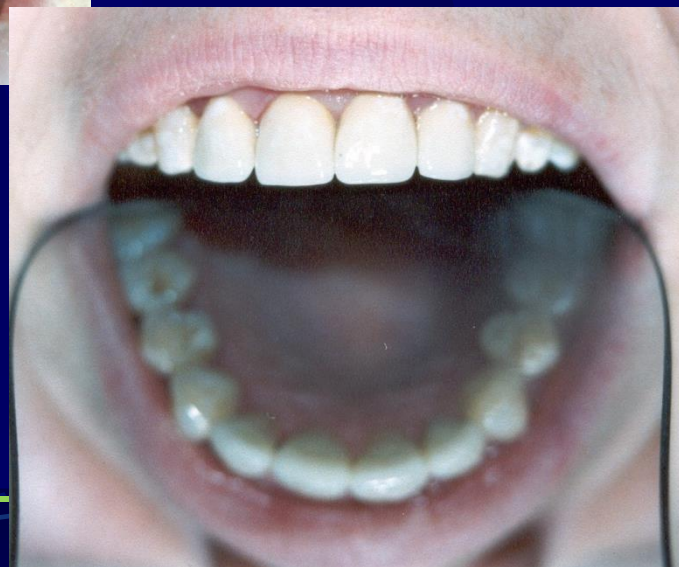


- ◆ - trauma;
- ◆ - dyscoloration
- ◆ - hypogenesis;
- ◆ - fluorosis;
- ◆ - caries;
- ◆ - for renewal of cutting edge;
- ◆ - for closing of diastem.
- ◆ - at treatment of the insignificantly expressed anomalous position of teeth

Contra-indications to application are the followings:

- ◆ - considerable thinning of enamel;;
- ◆ - imperfect enamel - and dentinogenesis.





- ◆ Inlay - indirect restoration; occlusal surface excluding cusps

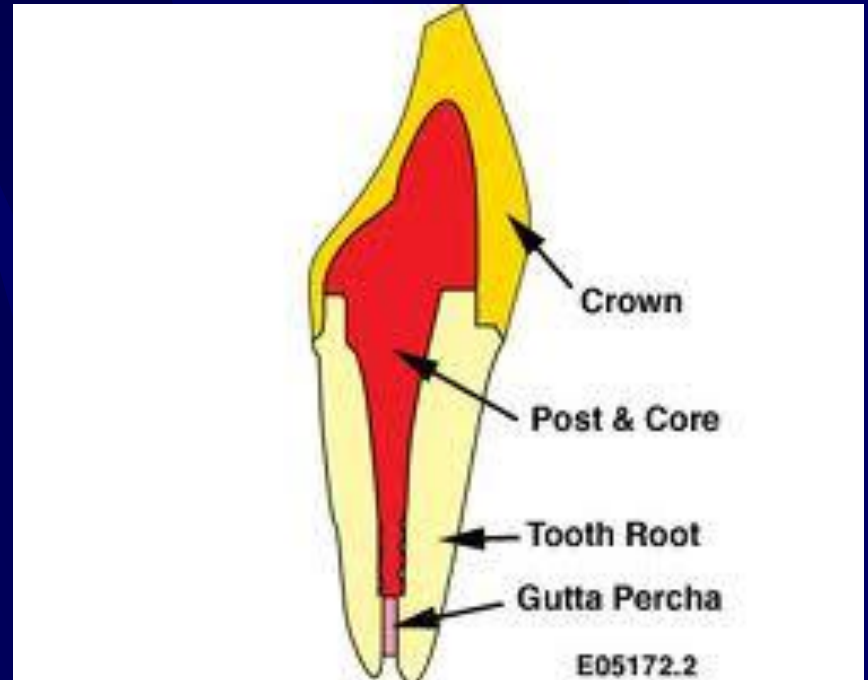


- ◆ Onlay - indirect restoration; occlusal surface plus cusp(s)



Cast post and core

are dentures for renewal of anatomic, functional and aesthetic value of the destroyed permanent teeth



glass -fiber post



Classification of dental row defects by Demner and Lepichyn

- ◆ 1 group included defects of dental row, which appeared because of premature loss of one temporal molar on one or both sides of dental row (one - and bilateral included defects);
 - the one-sided defects;
 - bilateral defects
- ◆ 2 group - end defects of dental row, when absent two teeth. This group has two sub-groups:
 - the one-sided defects;
 - bilateral defects.

The third group - defects of the dentition when there are no two or more adjacent teeth:

- the one-sided defects;
- ◆ - bilateral defects

Classification of dental row defects by Vasilenko - Trill

dental row defects

- ◆ According the reasons of occurrence of congenital defects of dental row

Inherited , innate

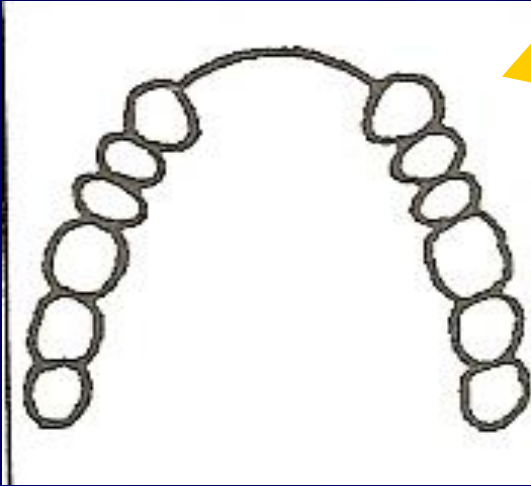


acquired



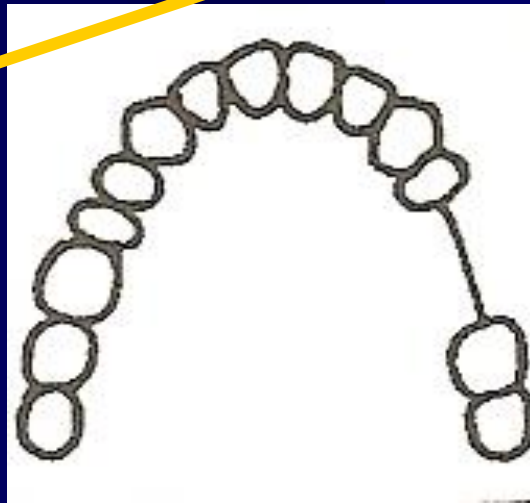
I class (included defects)

- ◆ Milky teeth
- ◆ Permanent teeth
- ◆ both

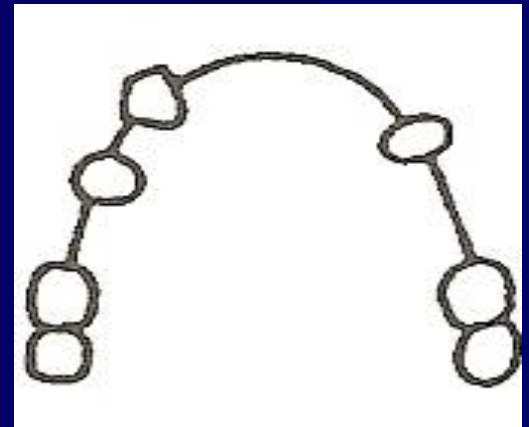


1 subdivision

Short- 1 tooth
Medium - 2-3 teeth
Long - > 3 teeth



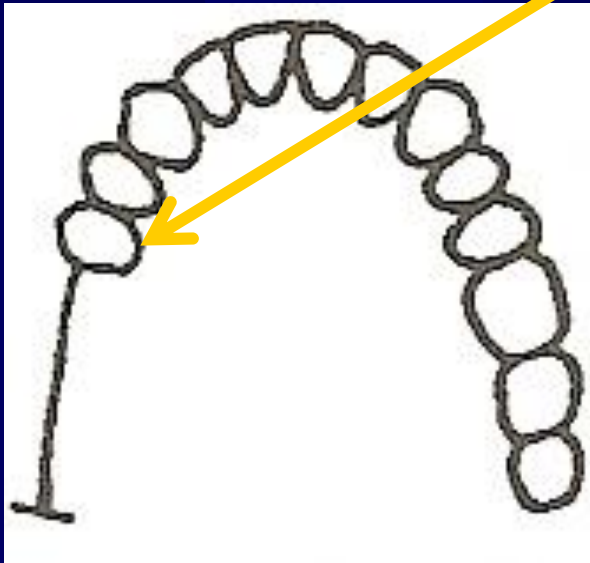
2 subdivision



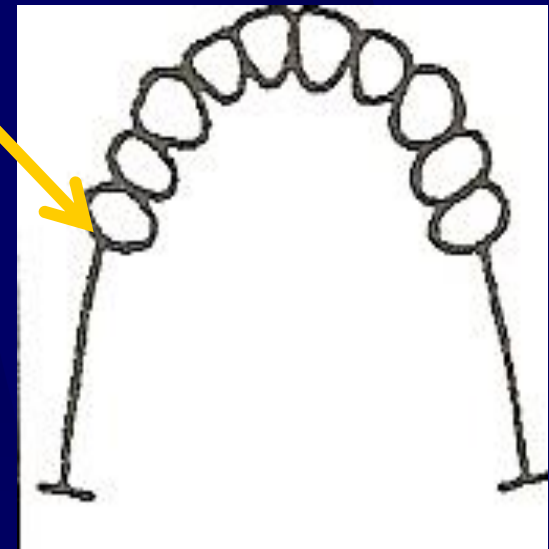
3 subdivision

II class (not included defects)

- ◆ Milky teeth
- ◆ Permanent teeth



Short - 1 tooth
Medium - 2-3 teeth
Long - > 3 teeth



By the presence of complications:
a) not complicated with deformations of dentition;
b) Complicated with deformations of dentition.

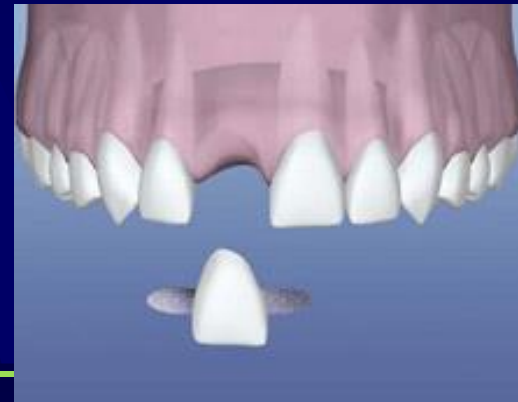
Bridge - liked dentures

- apply with one-sided support or extensible.
- ◆ with bilateral stable support: in frontal area - from 16 - 18 years, and in lateral areas from 18 - 20 years.

◆ Cantilever Bridge



◆ Maryland Bridge



Partial plate denture

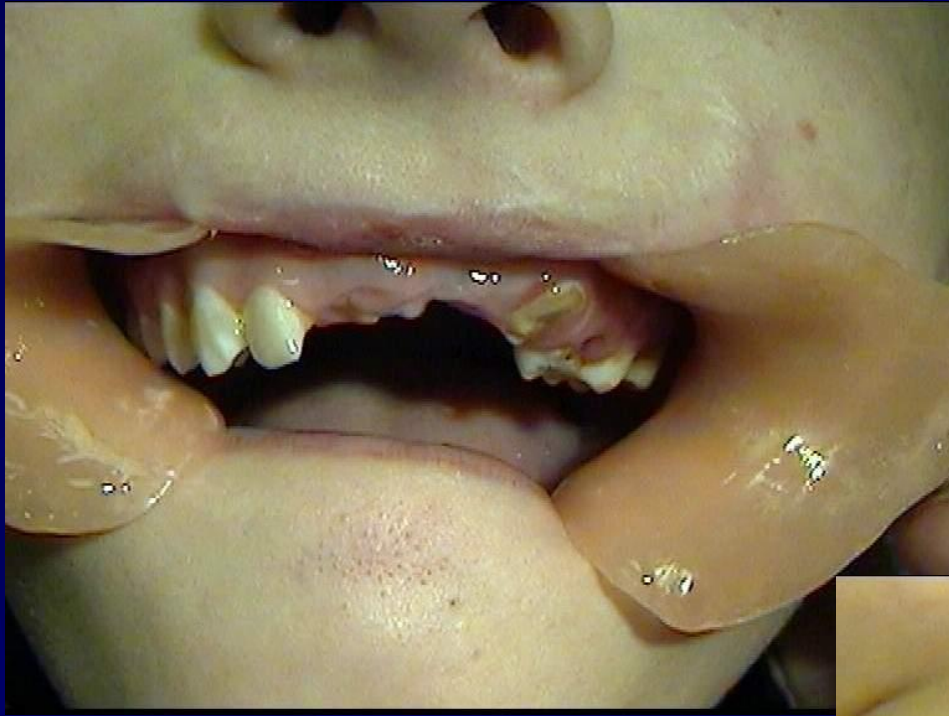
for children have features of making:

- ◆ The fixing without clasps is desirable, if it is impossible, introduction in the construction of dentures of extensible elements (extending springs, screws which activate 1 time in a month).
- ◆ It is necessary to avoid application of artificial gum, which cover an alveolar process, as it can result in the delay of growth jaw. Application of artificial gum - at presence of impacted teeth.
- ◆ Correlation between incisors must be correct, to stop them from displacement forward and upwards under tongue pressure (prophylaxis of progenia).
- ◆ large base - for the improvement of fixing.

- ◆ can be applied since 3-years-old age.
- ◆ At presence of end defects prosthetic appliances are not changed by a to 5-6 age.
- ◆ - At localization of defect in a frontal area prosthetic appliance must be changed each 6-8 months to 7-years-old age;
- ◆ - in age 7-8 years dentures must be changed in 8-10 months; - from 8 to 12 years - in 1 years;
- ◆ - from 13 to 18 years - in 1-2 years.



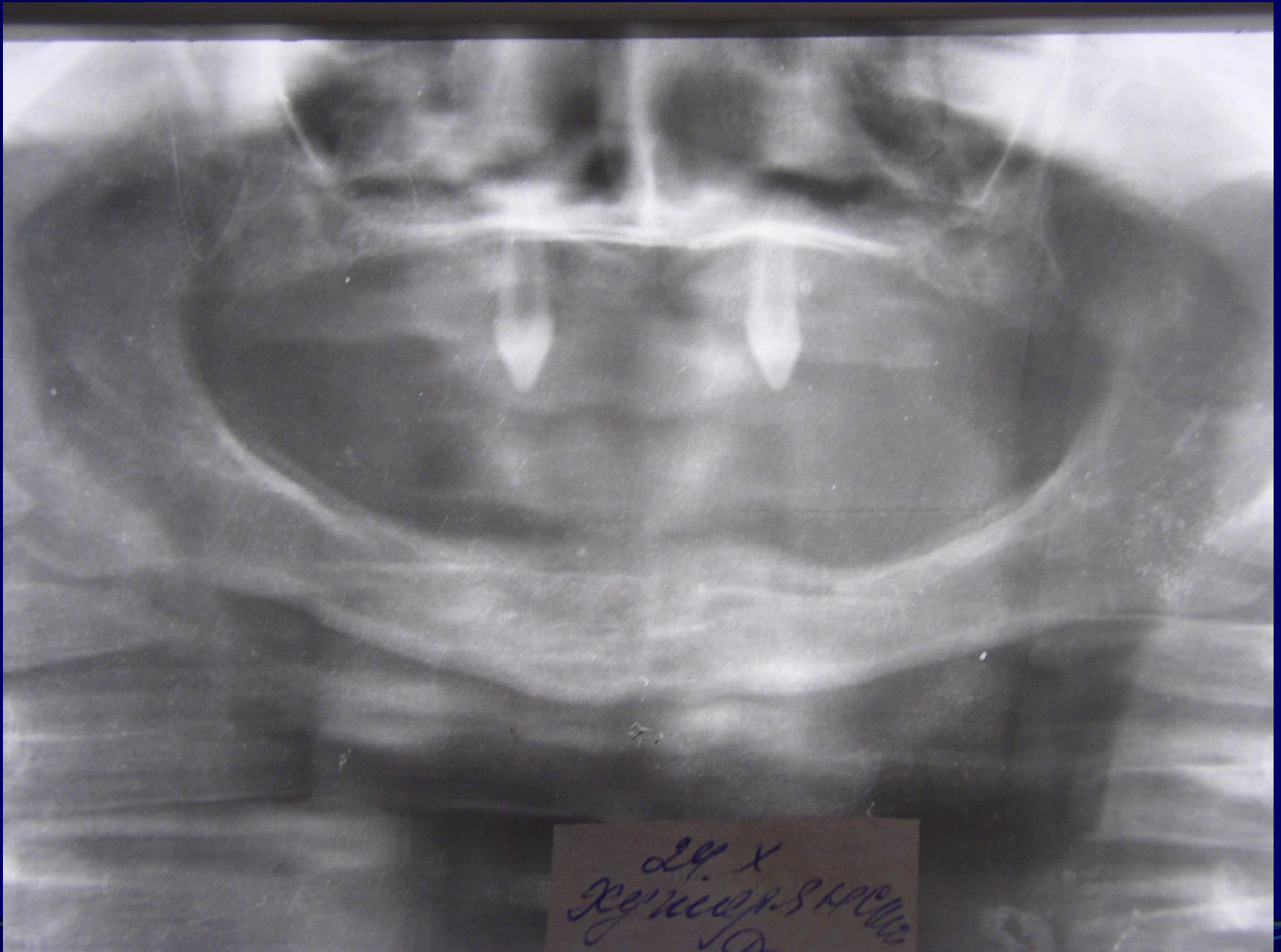




Full (complete) removable dentures at childs

- ◆ it making in the period of temporal bite does not create compensative curves (sagital and transversal).
- ◆ In a frontal area teeth put without artificial gum.





24 x
Хвостовый

- **Space maintainers** are appliances used to maintain space or regain minor amounts of space lost, so as to guide the unerupted tooth into a proper position in the arch.

IDEAL REQUIREMENTS

- It should maintain the entire mesio-distal space created by a lost tooth.
- It must restore the function as far as possible & prevent over-eruption of opposing teeth.
- It should be simple in construction.
- It should be strong enough to withstand the functional forces.
- It should not exert excessive stress on adjoining teeth.
- It must permit maintenance of oral hygiene.
- It must not restrict normal growth & development and natural adjustments which take place during the transition from deciduous to permanent dentition.
- It should not come in the way of other functions.

APPLIANCE THERAPY

Fixed space maintainers-

- Band & loop space maintainer.
- Crown & loop appliance.
- Lingual arch.
- Palatal arch appliance.
- Transpalatal arch.
- Distal shoe.
- Esthetic anterior space maintainer.
- .

Removable space maintainers-

- Acrylic partial dentures.
- Full or complete dentures.
- Removable distal shoe space maintainer.

Primary Incisors



Primary Incisors



Primary Incisors



Primary Incisors



- Esthetic anterior space maintainer.

Primary Incisors



Primary Incisors



Removable appliances

- ◆ Indicated for multiple primary tooth loss when no suitable abutment teeth exist
- ◆ Need to restore occlusal function over longer span
- ◆ Clasping difficult for primary teeth therefore retention a problem
- ◆ Compliance issues

Removable appliances



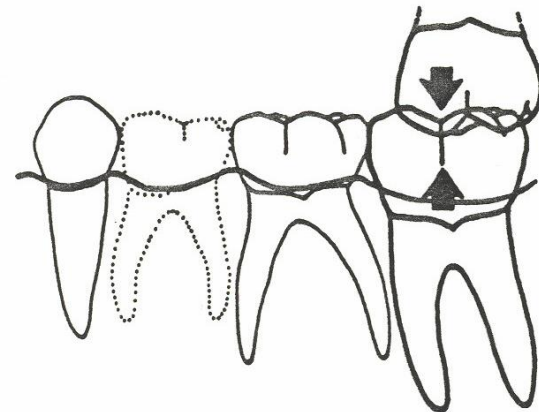
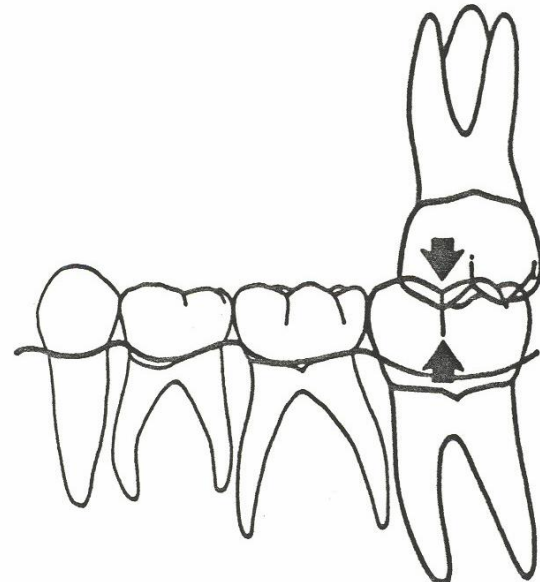
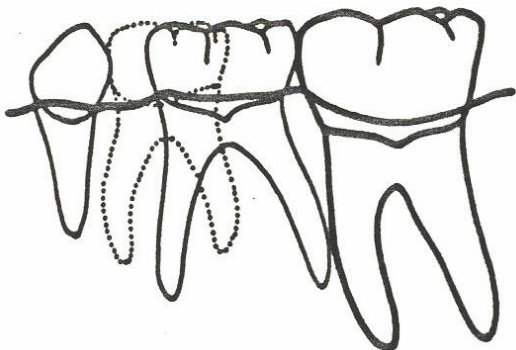
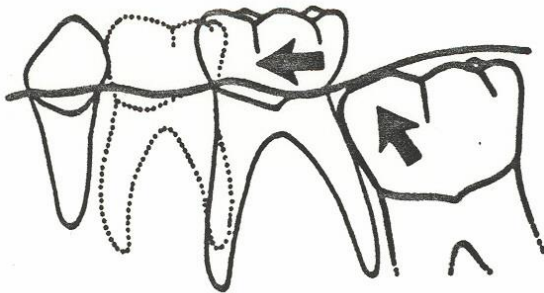
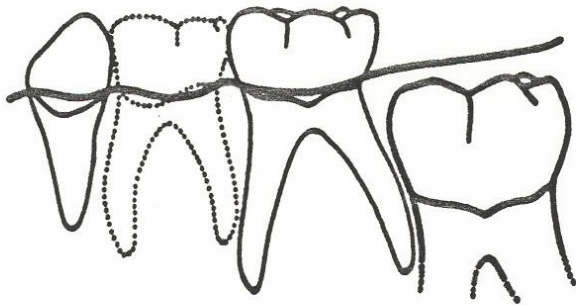
Removable Space Maintainers



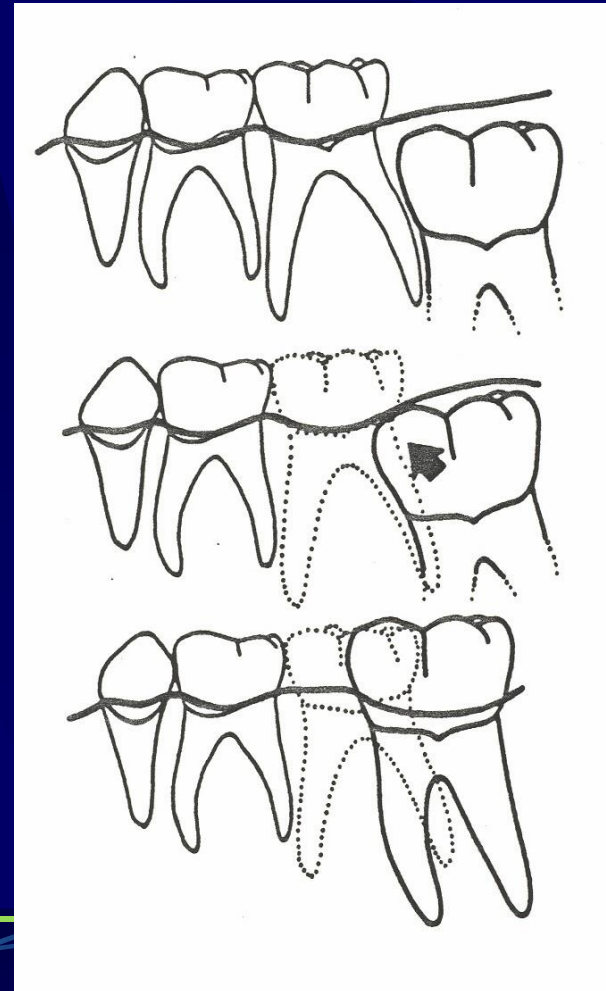
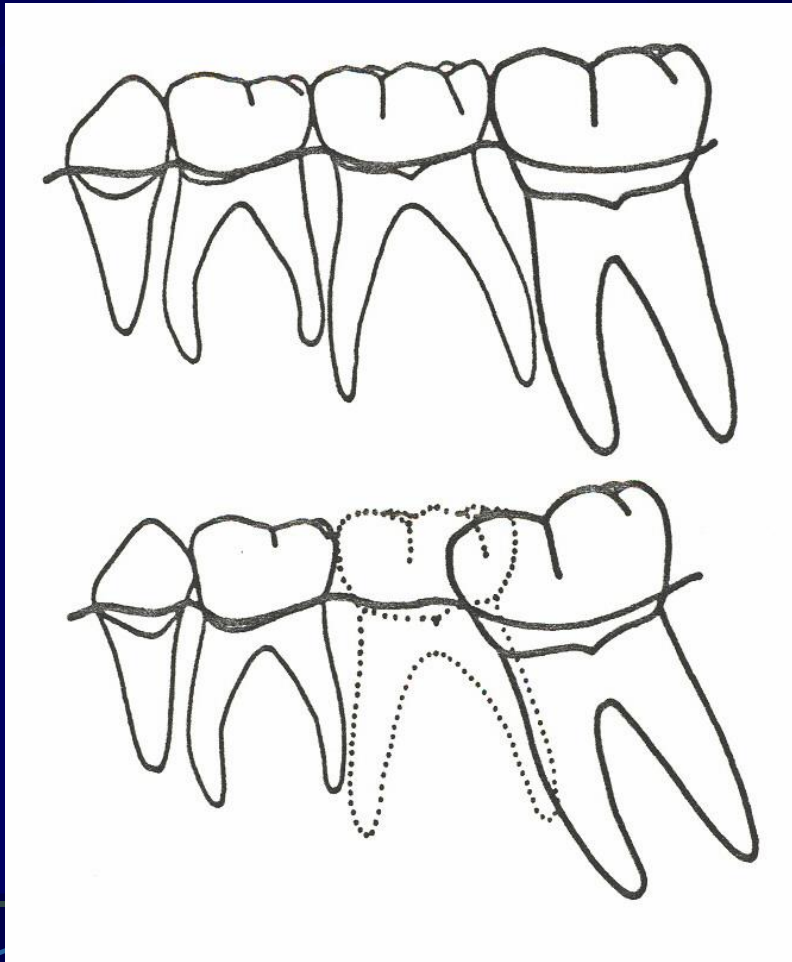
Acrylic partial dentures.



Early loss of the 1st primary molar

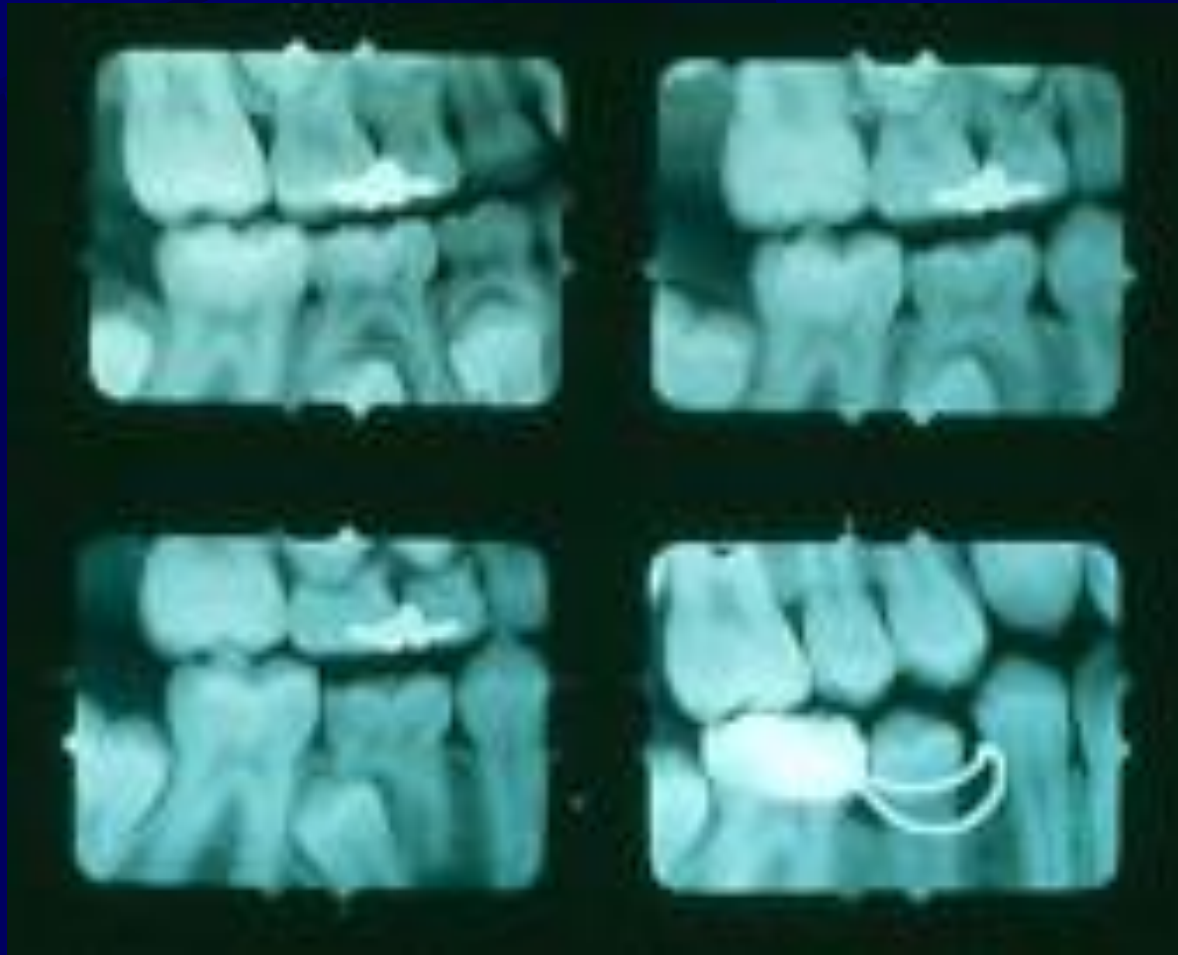


Early loss of the 2nd primary molar



Band-loop space maintainer

Other indications



Band and Hemi-Loop



Crown-loop space maintainer



Lingual arch



◆ Indications:

- ◆ Bilateral single or multiple tooth loss in mandible
- ◆ Not recommended when primary incisors still present

Transpalatal arch



Transpalatal arch

- ◆ Rarely recommended for bilateral tooth loss in maxilla
- ◆ Can prevent mesio-palatal rotation of palatal root of 1st permanent molar but allows mesial tipping of molars & space loss
- ◆ May have an indication for use when one side of the arch is intact but several primary teeth are missing contralaterally

Nance arch



Nance arch

- ◆ Used commonly in maxilla for bilateral tooth loss
- ◆ Incorporates acrylic button in contact with palate to prevent molars from tipping
- ◆ Can be very unhygienic



Bonded space maintainer

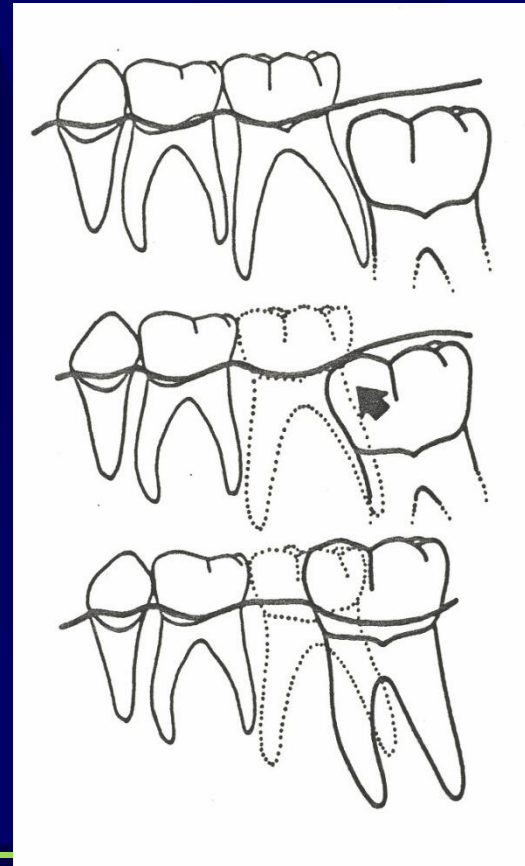
- ◆ Difficult to retain due to shearing forces of occlusion
- ◆ Flexure in function will de-bond
- ◆ Difficult to adjust



INTRA-ALVEOLAR SPACE MAINTENANCE

Indications for intra-alveolar space maintenance

- ◆ Premature loss of the 2nd primary molar **prior** to the eruption of the 1st permanent molar



Distal Shoe

- ◆ Provides a guiding plane for the eruption of the 1st permanent molar

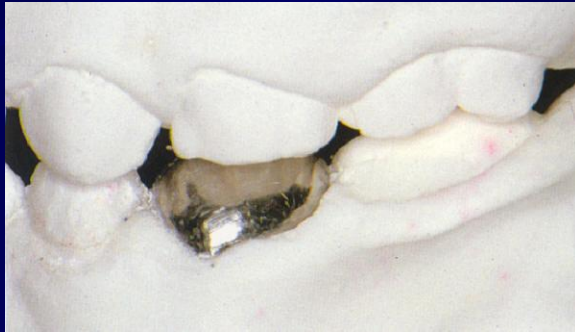


Dentist's responsibility

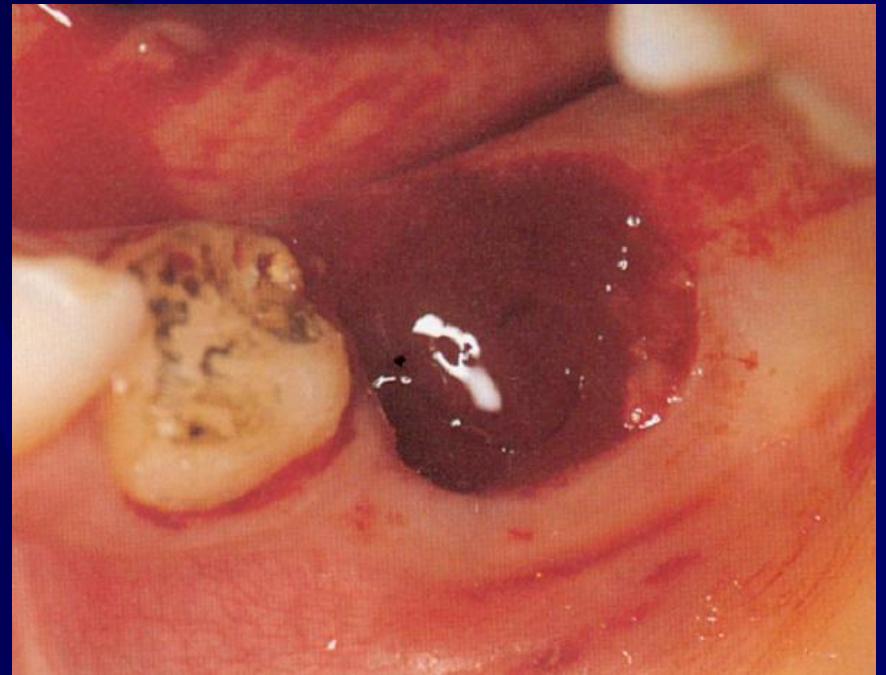
- ◆ Provide measurement from radiograph
- ◆ Mark depth of shoe with cut on model
- ◆ Shoe should be 1 mm below mes marginal ridge of the 1st permanent molar



Crown with distal shoe

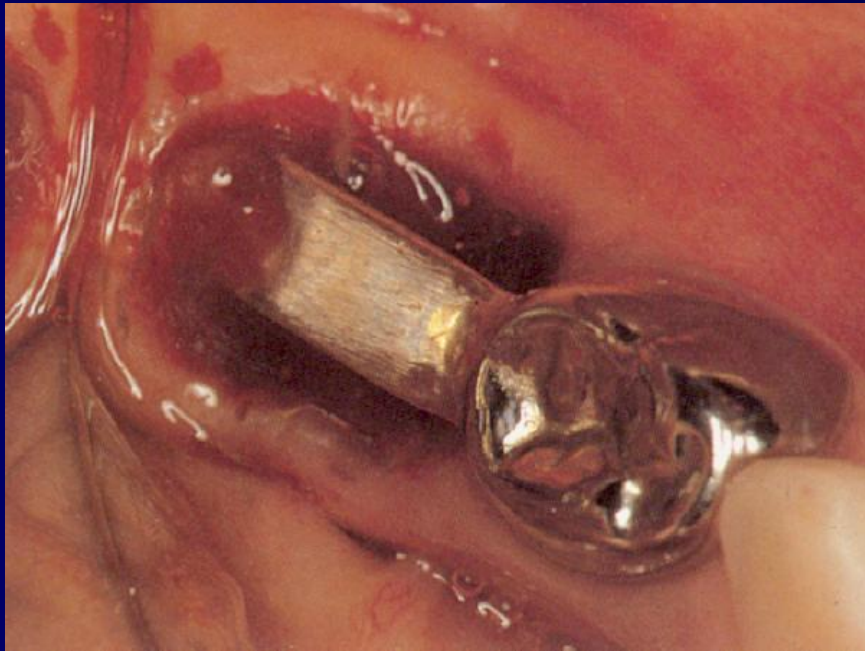


Crown with distal shoe

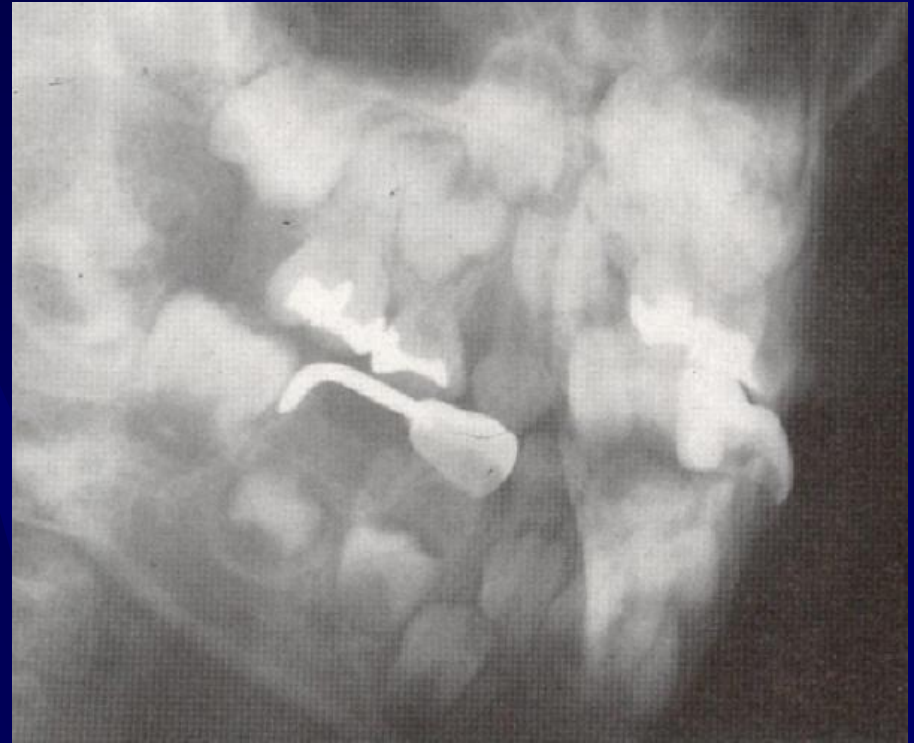


Extraction of the E and preparation for cementation

Crown with distal shoe



Cementation



Confirmation by radiograph

Cemented appliance







Thanks!