CASE HISTORY
• PERSONAL DETAILS
• CHIEF COMPLAINT
• HISTORY
  – MEDICAL AND DENTAL HISTORY
  – FAMILY HISTORY
  – PRE AND POST NATAL HISTORY
• CLINICAL EXAMINATION
  – GENERAL EXAMINATION
  – LOCAL EXAMINATION
    • EXTRA ORAL
    • INTRAORAL
  – FUNCTIONAL EXAMINATION
• DIAGNOSIS
• PROBLEM LIST
• TREATMENT OBJECTIVE
• TREATMENT PLAN
PERSONAL DETAILS

- NAME
- AGE/SEX
- ADDRESS
- OCCUPATION
- ETHNIC ORIGIN
- DIET
- RELIGION
• CHIEF COMPLAINT

• PAST MEDICAL HISTORY
  – Rheumatic fever/cardiac anomalies/diabetes mellitus/epilepsy/recurrent apthous ulceration/arthritis/osteoporosis

• PAST DENTAL HISTORY
  – Eruption/exfoliation of teeth.
  – Oral hygiene status
  – Attitude towards dental health
PAST MEDICAL HISTORY

• It is difficult to get proper medical history.
• Syndromes related to occlusal irregularities are
  – Crouzons syndrome
  – Fetal alcohol syndrome
  – Pierre robin syndrome
  – Stickler syndrome
  – Treacher Collins syndrome
  – Synostosis syndrome
CROUZONS SYNDROME

• Crouzons syndrome is an uncommon, autosomal dominant craniofacial disorder characterized by the premature closure of cranial bone sutures. This syndrome is due to mutation in the fibroblast growth factor 2 (fgf2).

• Clinical features include
  • Maxillary hypoplasia
  • Short upper lip
  • Widely spaced eyes
  • Shallow orbits
  • Protruding eyeballs
  • Short head
  • Calcified styloid ligaments
  • Because of maxillary hypoplasia, the dental arch width is reduced
  • Crowding of maxillary teeth is common.
  • Two-thirds of crouzon patients exhibit a unilateral or bilateral Cross bite.
CROUZONS SYNDROME
FETAL ALCOHOL SYNDROME

• Prenatal exposure to alcohol can cause a spectrum of disorders. One of the most severe effects of drinking during pregnancy is fetal alcohol syndrome.
• Clinical features include
  – Small for gestational age or small in stature in relation to peers.
  – Facial abnormalities such as small eye openings
  – Poor coordination
  – Hyperactive behavior
  – Learning disabilities
  – Mental retardation or low IQ
  – Problems with daily living
  – Poor reasoning and judgment skills
  – Sleep and sucking disturbances in infancy
FETAL ALCOHOL SYNDROME
PIERRE ROBIN SYNDROME

• Pierre robin syndrome is a condition present at birth that is characterized by a very small lower jaw. The tongue tends to fall back and downward and there is cleft soft plate.

• Clinical features include
  – Characterized by retrognathia or micrognathia, glossoptosis and airway obstruction.
  – An incomplete cleft of the palate is associated with the syndrome in approximately 50% of these patients.
  – In patients with micrognathia or retrognathia the chin is posteriorly displaced causing the tongue to fall backward toward the posterior pharyngeal wall. This results in the obstruction of the airway on inspiration.
Pierre Robin:
Two year old with Pierre Robin and severe airway obstruction requiring tracheostomy.

Bilateral mandibular lengthening devices surgically placed with lengthening in progress.

Results after removal of lengthening devices. Patient now ready for removal/closure of tracheostomy.
STICKLER SYNDROME

- Several genes which control and direct collagen synthesis (the building up of complex substances by the joining and interaction of simpler material) may cause stickler syndrome.
- Clinical features include
  - EYES-short sight, high risk of retinal detachments which may affect both eyes, cataracts, glaucoma.
  - BONES AND JOINTS-stiff joints and over flexible joints. Early joint disease leading to osteoarthritis in later life.
  - MOUTH—cleft palate, submous or high arched palate and or bifid uvula, micrognathia—where the lower jaw is shorter than the other resulting in poor contact between the chewing surfaces of the upper and lower teeth. These symptoms are similar to those found in Pierre robin syndrome.
  - FACIAL CHARACTERISTICS—a flat face with a small nose and little or no nasal bridge. Appearance tends to improve with age.
  - EARS—possible hearing loss, glue ear in childhood caused by cleft palate
• In his congenital syndrome both the maxilla and mandible are underdeveloped it is due to as a result of a generalized lack of mesenchymal tissue.
• Clinical features include
  – Underdevelopment of bones and face.
  – JAW—often underdeveloped and or misaligned. Chin may also be underdeveloped. The jaw is generally short and slopes at an angle rather than being horizontally aligned with skull.
  – CHEEK (MALAR)BONES—can be absent, underdeveloped or malformed.
  – DOWNWARD SLANTING OF EYELIDS—this is mainly due to lack of support from underdeveloped bones and the muscles joining to the lower jaw muscles, absent eyelashes in lower inner one third of eyelid.
  – EARS—can be absent, underdeveloped or malformed (microtia)
  – UNUSUAL HAIRLINES
  – HEARING LOSS.
  – CLEFT LIP CLEFT PALATE AND HEART DEFECTS.
• Other possible causes of malocclusion are maternal diet and metabolism, drug induced deformities as with thalidomide possible injury or trauma and german measles. Maternal nutritional and metabolic disturbances appear to be unlikely causes of developmental deformity. Since foetus is well cushioned by the amniotic fluid. Minor injury to the mother is unlikely to affect the child.
EFFECTS OF SMOKING

• It is known now that cigarette smoking by the mother is an etiologic factor in the development of cleft tip and palate
Figure 6-11  Complete unilateral cleft of the lip and palate, repaired by the Skoog technique at 3 months. (Top) Before operation, (bottom) one year after surgery. (From Skoog, Tord, in Grabb, W. C., et al. (eds.): Cleft Lip and Palate. Little, Brown, 1971.)
Figure 6–2  One child in every 700 has a cleft lip and/or palate. The entire premaxillary segment is fused to the nasal septum at the columella in the bilateral lip-jaw-palate cleft.
Figure 6-4  Right unilateral lip-jaw-palate cleft, complete; before and after lip surgery.
INFANT POSTURE

- From time to time, investigator purport to show that poor postural conditions can cause malocclusions
Figure 6-28  Intrauterine molding, showing probable intrauterine posture (left) and distortion and asymmetry in view on right. (By courtesy of Dr. Dermod MacCarthy. Walker, D. G.: Malformations of the Face. E. & S. Livingstone, 1961.)
ACCIDENTS OR TRAUMA

- It is probable that accidents are more significant factor in malocclusion than is frequently recognized.
Syndromes which cause retardation of growth

- Pierre robin syndrome
- Cleido cranial dysplasia
- Craniofacial dystosis
- Mandibular dystosis
- Marfan syndrome
- Down syndrome
Syndromes which increase in growth

- Gigantism
- Acromegaly
- Caffey's disease
- Craniofacial dystoses
- Osteitis deformans
- Paget's disease
Syndromes which causes super numerary tooth

• Cleidocranial dysplasia
• Gardners syndrome
Syndromes which causes facial asymmetry

- Hemifacial microsomia
- Hemifacial hypertrophy
- Juvenile rheumatoid arthritis
- Pierre robin syndrome
- Vander woude`s syndrome
- Aschers syndrome
- Median cleft face syndrome
- Miescher`s syndrome.
Syndromes which causes missing teeth

- Hereditary ectodermal dysplasia
- Cleido cranial dysplasia
Cleidocranial dysostosis

Figure 6-25  Cleidocranial dysostosis in a 12½ year old girl. (Courtesy J. Jensen.)
Congenital syphilis

• mulberry molars and screw driver shaped incisors
• rhagades (fissuring and scarring of the corner of the mouth)
• frontal bossae and saddle nose.
• short maxilla and high palatal arch.
Congenital syphilis
• FAMILY HISTORY
  – FAMILIAL DISEASES
  – TYPE OF MARRIAGE
  – SIBILING
  – MALOCCLUSION

• ATTITUDE OF THE PATIENT
PRE NATAL HISTORY

• CONDITION OF MOTHER DURING PREGNANCY
  – NORMAL
  – h/o of any drug
  – h/o of trauma
  – Infectious disease
  – Other

• Condition of mother during delivery
  – Full term/ premature
  – Normal/ c- section/ forceps
<table>
<thead>
<tr>
<th>Teratogens</th>
<th>Effect</th>
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<tbody>
<tr>
<td>Aspirin</td>
<td>Cleft lip and palate</td>
</tr>
<tr>
<td>Nicotine</td>
<td>Cleft lip and palate</td>
</tr>
<tr>
<td>Dilatin</td>
<td>Cleft lip and palate</td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>Central mid face deficiency</td>
</tr>
<tr>
<td>6-Mercaptopurine</td>
<td>Cleft palate</td>
</tr>
<tr>
<td>13 cis – retinoic acid</td>
<td>Hemifacial microsomnia, treaher collin syndrome</td>
</tr>
<tr>
<td>Thalidomide</td>
<td>Treacher collin’s syndrome</td>
</tr>
<tr>
<td>Valium</td>
<td>Cleft lip and palate</td>
</tr>
<tr>
<td>Vit D excess</td>
<td>Premature suture closure</td>
</tr>
</tbody>
</table>
POST NATAL HISTORY

• FEEDING HABITS
• DURATION
• TYPE OF NIPPLE
  – Physiologic nipple
  – Conventional / Non- Physiologic nipple.

MILESTONES OF DEVELOPMENT

• Crawling/ Standing/ Walking / Teething/ Speaking
• Childhood diseases
HABITS

• THUMB/ FINGER SUCKING
• LIP / NAIL BITING
• TONGUE THRUSTING
• BRUXISM
• BREATHING HABITS
  – ORAL
  – NASAL
  – ORONASAL

• SWALLOW
  – NORMAL
  – INFANTILE

• H/O Tonsillectomy/adenoidectomy
### PUBERTY:

### SPEECH:

<table>
<thead>
<tr>
<th>SPEECH SOUND</th>
<th>PROBLEM</th>
<th>MALOCCLUSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S, Z - sibilants</td>
<td>LISP</td>
<td>Ant. Open bite, large gap btwn incisors</td>
</tr>
<tr>
<td>T, d – linguoalveolar stops</td>
<td>Difficulty in prodn</td>
<td>Irregular incisors, lingually placed incisors</td>
</tr>
<tr>
<td>F, v – labiodental fricatives</td>
<td>Distortion</td>
<td>Skeletal class III</td>
</tr>
<tr>
<td>th, sh, ch – linguodental fricatives</td>
<td>Distortion</td>
<td>Ant. open bite</td>
</tr>
</tbody>
</table>
GENERAL EXAMINATION

• BODY TYPE
  – SHELDON’S CLASSIFICATION
    • ECTOMORPHIC
    • MESOMORPHIC
    • ENDOMORPHIC

• POSTURE

• HT/WT
TEMPEROMANDIBULAR JOINT

- PAIN
- SOUND
- DISLOCATION
- DIFFICULTY IN OPENING THE MOUTH
FRONTAL AT REST

• SHAPE OF HEAD
  – MARTIN AND SALLER
  – MAXIMUM SKULL WIDTH/MAXIMUM SKULL LENGTH
  – MESOCEPHALIC (76 – 80.9)
  – BRACHYCEPHALIC (81 – 85.4)
  – DOLICOCEPHALIC (< 75.9)
• FACE FORM
  — MARTIN AND SALLER
  — FACIAL HT/BIZYGOMATN WIDTH
  — EURYPROSOPIC (79-83)
  — MESOPROSOPOIC (84 – 87)
  — LEPTOPROSOPIC ( 88 n above)

• ASYMMETRY
ASYMMETRY
LIPS

- POSTURE / TONICITY
- COMPETENT/INCOMPETENT
- LIP TRAP
- INTERLABIAL DISTANCE
- INCISAL SHOW
  - AT SMILE
  - AT REST
NOSE

- LENGTH
- WIDTH
• PROFILE
  – STRAIGHT/CONCAVE/CONVEX
• FACIAL DIVERGENCE
  – ANTERIOR/STRAIGHT/POSTERIOR
• MENTOLABIAL SULCUS
  – DEEP/SHALLOW/NORMAL
• CHIN
  – NORMAL/PROMINENT/RECESSIVE
• CLINICAL FMA ANGLE:
  — AVERAGE/HIGH/LOW
• MANDIBULAR PLANE ANGLE
  — FLAT/NORMAL/STEEP
• NASOLABIAL FOLD
  — NORMAL/OBLITERATED/FLAT
• NASOLABIAL ANGLE
  — ACUTE/OBTUSE/NORMAL
INTRAORAL EXAMINATION

• SOFT TISSUE
  – OH STATUS
    • GOOD/SATISFACTORY/POOR
  – BRUSHING HABITS
    • FINGER/BRUSH/OTHER AIDS
  – GINGIVA
    • COLOR, TEXTURE
    • Aggressive juvenile periodontitis
    • Inadequate attached gingiva – dehiscence on alignment of crowded teeth
• TONGUE
  – SIZE, POSITION

• PALATE
  – NORMAL/DEEP/SHALLOW

• ORAL MUCOSA
  – NORMAL/ABNORMAL

• DEPTH OF MUCOGINGIVAL SULCUS
  – NORMAL/DEEP/SHALLOW
• FRENAL ATTACHMENT
  – HIGH/LOW/NORMAL
• TONSILS
  – NORMAL/ENLARGED
• HARD TISSUE
  – No. of teeth present:
    – Erupted:
    – Impacted:
• Developmental status of occlusion:
  – Mixed/permanent/primary
• DMF STATUS
• OCCLUSAL WEAR FACETS:
  – ATTRITION/ABRASION
• HYPOPLASIA
  – NIL/GENERALISED/LOCALISED
• DISCOLORATION
• RCT
• SIZE AND SHAPE OF TEETH
  – NORMAL/MICRODONTIA/MACRODONTIA/ PEG SHAPED/ FUSION...
• VARIATION IN No. OF TEETH
  – SUPERNUMERY/MISSING
• VARIATION IN ERUPTION AND SHEDDING SEQUENCE
• EXAMINATION OF OCCLUSION
• ARCH
• MAXILLARY ARCH/MANDIBULAR ARCH
  – SIZE
  – SHAPE
  – ALIGNMENT
  – ARC SYMMETRY
• MOLAR RELATION
• CANINE RELATION
• OVERJET
• OVERBITE
• DEEP BITE/OPEN BITE
• CURVE OF SPEE
• MIDLINE SHIFT
• MAXIMUM MOUTH OPENING
• INTEROCCLUSAL CLEARANCE
• PATH OF CLOSURE
• DEVIATION ON OPENING
• DIAGNOSIS
  – Skeletal diagnosis
  – Angle’s molar relation
  – Anterior malocclusion
  – Etiology
  – Growth pattern.

• TREATMENT OBJECTIVE
  – Skeletal correction
  – Molar relation correction
  – Sagittal correction
  – Vertical correction
  – Transverse correction
TREATMENT PLAN

• FIXED/ FUNCTIONAL/SURGICAL

• FUNCTIONAL
  – PHASE I
    • APPLIANCE – TWIN BLOCK
  – PHASE II
    • FIXED APPLIANCE
• FIXED APPLIANCE
  — EXTRACTION/NON EXTRACTION
  — EXTRACTION PATTERN
  — CLASS I  4  4
          4  4
          4  4
  — CLASS II  4  4
          5  5
          5  5
  — CLASS III  5  5
            4  4
• NON EXTRACTION
  — EXPANSION
  — PROXIMAL STRIPPING
• SPACE CLOSURE
• SURGICAL
  – PHASE I – PRESURGICAL ORTHODONTICS
  – PHASE II
  • SURGERY
  • MAXILLA
    – AMO/LE FORTE I OSTEOTOMY
    – BSSO – ADVANCEMENT/SETBACK
    – GENIOPLASTY – ADVANCEMENT / SETBACK
Le forte’s classification

Le Fort I

Le Fort II

Le Fort III