



PEDIATRIC DENTISTRY BOHN NODULES, EPSTEIN PEARLS AND DENTAL LAMINA CYST

Lec. 3

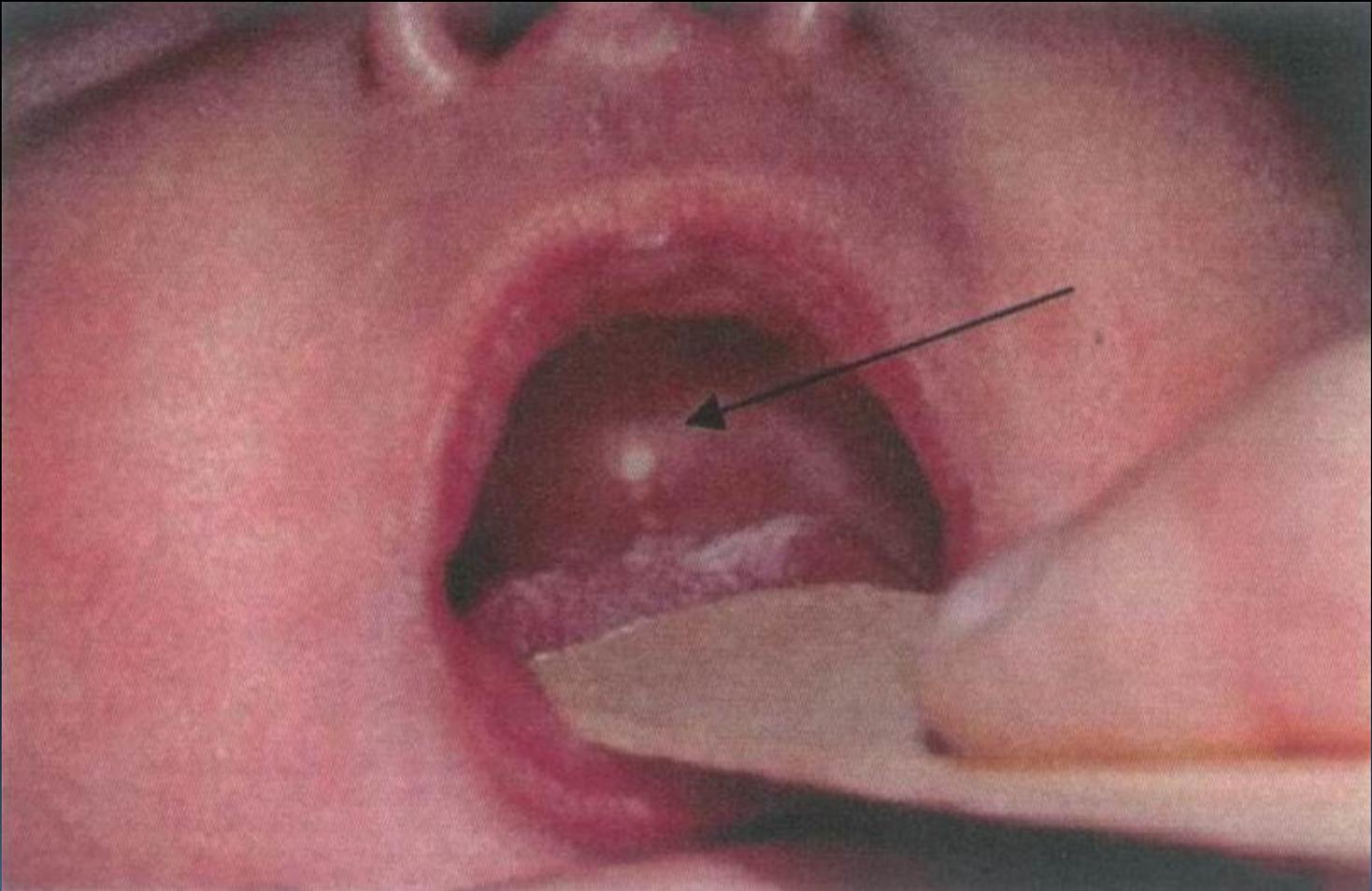
Done by
Dr. mukhaled Louay Al.Falluji
B.D.S. M.Sc.

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- These lesions are small, white or grayish white lesions on the alveolar mucosa of the newborn may on rare occasions be incorrectly diagnosed as natal teeth. The lesions are usually multiple but spontaneously shed a few weeks after birth.
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1. Epstein pearls

are formed along the mid palatine raphe. They are considered remnant of epithelial tissue trapped along the raphe as the fetus grew.





2. Bohn nodules

Are formed along the buccal and lingual aspects of the dental ridges and on the palate away from the raphe. The nodules are considered remnants of the mucous gland tissue and are histologically different from Epstein pearls



3. Dental lamina cysts.

Are formed on the crest of the maxillary and mandibular dental ridges. The cysts apparently originated from remnants of the dental lamina.



Shedding of deciduous teeth

- The human dentitions consist of two generation. The necessity of two dentition exist because infant jaws are small and the size and number of teeth they can support is limited.
- Since teeth once formed cannot increase in size, a second dentition consisting of larger and more teeth is required for the larger jaw of the adult.
- Shedding or exfoliation of teeth means physiologic process resulting in the elimination of the deciduous teeth.

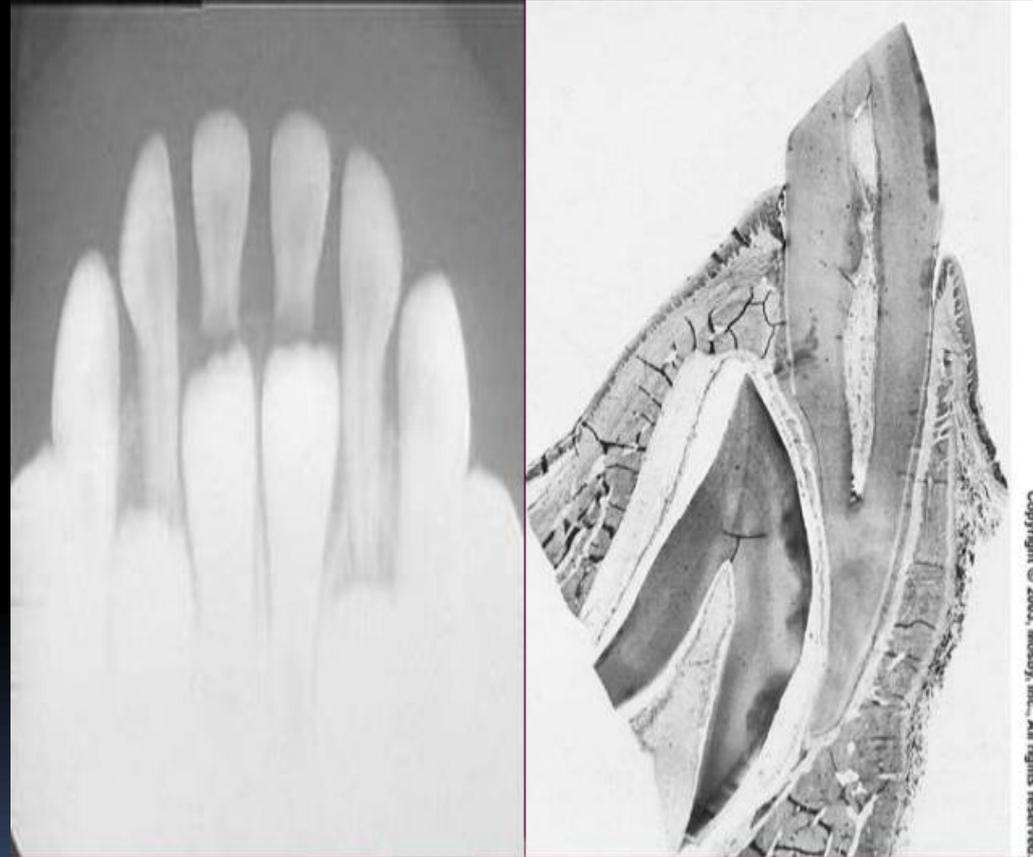


Pattern of shedding

- The shedding of the deciduous teeth is the result of progressive resorption of the roots of teeth and their supporting tissues.
 - In general the pressure generated by the growing and erupting permanent teeth dictates the pattern of deciduous teeth resorption.
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The position of permanent tooth germ is lingual to the apical third of the root of the primary tooth hence the resorption is in the **inciso-labial** direction, which corresponds to the movement of the permanent tooth germ later the crown of permanent tooth lies directly apical to the root of primary tooth which causes resorption to proceed horizontally. This horizontal resorption allow the permanent tooth to erupt into the position of the primary tooth.

Resorption of anterior teeth



Resorption of posterior teeth

- The growing crowns of the premolar initially are situated between the roots of the primary molars. The initiation is by the resorption of the inter radicular bone followed by resorption of the adjacent surfaces of the root of the primary tooth.
- The alveolar process is growing to compensate for lengthening roots of the permanent tooth. As this occurs, the primary molar move occlusally, which allow the premolar crowns to be more apical. The premolar continue to erupt until the primary molar roots are entirely resorped and the tooth exfoliate. The premolars then appears in place of the primary molar.



Mechanism of the resorption and shedding

- The mechanism involved in tooth resorption and exfoliation is not fully understood.
- The pressure from the erupting successional tooth plays a key role
- The most likely sequence of events in resorption of dental hard tissue by **odontoclast** is an initial removal of the mineral followed by extracellular dissolution of the organic matrix (mainly collagen).

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- Force of mastication are also synergistically involved in the mechanism of shedding. Due to growth and increasing loading of jaws these forces far exceed the limit that the deciduous tooth periodontal ligament can withstand thereby causing trauma to the ligament and the initiation of resorption.
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Local and systemic influence eruption



Ankylosed teeth

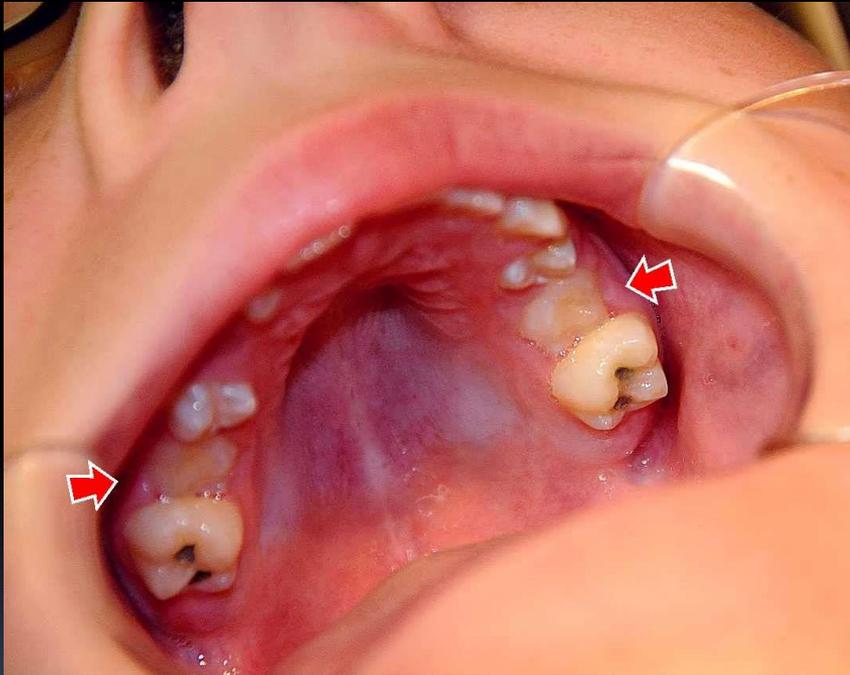


FIGURE 1 - Tooth crown of tooth 11 elongated with composite resin, due to ankylosis. Note height difference between teeth 11 and 21, cervically.

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- The ankylosed tooth is in a static retention, whereas in the adjacent area eruption and alveolar growth continue. The mandibular primary molars are the teeth mostly observed to be ankylosed.
 - Unknown.
 - A higher prevalence of developmentally absent premolar teeth in patient with primary molar ankylosis. It is often suggested that there is a relationship between congenital absence of permanent teeth and ankylosed primary teeth.

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- Ankylosis of the anterior primary teeth does not occur unless there has been a trauma.
 - Normal resorption of the primary molar begins on the inner surface or the lingual surface of the roots. The resorption process is not continuous but is interrupted by periods of inactivity or rest. A reparative process follows period of resorption. During this reparative phase a solid union often develops between the bone and the primary tooth.

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- This intermittent resorption and repair may explain the varying degree of firmness of the primary teeth before their exfoliation.
 - Extensive bony ankylosis of the primary tooth may prevent normal exfoliation, as well as the eruption of the permanent successor.
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The diagnosis of an ankylosis tooth is depending on:

1. The tooth appears submerged and does not occlude with the opposing tooth.
2. The ankylosed tooth is not mobile.
3. Ankylosis can be partially confirmed by tapping the suspected tooth and an adjacent normal tooth with blunt instrument and comparing the sound.
4. The radiograph is often valuable aid in making diagnosis.

The management of an ankylosed tooth

1. Early recognition and diagnosis are extremely important.
2. Treatment may involve surgical removal, if caries problem is unusual or loss of arch length is evident.
3. Keep the tooth under observation. Because may at future time undergo root resorption and will normally exfoliated.
4. When patient cooperation is good and recall period are regular, a watchful waiting approach is best.
5. if permanent successors of ankylosed primary molars are missing; functional occlusion should established using stainless steel crowns, overlays, or bonded composite resins on the affected primary molars.

Ankylosed permanent teeth

- May be related to a small area of root ankylosis. The removal of soft tissue and bone covering the occlusal aspect of the crown should be attempted first, the area should be packed with surgical cement to provide pathway ...
- Unerupted permanent teeth may become ankylosed by inostosis of enamel....

Other causes of delayed teeth eruption

1. Trisomy 21 syndrome (down syndrome):
Is one of the congenital anomalies in which delayed eruption of teeth frequently occurs.
 - The first primary teeth may not appear until 2 years of age, and the dentition may not be complete until 5 years of age
 - Abnormal sequence of eruption.
 - Some of primary teeth may be retain until 15 years of age.



2. Cleidocranial dysplasia

- Rare congenital syndrome that has dental significance.
- The development of dentition is delayed.
- **Complete primary dentition at 15 years of age.**
- Resulting from delayed resorption of the deciduous teeth and delayed eruption of the permanent teeth is not uncommon.
- Also associated with the presence of **supernumerary teeth.**



Fig. 2. Anterior view of the patient with cleidocranial dysplasia. Observe the prominence of the frontal and parietal bones, determining the increase of the cranial perimeter.



3. hypothyroidism

- Is another possible causes of delayed eruption. Patients in whom the function of the thyroid gland is extremely deficient have characteristic dental findings as the following:
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A. Congenital hypothyroidism (cretinism):

- Hypothyroidism occurring at **birth** and during **period of most rapid growth**. If undetected and untreated, causes mental deficiency and dwarfism.
- Small and disproportionately person, with abnormally arms and legs. The head is disproportionately large, the trunk shows less deviation from normal. Obesity is common
- Without adequate hormonal therapy the dentition of the child is **delayed** in **all stages**.
- The teeth are normal in size but are crowded in **jaws** that are **smaller** than **normal**



B. Juvenile hypothyroidism (acquired hypothyroidism)

- Result from a malfunction of the thyroid gland, usually **between 6 and 12 years of age**.
- Because the deficiency occurs **after** the period of rapid growth, the **unusual** facial and body pattern characteristic of a person with congenital hypothyroidism is **not** present.
- However **obesity** is evident to a lesser degree.
- In untreated case : **delayed** exfoliation of the primary teeth and **delayed** the eruption of the permanent teeth are characteristic.

4. hypopituitarism

- Is the result of an early hypofunction of the pituitary gland, early diagnosis is very important.
- Well proportionate but resembles a child of considerably **younger chronologic** age. The dentition **normal** in **size**.
- **Delayed eruption.**
- In sever cases the primary teeth do **not undergo resorption** but instead may be **retained** throughout the life of the person. The underling permanent teeth continue to develop but do not erupt.
- Extraction of primary teeth is not indicated, since the eruption of the permanent teeth can not be assured

5. Achondroplastic dwarfism

- Diagnosed at birth.
- The etiology of achondroplastic dwarfism is **unknown**, there is some evidence that the condition is more likely to occur when the ages of the parents differ significantly.
- The **maxilla** may be **small**, with resultant **crowding** of the teeth and a tendency for **open bite**. A **chronic gingivitis** is usually present, this condition may be **related** to the **malocclusion** and **crowding** of the teeth.



Thank you