

Dorsal Approach to the Inframeatal Region: A Comparison Between the Endoscopic-Assisted Extended Retrosigmoid Approach and the Far-Lateral Transcondylar Approach Juan Manuel Revuelta Barbero MD; Raywat Noiphithak MD; Juan Carlos Yanez-Siller MD; Bradley A. Otto; Ricardo Carrau MD; Daniel M. Prevedello MD Department of Neurosurgery and Otolaryngology - The Ohio State University

#### Learning Objectives

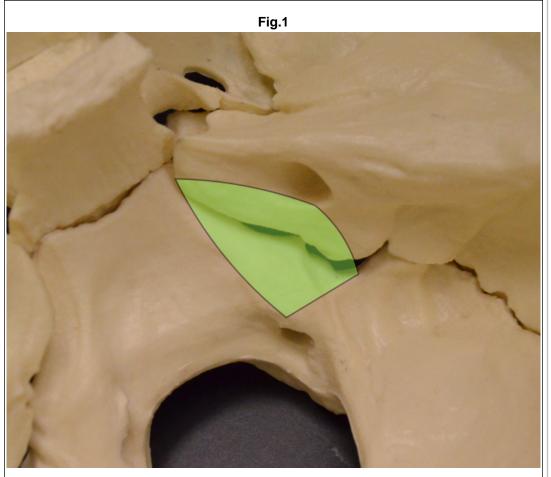
1. To outline the keys anatomical structures of the Inframeatal region.

2. To describe the surgical nuances of the endoscopic-assisted extended retrosigmoid approach and the far-lateral transcondylar approach to the inframeatal region.

3. To quantitively analyze and compare the surgical exposures and degrees of maneuverability provided by each approach.

# Introduction

The inframeatal region (IFMR) is a surgically challenging area surrounded by structures of significant anatomic complexity. (fig. 1) This study aims to evaluate and compare the surgical accessibility and degree of instruments' maneuverability offered by the endoscopic-assisted extended retrosigmoid approach (ERSA), and the far-lateral transcondylar approach (FLTA) to IFMR.



Inframeatal region

## Methods

Microscopic and endoscopic dissections to IFMR were completed in five latexinjected human cadaveric heads (10 sides). To avoid morphometric overlapping of the surgical field between the procedures, ERSAs were performed prior to FLTAs. With the aid of a neuronavigation system, for each approach, stereotactic measurements of the area of exposure, surgical freedom and the angles of attack to six different surgical targets were collected for statistical comparison. Surgical targets included: the jugular tubercle, dural entrance zones (DEZ) and root entry zones (REZ) of cranial nerves (CNs) VII-VIII, the most anterosuperior point of petroclival fissure, and DEZ and REZ of lower CNs. (fig. 2A-2B)

#### Results

Area of exposure of the inframeatal region afforded by ERSA was of 1.14 cm2, while FLTA provided an exposure of 1.24 cm2 (p = 0.54). For the area of surgical freedom, FLTA was superior to ERSA (141.11 cm2 vs. 90.05 cm2, respectively; p < 0.05). For all targets, the mean differences between the angles of attack in the horizontal plane, offered by each approach, did not reach statistical significance. In contrast, FLTA achieved significantly wider angles of attack in the vertical plane for all targets.

## Conclusions

Both FLTA and ERSA are suitable to approach the IFMR. Although the surgical exposures between approaches are similar, FLTA offers greater maneuverability than ERSA. Additional factors such as surgeon's training and expertise should be considered when deciding between surgical approaches to IFMR.

