بسم الله الرحمن الرحيم
EXTERNAL EAR MALFORMATION & RECONSTRUCTION

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Epidemiology

- Occurs 1 in 7,000 to 8,000 infants
- Occurs more often in right ears
- Occurs more often in males
- Higher incidence in Hispanics and Asians than in blacks and whites
- Fewer than 15% with positive family history
- Associated with other congenital malformations
Embryology of Auricle
Accessory auricle
Anatomy of auricle

- From *The Ear comprehensive otology*:
Anatomical Relation
ANOMALIES: HEMANGIOMA
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Classification of Microtia

- Many classification systems
- Grade I, II, III:
  - Grade I: all anatomic subunits present but misshapen
Classification of Microtia

- Grade II: anatomic subunits either deficient or absent
Classification of Microtia

- Grade III: classic “peanut ear” and anotia
TREATMENT

- **UNILATERAL:**
  - Hearing control
  - Auricular Reconstruction should be at preschool

- **BILATERAL:**
  - HA, as early as possible
  - Auricular Reconstruction should be at preschool
History of microtia reconstruction

- Dr. Tanzer 1959: 1st article on auricular reconstruction with autogenous rib cartilage, 6 stages procedure
- Dr. Brent 1974: 4 stages procedure, foremost authority on auricular reconstruction
- Dr. Nagata 1985: 2 stages procedure
Surgical planning

- **Timing:**
  - 47.2% operated at age 6-7, 21.1% operated at age 8-10 per Dr. Brent
  - Nagata operated at age 10 and chest circumference at least 60 cm (confirmed with x-ray)

- Otologic surgery is in general planned after the auricular reconstruction surgery
Brent technique

- **Four stages:**
  - Stage I: fabrication of the auricular framework with contralateral costal cartilage
  - Stage II: lobule transposition
  - Stage III: framework elevation
  - Stage IV: tragus reconstruction
Brent technique
Brent technique: stage I
Stage II
Stage III
Stage IV
Criticism

- Number of stages required
- Lack of definition of the conchal bowl, the intertragic notch, and the contour of the antitragus
- Effacement of the postauricular sulcus due to contraction of the skin grafts
Nagata technique

2 stages:

- Stage I: fabrication of auricular framework from ipsilateral costal cartilage, tragus reconstruction, and lobule transposition
Stage I: implantation and lobule transposition
Stage II: elevation of framework
Criticism

- High rate of flap necrosis (14%)
- Significant anterior chest wall deformity
- Unnaturally thick ear
- High extrusion rate may be due to use of wire sutures (8%)
- Universally used temporoparietal fascia flap
Complications

- Ear reconstruction site:
  - Exposure of the framework
  - Resorption of the framework

- Cartilage donor site:
  - Immediate problem: pneumothorax, atelectasis
  - Delayed problem: anterior chest wall deformity, scarring
WEERDA TECHNIQUE
Middle third defects
Middle third defects
Tissue Expander
Fan flap
Prosthetic reconstruction

- Osseo-integrated anchoring device: approved extraoral use by FDA in 1995

- Indication:
  - Failed autogenous reconstruction
  - Sever soft-tissue/skeletal hypoplasia
  - Low or unfavorable hairline
  - Acquired total or subtotal auricular defect, usually in adults

- Prosthesis changes every 2 to 5 years
- Meticulous hygiene at skin/implant interface
- Preclude future autogenous reconstruction
Alloplastic reconstruction

- **Silicone:**
  - Good initial result
  - Poor long term result secondary to implant exposure
  - Minor trauma can cause implant failure

- **Medpor:**
  - Good short term (2 years) result in combination of temporoparietal fascia flap
Porex steps
Thank you