Evolution in the Management of Acoustic Neuroma (Vestibular Schwannoma)

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MELBOURNE, AUSTRALIA
Acoustic Neuroma: *Evolution in Management*

- Patient Presentation
- Detailed Disease Evaluation
- Natural History of the Condition
- Skull Base Team & Training
- Management Options
- Technical Innovations
- Outcomes Assessment
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**The Patient’s Perspective**

- Earlier presentation
- Better understanding of symptoms
- Information available to Patients
  - *Media / Internet*
- Greater expectations of:
  - *Doctors*
  - *What Technology can offer in 21st Century*
Acoustic Neuroma: Diagnosis

**Presentation** is most commonly to ENT Surgeon

*Hearing Loss / Tinnitus*

*Imbalance*

*Other*

*Pain / Discomfort*

**Diagnostic Imaging**

*MRI - Screening Protocols*

*MRI - with Gadolinium Gold Standard*

*Other*
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Disease Assessment

Tumour
- Intracanalicular / CPA / >2cm
- Fundus of IAC / Inner Ear
- Solid / Cystic

Hearing
- SDS/PTA: 70%/30dB, 50%/50dB
- ABR
- Contralateral Hearing

Vestibular
- Hypoactivity / Compensation
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Pre 1980

*Later diagnosis*

*Surgery the only treatment*

*Complete removal in “all” cases*

Radiation

Q of L

*Outcomes*  
*Rx vs Rx*  
*Rx vs No Rx*

Implications of Treatment

Complications of Treatment
Natural History of the Condition

• Change of Management Practices
  *Watch & Re-scan*

• Change of Treatment Practices
  *Tumour Excision*
  *Preservation of Function*
  *Combined Therapy*

• 2019 : Complex Algorithm
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**Team Approach to Management**

- Training of Surgical & Medical Specialists
- Multi-Disciplinary Teams
- Case Load / Centralisation of Treatment Centres
- Institution Commitment (Hospital / University)

*Staff / Equipment*

- Financial Support for

*Service & Innovation*
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Observation

- Patient Symptoms
  - Balance
  - Hearing

- MRI
  - First rescan at 6 months
  - Then yearly

- Hearing Monitoring

- Growth
  - >2mm in any one dimension
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**Stereotactic Radiation Treatment**

- Highly Focussed
- Tightly Conforming
  
  *Rapid fall-off outside tumour volume*

- Treatment Delivery
  
  *Single vs Fractionated*
  
  *(Patient / Tumour / Hearing)*

- Tumour Control >90%
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Surgical Approaches

Via Inner Ear

- Trans Labyrinthine
- Trans Otic
- Trans Cochlear

Sparing Inner Ear

- Middle Fossa
- Retro Sigmoid
- Retro Labyrinthine

Combinations
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**Surgical Aims**

**Tumour Excision**

- *Total*
- *Near-Total*
- *Sub-Total*
- *Debulking*

**Planned Incomplete**

*Single / Combined Treatment*

**Unplanned Incomplete**

*Preservation: Nerve / Vessel / Brain*

**Follow-Up - Additional Treatment**
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**Surgical Techniques & Innovations**

- Microsurgery
- Anaesthesia
- Technical Innovations
  - Monitoring CNs
  - Navigation
- Endoscopic Surgery
  - Assisted
  - Exclusive
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**Reporting Results**

- Facial Nerve Grading Systems
- Hearing Outcome – *AAO HNS* *(1995)*
- Levels of Evidence *(Nikolokopoulos 2002)*

**Research**

- Clinical Audit and Case Review
- Presentation & Publication of Results
- Meta Analyses
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Implications & Complications (Pooled Data)

Facial Nerve

- Anatomical Preservation > 93%
- H-B Grades 1 & 2 80%
- H-B Grades 3 & 4 15%
- H-B Grades 5 & 6  5%

Hearing Preservation

- Cochlear Nerve Preservation < 68%
- Useable Hearing < 60%

Vertigo / Imbalance

- ?

CSF Leak

- 2 -15%

Headache

- ~ 10%
Conclusions

• Practice is evolving
• We must embrace the change
• Critically evaluate patient outcomes
• Critically evaluate new 
  Technology/ Approaches / Techniques
• Provide appropriate education and skills acquisition in standard and novel techniques
• Aim is to achieve the best patient outcomes