

## Considerations in Relationship to the Approach for the Treatment of Lateralized Posterior Fossa Tumors in Children Mark Calayag MD; Brandon C. Gabel MD, BS, BA; David S. Hong MD; Dustin Hatefi; David D. Gonda MD; Hal S. Meltzer BS, MD; Michael L. Levy MD, PhD





#### Introduction

The authors describe existing considerations of surgical approach to lateralized posterior fossa tumors in children with regard to the potential for extent of resection, morbidity, and mortality. They additionally propose modifications to existing far lateral approaches based upon anatomic correlates in children.

#### Methods

The authors performed a retrospective review of a series of 101 children and adolescents undergoing 121 surgeries over an 11 year period. Of those, 33 underwent modified far lateral approaches to maximize the operative corridor and thereby increase the probability of maximum tumor resection while minimizing morbidity and mortality. There were 21 males and 12 females. Mean age was 120 months at the time of initial surgery ( $\pm$  88 months). Mean follow-up was 67 months ( $\pm$ 37 months).

## Results

There was no instability seen in any of the cases post-operatively. Each case had <30% of the tubercle taken. One patient had a PICA injury, but was asymptomatic. Five patients developed transient swallowing difficulties, with one having a permanent deficit. Two patients had CSF leaks. No patients had injuries to cranial nerves IV-VIII.

## Conclusions

A modified extreme lateral infra-jugular transcondylar (ELITE) approach was used in these cases. Whereas a standard ELITE approach involves partial resection of the medial and superior-occipital condyle and jugular tubercle, the modified approach utilized in children minimizes manipulation of the condyle and allows for a more minimal resection of an under-developed tubercle as is frequently encountered in children.

The jugular tubercle can obstruct adequate visualization for lateralized posterior fossa approaches via a far lateral transcondylar approach in children. Reduction of the tubercle via an extradural approach was performed to enhance exposure. Minimizing morbidity requires an understanding of not only of the normal anatomic variants involving the condyle and jugular tubercle but also of the age related developmental characteristics.

# Learning Objectives

By the conclusion of this session, participants should be able to: 1) understand the indication for this approach in children, 2) understand the potential complications when using this approach, and 3) understand the salient anatomy and surgical modifications of this approach when used in children.