

Etiology of Malocclusion

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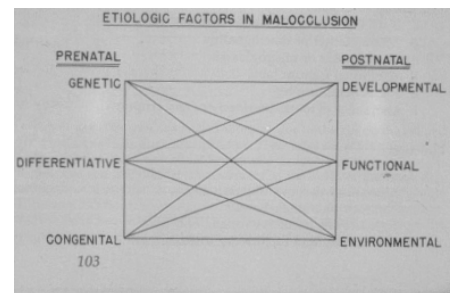
Classification

- 3. Salzman
 - a) Prenatal
 - b) Postnatal.
- 4. Graber
 - a) General (extrinsic) factors
 - b) Local (intrinsic) factors

Systems of Classification

- Inherited (predetermined) (genetic)
- Acquired (environmental)

Salzman's Classification



Systems of Classification

- 1) McCoy and Shepard (1956)
 - a) Direct (determining)
 - b) Indirect (predisposing)
- 2) Moyers (1972)
 - a) Heredity
 - b) Developmental Defects
 - c) Trauma
 - d) Physical agents
 - e) Habits
 - f) Diseases
 - g) Malnutrition

Graber General Factors

- Heredity
- Congenital defects
- Environment
- Predisposing metabolic climate & disease
- Diet
- Abnormal pressure habits
- Posture
- Trauma

Heredity

- Two Facts
- 1. For each individual there is a basic pattern or blueprint for dentofacial development which may be masked but not really changed. (unless by surgery).
- 2. Racial and familial characteristics repeat

Affected by Heredity

- Tooth size
- Arch length and width
- Height of the palatal vault
- Crowding or spacing
- Overbite and overjet
- Position and configuration of muscles
- Tongue size and shape
- Character of the oral mucosa

Facial Typing

- Brachycephalic – short, broad
- Dolicocephalic – narrow, tapering, long
- Mesocephalic – round, oval

Heredity also plays a role in:

- Congenital deformities
- Facial asymmetry
- Size and position of the jaws
- Oligodontia and anodontia
- Supernumerary teeth
- Variations in tooth shape

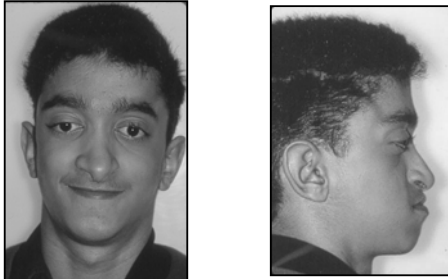
Facial Typing-Profile

- Convex – Class Two (protrusive maxilla or retrusive mandible) or Class 1 bimaxillary
- Concave – Class Three (protrusive mandible or retrusive maxilla)
- Flat – Class One (denture bases in harmony)

Examples of Congenital Defects

- Clefts of the lip and palate
- Cerebral Palsy
- Crouzon's syndrome
- Cleido-Cranial Dysostosis
- Cranial Synostosis

Crouzon's Syndrome



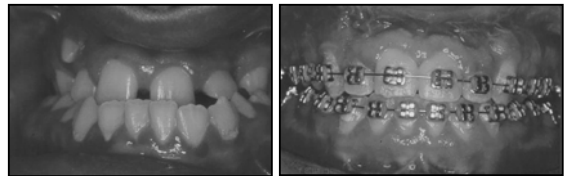
Results of Surgery & Orthodontics



Surgery to reopen cranial sutures



Results of Surgery & Orthodontics



Results of Surgery & orthodontics



Environmental Factors

- Prenatal
 - trauma
 - maternal diet
 - maternal metabolism & diseases
 - fetal posture
 - maternal consumption of alcohol & drugs

Environmental Factors

- Postnatal
 - Birth injuries
 - TMJ injuries
 - Accidents, fractures
 - Avulsion or displacement of teeth

Posture

- Not an important factor
- May be a contributing factor
- Seldom considered a primary cause

Metabolic Factors & Diseases

- Acute febrile disease – e.g. measles, mumps, chicken pox, etc.
- Diseases of muscle dysfunction – e.g. muscular dystrophy, cerebral palsy, polio.
- Endocrine disorders – e.g. pituitary, thyroid, parathyroid.

Habits

- Thumb or finger sucking
- Foreign objects
- Tongue thrusting
- Lip or cheek biting
- Mentalis muscle strain

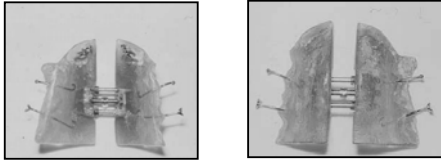
Diet

- Poor diet may cause deficiency diseases such as rickets, beri beri scurvy etc.
- These may cause severe malocclusion due to interference with craniofacial growth and development in addition to Periodontal problems associated with significant bone loss

Thumb Sucking



Treatment Phase 1



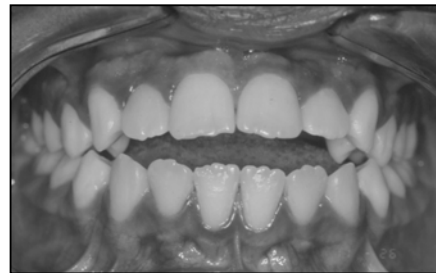
Post Treatment



Progress



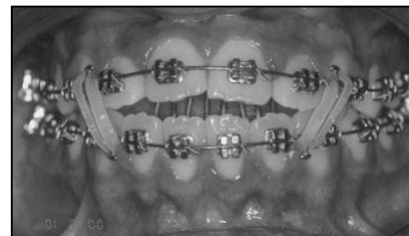
Tongue Thrusting



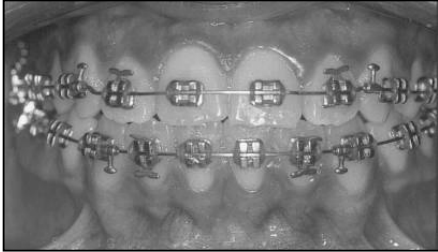
Treatment Phase 2



Treatment



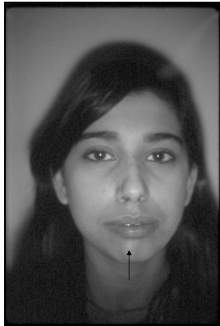
Progress



Local Factors

- Abnormal resorption of deciduous teeth
- Delayed eruption of permanent teeth
- Abnormal eruptive path
- Ankylosis of deciduous teeth
- Proximal caries
- Improperly contoured restorations

Hyperactive mentalis muscle



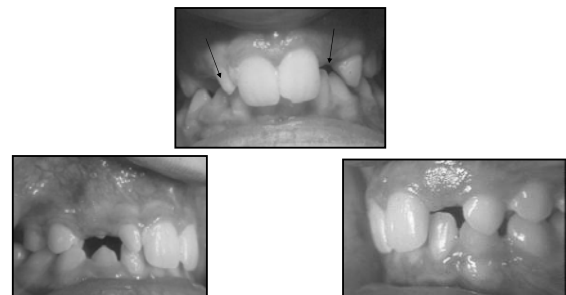
Congenital absense of teeth



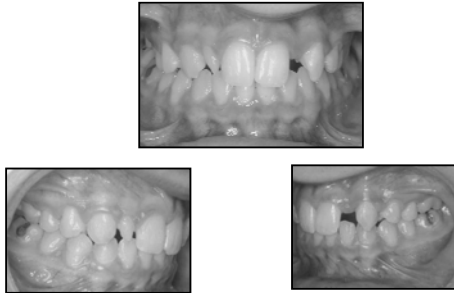
Local Factors

- Congenital absence of teeth
- Anomalies of tooth size
- Anomalies of tooth shape
- Abnormal labial frenum
- Premature loss of deciduous teeth
- Supernumerary teeth

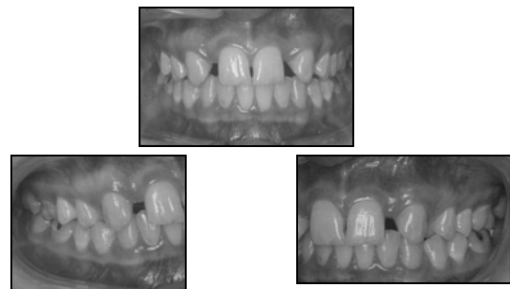
Missing and peg-shaped lateral



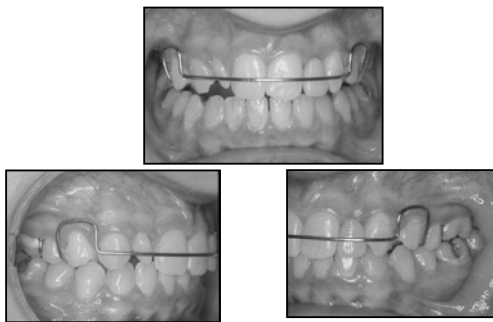
Space adjusted



Congenitally Missing Laterals



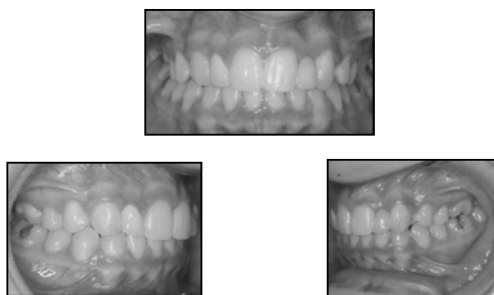
Retention



Spaces Opened



Temporary Restorations



Temporary Restorations



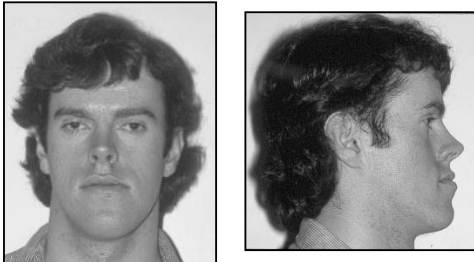
Mandibular Retrusion



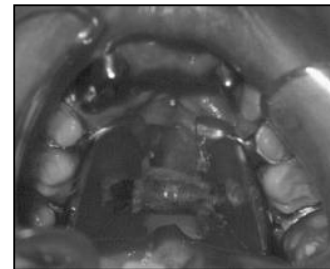
Bilateral Clefts



Mandibular Prognathism and facial asymmetry



Expansion



Mandibular Prognathism & facial asymmetry



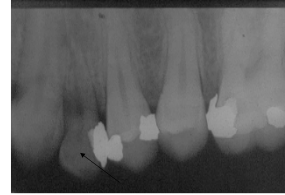
Pre-grafting



Ideopathic Root Resorption



Over Retained Primary Canine



Dilantin Hyperplasia



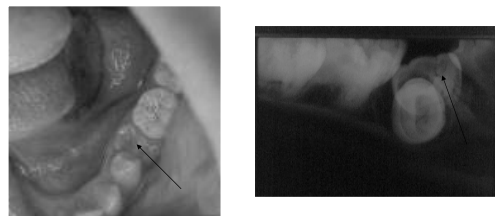
Ectopic Eruption



Tooth Size



Ankylosed Primary Molar



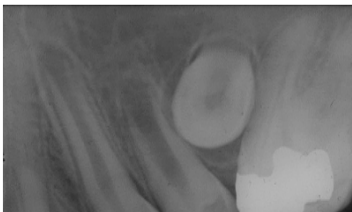
Ectopic Eruption



Congenital Absence of Lateral Incisors



Premature loss of Primary Molar and impacted premolar



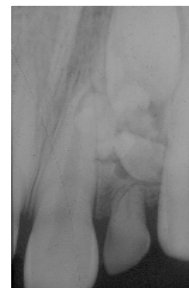
Congenital Absence of Lateral Incisors



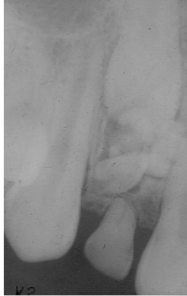
Congenital Absence of Maxillary Premolars



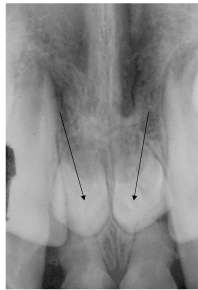
Composite Odontoma causing Impaction of Central Incisor



Composite Odontoma



Supernumerary Teeth



Supernumerary Tooth

