Translabyrinthine Resection of Acoustic Neuroma

The Center for Acoustic Neuroma
Translabyrinthine Resection of Acoustic Neuroma

Indications

1 - Any tumors with non-serviceable hearing

   Servicable hearing

      50/50 rule
      Speech discrimination >50%
      Pure-tone average threshold >50%

2 - Tumors larger than 3 cm in the CPA

3 - Tumor in the CPA extending to lateral ICA
Translabyrinthine Resection of Acoustic Neuroma
Middle Fossa Approach
Tumors confined to the IAC with serviceable hearing
Retro-sigmoid approach
Tumors less than 3 cm with serviceable hearing and minimal IAC invasion
Translabyrinthine Resection of Acoustic Neuroma

Patient Counseling Personal Tips
1 - Focus on attainable goals
2 - Facial nerve preservation is the first priority
3 - I never saw an unhappy patient with good facial outcome and unilateral hearing loss
4 - I never saw a happy patient with a facial paralysis
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ADVANTAGES

1 - DIRECT EXTRADURAL ROUTE TO CEREBELLO-PONTINE ANGLE
2 - NO CEREBELLAR RETRACTION OR MANIPULATION
3 - CONSISTENT ACCESS TO THE FUNDUS OF THE IAC
4 - EARLY IDENTIFICATION OF THE FACIAL NERVE AT FUNDUS OF THE IAC
5 - NO MANIPULATION OF THE LOWER CRANIAL NERVES
6 - NO POSTOP CHRONIC HEADACHE
DISADVANTAGES

1 - HEARING LOSS
Translabyrinthine Resection of Acoustic Neuroma

EXPANDING TRANSLABYRINTHINE LIMITS

HUGO FISH - TRANSOTIC APPROACH

MARIO SANNA - IAC DURAL MOBILIZATION
Translabyrinthine Resection of Acoustic Neuroma

EXPANDING TRANSLABYRINTHINE LIMITS

Center for Acoustic Neuroma - Combined Translabyrinthine/Middle Fossa
Translabyrinthine Resection of Acoustic Neuroma

EXPANDED TRANSLABYRINTHINE APPROACH

RATIONALITY
1 - TO FACILITATE ACCESS AND CONTROL OF ALL CIRCUMFERENCE TO LARGE ACOUSTIC NEUROMA VIA TRANSLAB APPROACH
2 - TO IMPROVE CONTROL / VISUALIZATION OF THE FACIAL NERVE AT THE CPA
3 - TO ALLOW 270 DEGREE EXPOSURE OF THE IAC
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EXPANDED TRANSLABYRINTHINE APPROACH

RATIONALITY (cont.)
4 - TO ALLOW EXTRADURAL VISUALIZATION OF THE PORUS OF MECKEL'S CAVE
5 - TO ALLOW EARLY VISUALIZATION AND CONTROL OF THE TRIGEMINAL NERVE IN THE CPA
6 - TO ALLOW VISUALIZATION OF THE CN IX AT THE COCHLEAR AQUEDUCT
7 - TO ALLOW EASY CONTROL OF LOWER CRANIAL NERVES
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Expanded Translabyrinthine Approach
Skin incision

Expanded TL

TL
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Expanded Translabyrinthine Approach
Skin flap
Expanded Translabyrinthine Approach
Muscle mobilization
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Expanded Translabyrinthine Approach
Decortication
Removal of temporal squamosa
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Expanded Translabyrinthine Approach
Opening the antrum
Visualization lateral semicircular canal
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Expanded Translabyrinthine Approach
Visualization of the Epitympanum
Removal of retro-facial air cell
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Expanded Translabyrinthine Approach
Visualization the superior semicircular canal
Removal of the retro-labyrinthine air cell and cortex
Visualization of the digastric ridge, endolymphatic sac and pre-sigmoid dura
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Expanded Translabyrinthine Approach
Elevation of the middle fossa dura
Section of middle meningeal artery
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Expanded Translabyrinthine Approach
Elevation of the middle fossa dura
Visualization of V3
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Expanded Translabyrinthine Approach
Elevation of the middle fossa dura
Visualization of the arcuate eminence and anterior petrous bone
Visualization of gasserian ganglion
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Expanded Translabyrinthine Approach
Further visualization of the middle fossa anatomy
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Expanded Translabyrinthine Approach
Splitting of the layers of the tentorium
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Expanded Translabyrinthine Approach
Labyrinthectomy
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Expanded Translabyrinthine Approach
Exposure of the vestibule and internal auditory canal
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Expanded Translabyrinthine Approach
Removal of bone anterior and around the IAC
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Expanded Translabyrinthine Approach
The anatomy of the fundus of the IAC
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Expanded Translabyrinthine Approach
Dural opening
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Expanded Translabyrinthine Approach
View of the CPA
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Expanded Translabyrinthine Approach

Tumor view
Expanded TL

TL
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Expanded Translabyrinthine Approach

Closure
Translabyrinthine Resection of Acoustic Neuroma

Expanded Translabyrinthine Approach

Closure
Translabyrinthine Resection of Acoustic Neuroma

Patient EB
21 yo male
severe left hearing loss
Occipital headache
Balance difficulties
(MRI pre op)
Translabyrinthine Resection of Acoustic Neuroma

Patient EB
Surgery - Expanded
Translab with tentorial split
Facial nerve - inferior course
Patient EB
Discharged to home in three days
Facial nerve - I/VI
patient has finished college and is fully employed
MRI 3 years post op - no residual
no T2 or Flair abnormal signal
Patient CD
22 yo
Incidental finding
Near normal hearing
Retro-auricular pain
Tinnitus
No balance difficulty

Translabyrinthine Resection of Acoustic Neuroma
Translabyrinthine Resection of Acoustic Neuroma

Patient CD
Surgery - Expanded translab with tentorial splitting
   Blood loss 100cc
   No transfusion
Facial nerve - superior course
   Minimal splaying
   Adequate plane
Resection - near complete
   Thin layer left over the nerve
Facial nerve - Early 3/6
   3 months - 2/6
Living independently at 3 months
Patient KH
17 yo
Difficulties using the left leg during tennis practice
Hearing - near normal
Facial nerve - decreased blinking on the left
No headache
No tinnitus

Translabyrinthine Resection of Acoustic Neuroma
Translabyrinthine Resection of Acoustic Neuroma

Patient KH
Surgery - Expanded translab without tentorial splitting
Facial nerve - inferior course
Mild splaying
Difficult dissection
Resection - small residual at the facial nerve in CPA
Patient KH
Discharged to home POD # 4
Facial nerve -
  early 2/6
  6 months - Normal 1/6
  Normal blinking
7 years post op - graduated from Nursing school
Fully employed as a nurse
MRI - stable small residual
No RT
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Patient SS
63 yo male
Left sided weakness
Near normal hearing
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Patient SS
Surgery - expanded
translab
Facial nerve - inferior
course, good plane
Resection - near
complete
Translabyrinthine Resection of Acoustic Neuroma

Patient SS
Post-op facial nerve - 2/7
Normal motor function
MRI one year - complete resection