Polypropylene Mesh for Recurrent Cochlear Implant Extrusion

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PGY-4
September 22, 2013
OBJECTIVES

- Cochlear Implantation
- Cochlear Implant fixation methods
- Case Report
- Discussion
Cochlear Implantation
Cochlear Implant

External - Microphone, Speech Processor, Signal Transmitter

Internal - Receiver/Stimulator, Electrode Array
Pediatric Cochlear Implant

- **Indications:**
  - Severe-Profound HL with no conventional HA benefit
  - Age of eligibility-12 mos
  - 12-23 mos  PTA >90dB AU
  - >24 mos  PTA > 70dB AU
  - HINT testing <60% for older children
  - Some exceptions have been made <12 mos for meningitis patients with labyrinthitis ossificans
Fixation Methods

Periosteal Suture Fixation
Fixation Methods

Prolene mesh with titanium screw fixation
Fixation Methods

Periosteal Pocket Fixation
Other Fixation Methods

- Titanium plates
- GoreTex Sheets
- Resorbable plates
- Nonabsorbable sutures
- Titanium screws
Case Report

- 22 month old female
  - CMV induced AU Profound SNHL
  - Ins approved Left CI
  - Underwent CI AS without incident
  - FIXATION METHOD:
    - Receiver-stimulator secured with KLS Martin Resorb X Template for CI and Sonic Weld Screws
Case Report

- 12 mos postop-
  - Wound dehiscence and extrusion of receiver/stimulator
  - Introperatively, electrode and ground secure
  - New trough drilled
    - Fixation Method:
      - Tie-down suture holes drilled. 2-0 Nylon sutures passed through and secured
21 mos postop

- Presented with wound dehiscence and extrusion of implant
- OR for debridement and new well drilled
- Ground wire and electrode array still in place

**FIXATION METHOD:**
- 6 new burr holes drilled, 2-0 Nylon sutures passed through and secured. Polypropylene mesh contoured to receiver/simulator placed. Mesh secured to periosteal layer 2-0 Vicryl.
Case Report
Case Report

- 31 mos postop
  - Wound looking well
  - Cochlear implant functioning well
  - Unsure the reason for extrusion
  - No comorbidities for patient
  - KLS Martin Resorb X template used routine in our institution
Discussion

- Rate of cochlear Implant extrusion is <1% reported in literature
- Many small retrospective studies performed to identify superior method-none have been conclusive
- In case of recurrent extrusion-this method should remain in armamentarium of methods
References

THANK YOU!