# Abstract

The objectives for this project were to perform retrolabyrinthine (RL) and retrosigmoid (RS) with or without internal auditory canal dissection (RSwIAC) on cadaveric heads. We then identified measurable anatomic factors that may guide surgical approach for selective vestibular nerve section (VNS) and identify the vestibulocochlear cleavage (VCC) plane.

# Methods and Materials

8 whole fixed cadaveric heads were prepared for dissection. 16 ears underwent retrolabyrinthine and retrosigmoid approaches with or without internal auditory canal drill-out. Trautman’s triangle (TT) and the distance from the posterior semi-circular canal to the anterior border of the sigmoid along Donaldson’s line (posterior Donaldson’s line, pDL) were measured (Figure 2). Details of the vestibulocochlear cleavage VCC plane from each approach were calculated and compared.

# Results

Overall mean pDL was 8.53 mm (range 5-11.5 mm) and mean TT area was 124 mm² (range 95-237 mm²). The VCC was identified in 10 of 16 ears (63%) of ears through the RL approach alone. 6 of 16 (37%) of ears required RSwIAC. In ears requiring IAC dissection, the VCC was found within 1-2 mm distal to the porus. The pDL in the RL group had a significantly larger mean compared to the RSwIAC group, 9.3 mm versus 7.2 mm (p = .03). Area of TT was also larger in the RL group compared to the RS with IAC group, 162 versus 139 (p = .35).

![Figure 3. Retrolabyrinthine Approach](image)

![Figure 4. Retrosigmoid Approach](image)

![Figure 5. Retrolabyrinthine and Retrosigmoid combined overview](image)

# Discussion

While a “contracted” mastoid is known to be unfavorable for a RL approach to VNS, specific anatomic factors influencing surgical approach are poorly described. Ears amenable to RL approach had greater pDL and TT area. Measurement of pDL may have a role in surgical planning and choice of approach for VNS.

# Reference


# Contact

Adam Master, MD
Department of Otolaryngology / Head and Neck Surgery LSUHSC Shreveport, LA
Email: amaste@lsuhsc.edu