OSSICULOPLASTY: AUTOGENOUS OR BIOMATERIALS?

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Incus defect or incudomallear blockadage

• Often Long process of incus is lacking
• Following years of retraction pocket
• Continuity maintained for years (thin osseous bridge, sometimes fibrous with direct contact between stapes and tympanic membrane)
• Auditory alteration can be mild: myringo-stapedopexie
• But diastasis between incus and stapes with normal tympanic membrane is frequent
In which case should we operate?

- In case of retraction pocket associated with conductive HL
- In case of retraction pocket associated with recurrent otorrhea
- In case of TM perforation and incudo-stapedial joint defect
Which surgical procedure?

1. ossicular transposition: body of incus, head of malleus, (piece of cortical bone)
2. PORP (TORP)
3. Taqucartilage plate
4. Ciment
Incus transposition
PORP: one example
Comparisons: PORP vs transposition

- For some, incus transposition is better
  - Amith et Rs 2017: ABG<20dB 65% vs 35% et plus d’extrusion
  - Ceccato et al 2005 même si ABG<20dB est similaire 62% vs 61%

- For others autogenous ossiculoplasty has several disadvantages:
  - Risk of acoustic bridge due to ossification between the transposed ossicle and neighbouring osseous structures
  - Risk of ossification between stapes and the transposed ossicle that can preclude safety of revision surgery

- PORP can be easily placed and removed and never ossifies but can spontaneously extrude (cartilage plate cover mandatory)

- Both techniques require sufficient distance between stapes and TM
Alternative procedure: cartilage plate

Gap between stapes and TM can be very short
Résultats comparatifs, cartilage vs PORP

- Cartilage plate 67,6% of patients ABG≤20 vs PORP 70,4% (Quérat et al 2014) – No extrusion of PORP in this series
- PORP: 61% ABG<20dB (Ceccato et al 2005)
- PORP CAN BE EXTRUDED (Ceccato et al 2005 et Amith et Rs 2017)
Ciment (Otomimix)
Functional Results

• Ciments with fiberglass and hydroxyapatite
  • Neural toxicity possible (aluminium), surface perfectly dry, with no mucosa left
• Ciments with hydroxyapatite (Otomimix): very well tolerated, accept humidity and mucosa
• Otomimix: ABG<20dB : 95% for diastasis of incudo-stapedial joint (Gérard et al, 2015)
• Fiberglass Ciments (in particular in children): improvement of Rinne. ABG<20dB : 70% (Gungor et al 2016)
CONCLUSIONS

• Three points to be considered:
  • Importance of GAP between incus and stapes,
  • distance between TM and lstapes
  • (likelihood of revision)

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<th>small disastasis (≤ 1/3 short process of incus)</th>
<th>Big diastasis</th>
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<tr>
<td>Rétraction of TM</td>
<td>PLATE of CARTILAGE</td>
<td>Plate of CARTILAGE</td>
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<td>Distance TM-Stapes normale</td>
<td>CIMENT</td>
<td>PORP – TRANSPOSITION</td>
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Very good result can be exected: ABG<20dB in about 2/3 of cases
Total ossicular replacement TORP or autologuous ossiculoplasty?

• First question: which technique gives better results?

• Second question: which technique is safer in the long term?

• Second question: will it be necessary to achieve a revision surgery? (cholesteatoma)
ABSENCE OF STAPES FOOTPLATE MOBILE

• TORP

• AUTOLOGOUS OSSICLE USED AS A TORP: risk of ossification to the footplate

IF NO TORP AVAILABLE, INTERPOSE FASCIA GRAFT BETWEEN STAPES FOOTPLATE AND OSSICLE
TORP

• SEVERAL MATERIALS:
  
  • TITANIUM IS VERY WELL TOLERATED, non ferro-magnetic, easy to place and to remove
TECHNIQUES

COVERING THE PLATE OF TORP WITH CARTILAGE TO PREVENT EXTRUSION
What about stability of TORP?

• Nothing: flat footplate, and large foot of TORP

• Gelitaspon

• Tumulus: with autologous cartilage: also prevent intravestibular migration
TUMULUS
TORP in chronic otitis

• Consider tympanic retraction and risk of intra vestibular migration: UNDERCORRECT the height of TORP

• Never place a TORP in the same surgery if the foot place has been broken
CONCLUSION

• FOR TORP: VERY GOOD RESULTS AND EASILY REMOVABLE IN CASE OF REVISION; UNDERCORRECT THE HEIGHT OF TORP AND COVER IT WITH CARTILAGE

• AUTOLOGOUS OSSICLES CAN BE EFFECTIVE, BUT RISK OF OSSIFICATION TO FOOTPLATE: IF POSSIBLE PREFER TORP, IF NOT INTERPOSE A FASCIA GRAFT BETWEEN FOOTPLATE AND OSSICLE

• IF BROKEN FOOTPLATE, STAGE SURGERY AND USE TUMULUS CARTILAGE TO PREVENT INTRAVESTIBULAR MIGRATION