Principles of Chronic Ear Surgery

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Avoiding complications in chronic ear surgery
2nd looks? To do or not?
Intracranial complications as they relate to CSOM
Videos

Preoperative Considerations

Starts with proper patient selection

Surgical goals, history, symptoms
Better/hearing/worse hearing ear
Risk/benefit to patient

Informed Consent
Discuss:
Potential need for 2nd look/CWD
Expected/unexpected outcomes
Answer all questions
Website
VIDEO/Computer
Avoiding Complications in Chronic Ear Surgery

Preoperative Considerations

**Consent**
VIDEO/Computer
Complete discussion (no forgetting)
Discuss all stages of surgery including post op care
Saves time in the office
Documentation
Saves follow up phone calls

Avoiding Complications in Chronic Ear Surgery

Preoperative Considerations

Day of Surgery

“Time out”
Correct (not right) side is marked
Correct person
Correct audiogram
Correct CT/MRI (check for in advance)

Avoiding Complications in Chronic Ear Surgery

Preoperative Considerations

Day of Surgery
See patient on day of surgery
- new symptoms?
- changes in hearing?
New Questions?
Repeat surgical goals
Patient points to ear to have surgery
Review, Review

Avoiding Complications in Chronic Ear Surgery

Pre-operative Imaging?

Don’t obtain in every case
If done – Have available for surgery
Pre-operative Imaging?
Relative indications

Revision Surgery
Vertigo
Facial Nerve symptoms
Anatomic variances

Temporal Bone Imaging
Temporal Bone Imaging

Adjunctive Techniques

- Image guided Surgery (IGS)
- Flexible CO2 laser
- Intra-operative CT scanner

Avoiding Complications in Chronic Ear Surgery

Intra-operative Considerations

Operating Room set up

Consistency
- All records, audiograms available
- Monitors
- Films
Avoiding Complications in Chronic Ear Surgery

Intra-operative Considerations

Wide prep
All otologic cases – facial nerve monitoring
Prophylactic antibiotics
Intra-operative antibiotics
Steroids

Antibiotic Therapy in CSOM

Pre-op
IV Ancef (Prophylaxis)

Intra-op
Irrigation
Cipro 500mg/liter, (Bacitracin)

Post-op
Augmentin/Cipro for 5-7 days

Surgical Procedure
Ciprofloxin irrigation

- Non-ototoxic
- Effective against pseudomonas and staph
- Readily available
- 500mg/L
Sterile Technique

*Otologic Surgeon is responsible for all OR personnel*

Responsibility to the patient

Facial Nerve Monitoring

*Always use*

Not “Standard of care” in CSOM

Facial Nerve Monitoring

Avoiding Complications in Chronic Ear Surgery

**Intra-operative Considerations**

Hemostasis (adrenalin)
- 1:100,000 post-auricular
- 1:50,000 EAC
- 1:1,000 topical

Pre-marked syringes only!
Avoiding Complications in Chronic Ear Surgery

Intra-operative Considerations
General Otologic Principles
Might be? - “Respect it”
Exposure
Follow correct sequence of procedure
Disease on stapes, dura, labyrinth sigmoid, carotid, jugular bulb

Second look?
When?
Never
Always
Worst cases (intra-operative decision)

Pediatric vs. Adult

Second look?
Why?
Discover residual disease
Avoid catastrophic disease?
Better hearing result?
Second look?

Why not?
• A second procedure that may be unnecessary
• Cost of procedure, co-pays
• Missed school/missed work of patients/patients
• Emotional impact
• “If there is recurrent disease, I will see it on clinical exam”
• Diffusion-weighted MRI

Risks of procedure/observation

Second look?

What is the “right” recurrence rate?
10%?, 20%?

Does 10% recurrence on second look mean that 90% of your “second looks” were unnecessary?

Third look?
to preserve canal wall

Evaluation of Second Looks for Pediatric Cholesteatomas


1970-2010 517 patients (primary patients)
Average 9.78 years

ICW tympanomastoidectomy – 79.1%
Tympanoplasty 11%
Canal Wall Down 9.7%

Pediatric Cholesteatoma Vanderbilt Otology Group 2011

Cholesteatoma found at initial procedure
Attic 76%
Mastoid 49%
Middle ear 45%
Sinus Tympani 43%

81.8% had ossicular chain destruction
Malleus 64%
Incus 69%
Stapes 32%
Cholesteatoma found at “second look” procedure

47% of all pediatric patients underwent a second look operation

48% of patients had cholesteatoma at second look

4.6% of patients needed a CWD at the time of the second look

Age, sex, side, presence of perforation, or otorrhea no association with recurrence ($P > .05$)

No correlation with extent of hearing loss and recurrence

Those undergoing a facial recess ($P < .001$) and those with sinus tympani disease ($P = .008$) and Incus destruction ($P = .046$) had a higher rate of recurrence

4.4% of patients not undergoing a planned second look procedure developed cholesteatoma.

If we had “second looked” this low risk group, (52% of all pts studied) it would have been unnecessary 95.6% of the time

7.2% of patients developed cholesteatoma in the mastoid (direct extension); and 2.1% if disease not present at initial surgery

More recently, 53% (131 pts.) of 2nd looks done transcanal – no recurrence to date
Contemporary Management of Intracranial Complications of Otitis Media

George B Wanna, Jonathan R Moss, Latif M Dharamsi, Marc L Bennett, Reid T Thompson, David S Haynes


Results: Lateral Sinus Thrombosis

<table>
<thead>
<tr>
<th>Age</th>
<th>Presenting signs/symptoms</th>
<th>Pathology</th>
<th>Culture</th>
<th>Cholesteatoma</th>
<th>Prior otologic surgery</th>
<th>6 weeks IV antibiotic</th>
<th>Neurosurgical intervention</th>
<th>Otologic intervention post</th>
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<tbody>
<tr>
<td>Pt 6</td>
<td>30</td>
<td>Otorrhea, SNHL, Tinnitus</td>
<td>LST</td>
<td>No growth</td>
<td>No</td>
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<td>Pt 7</td>
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<td>Pt 9</td>
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<td>LST</td>
<td>No growth</td>
<td>No</td>
<td>No</td>
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<td>No</td>
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Results: Intracranial Abscess
### Results: Intracranial Abscess

<table>
<thead>
<tr>
<th>Age</th>
<th>Presenting signs/symptoms</th>
<th>Pathology</th>
<th>Culture</th>
<th>Cholesteatoma</th>
<th>Prior otologic surgery</th>
<th>6 weeks IV antibiotic</th>
<th>Neurosurgical drainage</th>
<th>Otologic intervention post</th>
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<tbody>
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<td>30</td>
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<td>Mastoid</td>
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<td>14</td>
<td>Otorrhea, Headache, N/V, Nuchal rigidity</td>
<td>Cerebellar abscess</td>
<td>Proteus mirabilis</td>
<td>Yes</td>
<td>Mastoid</td>
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Contemporary Management of Intracranial Complications of Otitis Media 2010

Only 2 patients with intracranial disease had cholesteatoma/prior surgery (none at our center)

No abscess (temporal lobe/cerebellar) needed neurosurgical drainage

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### Results: Subdural Empyema

<table>
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<tr>
<th>Age</th>
<th>Presenting signs</th>
<th>Pathology</th>
<th>Culture</th>
<th>Cholesteatoma</th>
<th>Prior otologic surgery</th>
<th>6 weeks IV antibiotic</th>
<th>Neurosurgical drainage</th>
<th>Otologic intervention post</th>
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11/12/2011
International Cochlear Implants in Children 2014
Nashville, Tennessee