ORTHODONTICS

Etiology of orthodontic anomalies

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ORTHODONTICS

Stomatological specialisation dealing with prevention, diagnostics and therapy of irregular tooth position, relationship of tooth arches and jawbones

Etiology of orthodontic anomalies

- Ideal set of teeth can be seen in aprox. 25% of population
- 40% need treatment

Etiology of orthodontic anomalies

- Ideal occlusion

Etiology of orthodontic anomalies

- Malocclusion is a manifestation of genetic and environmental interaction on the development of orofacial region

Etiology of orthodontic anomalies

- The etiological factors:

1. genetic influences
2. prenatal factors
3. postnatal, environmental influences

Etiology of orthodontic anomalies

- 1. genetic influences:

  Heredity is supposed to be of the polygenic type. A feature is determined by a certain number of minor genes. The influence of the parents genes may be combined. If the same or a similar feature is found in the parents, disposition to heredity is assumed.

Etiology of orthodontic anomalies

- Hereditary are mainly:

- Shape and size of tooth
- Teeth number
- Shape and size of jawbones
- Time of teeth eruption
- Time and type growing jawbones

Etiology of orthodontic anomalies

- **Mainly hereditary anomalies**:

- True mandibular progenia
- Skeletal open bite
- Skeletal deep bite
- Primary crowding
- Skeletal class II and III
- Hypodontia, hyperodontia
- Deep bite with retrusion of incisors
- Retention or impaction of teeth
- clefts

Etiology of orthodontic anomalies

Mainly hereditary anomalies- mandibular prognatism in the Hapsburg family

Etiology of orthodontic anomalies

Mainly hereditary anomalies – skeletal class III

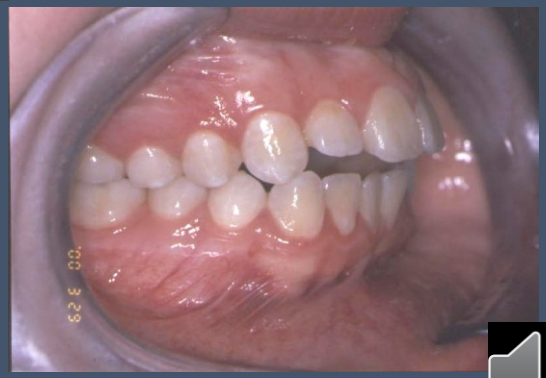
Etiology of orthodontic anomalies

Etiology of orthodontic anomalies

Mainly hereditary anomalies – skeletal deep bite

Etiology of orthodontic anomalies

- Mainly hereditary anomalies- skeletal open bite



Etiology of orthodontic anomalies

Mainly hereditary anomalies – primary crowding

Etiology of orthodontic anomalies

- Mainly hereditary anomalies- hypodontia

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Mainly hereditary anomalies- hyperodontia

Etiology of orthodontic anomalies

hyperodontia

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ektopic canine

Etiology of orthodontic anomalies

- 2. Prenatal factors

A.- teratogens

influence of physical, chemical and infectionals effects during gravidity- if acting in critical time

Etiology of orthodontic anomalies

- A.- teratogens affecting dentofacial development

Teratogens	Effect
Aspirin, Valium	cleft lip and palate
Cigarette smoke[hypoxia]	cleft lip and palate
Cytomegalovirus	microcephaly, hydrocephaly
Ethyl alcohol	central mid-face deficiency
6-Mercaptopurin	cleft palate
Rubella virus	microftalmia, cataracts
Thalidomide	hemifacial microsomia
Toxoplasma	microcephaly, Hydrocephaly
X-radiation	microcephaly
Vitamin D excess	premature suture closure

Etiology of orthodontic anomalies

- Anomalie -Developmental defects - amelogenesis

Etiology of orthodontic anomalies

- 2. Prenatal factors

-B - Syndromes of the first and second branchial arches include symetric and asymetric congenital malformations of the eyes, ears,mid-face region, jaws and teeth combined with extreme defects on the soft tissue,mastication muscles-mandibular dysostosis,hemifacial microsomia, clefts

- Synostosis syndromes – result from premature closure of the sutures between the cranial and facial bones in the later foetal developmental period

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- Clefts lip and palt

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Syndromes – Pierre Robin syndrome

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- 3. Postnatal influences

- Type of initial nourishment – brest-feeding[suckling] or bottle-feeding
- Bad habits – sucking of finger, thumb,, biting of lips, cheeks. They may unfavourably influence position of teeth and the shape of alveolar ridges.
- Breathing through the mouth cause by chronic inflamation of the nasal mucosa associated with allergies or chronic infection tonsils and adenoids

Etiology of orthodontic anomalies

- 3. Postnatal influences

- masticatory function – anthropological studies indicate that changes in dental occlusion and an increase in malocclusion occur along with transition from a primitiv to a modern diet and lifestyle. Malooclusion can be labelled as a „disease of civilisation“

- Premature loss of deciduous teeth as same as permanent teeth, due to dental caries, injury, or their agenesis may lead to formation of anomalous shifts and inclinations of the other teeth, lack of place for the teeth and the crowding in the dentition

Etiology of orthodontic anomalies

- 3. Postnatal influences

- Trauma – undiagnosed fractures of the mandibular condyles can cause disorders of the growth of the mandibular ramus =asymmetry
- Hormonal disorders – growth hormone deficiency, thyroid hormone deficiency – can contribute to the origin of acquired anomalies

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Postnatal influences – bad habits-sucking of finfers

Etiology of orthodontic anomalies

- Postnatal influences – trauma – fracture of the mandibular condyle

Thank You four Your attention

Questions – email – alena.brysova@fnusa.cz

Consultation – Orthodontic department - St. Anne's Hospital, building D2b – Thursday 1-2 p.m.