Should Pilots with Acoustic Neuroma Fly?

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Disclosure Information

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We have no financial relationships to disclose.

We will not discuss off-label use and/or investigational use in our presentation.
Acoustic Neuroma

- Vestibular schwannoma – benign, slowly growing

- Incidence: 1 / 100,000

- Compression of vestibulocochlear nerve:
  - Hearing loss
  - Tinnitus
  - Disequilibrium/Vertigo

- Larger tumors:
  - Facial numbness
  - Brainstem compression symptoms
Acoustic Neuroma

Presenting Symptoms

- Hearing Loss: 95%
- Tinnitus: 60%
- Headache: 50%
- Balance Disturbance: 45%
- Facial Numbness: 25%
- Facial Paresis: 1%
Acoustic Neuroma: Hearing Loss

- Sensorineural
- Typically high frequency
- Poor discrimination
- Sudden or fluctuating: 10 %
Acoustic Neuroma Management

- Observation
- Surgery
  - Translabrynthine
  - Retrosigmoid/Suboccipital
  - Middle Fossa
- Radiotherapy
  - Stereotactic radiosurgery
    - Single dose
    - Fractionated
Acoustic Neuroma
Management

- Surgery typically recommended previously
- Observation and radiotherapy have become more common
Aeromedical Concern

• 10% incidence of significant dizziness/vertigo with untreated acoustic neuroma

Aeromedical Disposition

• FAA / JAA / ICAO / Transport Canada - Variable
Transport Canada
Acoustic Neuroma Review

• Civil Aviation Medical Information System
  10 year review (2002-2012)

• Acoustic Neuroma specific diagnostic code

• Chart review:
  – Demographic information
  – Presenting symptoms
  – Tumor size
  – Medical management and complications
  – Aeromedical disposition
Acoustic Neuroma Review:
Results

• 19 pilots
• Mean Age: 52.3 years (31 – 74)
• Medical Certificate:
  – Category 1 - Commercial 8
  – Category 2 – ATC 1
  – Category 3 – Private 8
  – Category 4 – Recreational / Ultralight / Glider 1
  – Ab initio applicant 1

Male
Acoustic Neuroma Review

• Presenting symptoms:
  – Hearing loss 94%
  – Tinnitus 24%
  – Dizziness 12%
  – Vertigo 6%
  – Facial numbness 6%

• Tumor size: 1.6 cm (0.3 – 3.5)

• Medical Disposition
  – Surgery 8
  – Observation 8
  – Radiotherapy 3
Surgical Removal

• 8 pilots
• Translabyrinthine or suboccipital approach
• No hearing preservation
• Complications:
  – Facial paresis 2
  – Cerebrospinal fluid leak 1
Aeromedical Disposition

- Surgery 8
  - Fit 6
  - Restricted (with accompanying pilot) 1
    - Incomplete excision
  - Suspended 1
    - Medical information not provided

- Observation 8
  - Fit 2
  - Restricted (with accompanying pilot) 4
  - Unfit 1
    - Multiple medical issues
  - Suspended 1
    - Medical information not provided
Aeromedical Disposition

- Stereotactic Radiotherapy
  - Restricted (with accompanying pilot)
  - Unfit
    - Dizziness
    - Ab initio applicant
Unrestricted Medical Certificate

- Complete surgical excision

- Partial removal, Radiotherapy, Observation
  - No vestibular function on electronystagmography (ENG / VNG)
  - Evidence of central compensation
Normal Caloric Test

Caloric - Both Eyes

Fixation Index: RC=*, LC=*, RW=*, LW=*
Caloric Weakness: 4% in the right ear
Directional Preponderance: 9% to the right

Numeric Results
- Right Cool: 17 deg/s LB
- Left Cool: 22 deg/s RB
- Right Warm: 21 deg/s RB
- Left Warm: 19 deg/s LB
- Caloric Weakness: 4% Right
- Asymmetry: -1 deg/s
- Cool Irrigation
- Warm Irrigation
Left Caloric Weakness (uncompensated)

Caloric Weakness: 80% Left
Directional Preponderance: 70% Right
Summary

• Trend towards more conservative acoustic neuroma management affecting medical disposition

• Small but significant risk of disequilibrium or vertigo affecting flight safety

• Unrestricted medical certificate if complete surgical removal without complications

• Consider unrestricted flight after partial excision, radiotherapy, observation:
  – No vestibular function on electronystagmography
  – Evidence of central compensation