



Endoscopic Versus Open Surgery for Juvenile Nasopharyngeal Angiofibroma

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Introduction

- Juvenile Nasopharyngeal Angiofibroma (JNA) is a rare vascular tumor commonly seen in adolescent males [1].
- A transition in treatment methods, favoring endoscopic over open surgical approaches, has been noted due to improved outcomes such as less blood loss, shorter hospital stay, and reduced operating time [1,2].
- Progress in preoperative assessment, operative techniques, and endoscopic technology might be contributing to these superior outcomes [3].
- The objective of our study is to evaluate the effectiveness of the endoscopic approach compared to the traditional open approach in managing JNA.

Methods

- Conducted a multi-institutional retrospective study using the ACS NSQIP-P database.
- Targeted patients under 18 years of age who underwent surgery for JNA from 2012 to 2021.
- Utilized ICD9 code (210.7) and ICD10 code (D10.6) to identify cases representing "benign neoplasm of nasopharynx".

| Demographics | |
|----------------------------|------------------|
| Age (mean years, [95% CI]) | 13.6 [13.0-14.2] |
| Sex N (%) | |
| Male | 103 (97) |
| Female | 3 (3) |
| Race N (%) | |
| White | 74 (70) |
| Black/African American | 3 (3) |
| Asian | 1 (1) |
| Other/Unknown | 28 (26) |

Table 1: Patient Demographics

Data Analysis

| Type of Surgery | Surgeries Performed N (%) | Operation Time (Min) p=.003 | Days Until Discharge p=.023 | Blood Loss (mL) p>.05 |
|-----------------|---------------------------|-----------------------------|-----------------------------|-----------------------|
| Endoscopic | 83 (78) | 196 | 1.0 | 836 |
| Open | 23 (22) | 291 | 2.0 | 854 |

Table 2: Comparison of Surgery Type

| | | Endoscopic | Open | Total |
|----------------------|-----|------------|------|-------|
| Bleed Post-operative | No | 76 | 13 | 89 |
| | Yes | 7 | 10 | 17 |
| Total | | 83 | 23 | 106 |

Table 3: Post-Operative Bleed by Surgery Type (p<.001)

| | | Endoscopic | Open | Total |
|----------------------------------|-----|------------|------|-------|
| Hematologic disorder | Yes | 3 | 2 | 5 |
| | No | 80 | 21 | 101 |
| Asthma | Yes | 1 | 2 | 3 |
| | No | 82 | 21 | 103 |
| History of chronic liver disease | Yes | 0 | 0 | 0 |
| | No | 83 | 23 | 106 |
| Oxygen supplementation | Yes | 2 | 0 | 2 |
| | No | 81 | 23 | 104 |
| Tracheostomy | Yes | 0 | 0 | 0 |
| | No | 83 | 23 | 106 |
| Seizure | Yes | 0 | 0 | 0 |
| | No | 83 | 23 | 106 |
| Cerebral Palsy | Yes | 0 | 0 | 0 |
| | No | 83 | 23 | 106 |
| Systemic sepsis | Yes | 1 | 1 | 2 |
| | No | 82 | 22 | 104 |

Table 4: Preoperative Comorbidities (p>.05)

Results

- 106 patients: mean age 13.6 years (95% CI 13.0-14.2)
- 103 (97%) males and 3 (3%) females.
- 83 (78%) surgeries performed endoscopically (END) and 23 (22%) performed open (OPN).
- No significant difference between END and OPN groups in terms of age, sex, or preoperative comorbidities (p>.05).
- Operative time was significantly shorter for END group (196 min vs 291 min, p=.003).
- Days until discharge was also shorter for END group (1.0 vs 2.0, p=.023).
- No significant difference in blood loss: 836 ml for END and 854 ml for OPN (p>.05).
- Postoperative bleeding occurred in 7 (8%) of END group vs 10 (43%) of OPN group (p<.001).

Conclusion

- Endoscopic approach to JNA surgery yielded better outcomes, aligning with literature findings.
- Open surgeries for JNA have increased morbidity likely reflecting larger tumors.
- Almost half of all patients undergoing open procedures bleed post-operatively which bears closer scrutiny geared to improvement.
- Findings support further research to validate endoscopic benefits and evaluate long-term health outcomes.

References

- Reza-Ul-Haq KM, Hanif MA, Tabassum R, et al. Comparative study between conventional method and endonasal endoscopic resection of juvenile nasopharyngeal angiofibroma. *Mymensingh Med J.* 2018;27(4):785-792.
- Pryor SG, Moore EJ, Kasperbauer JL. Endoscopic versus traditional approaches for excision of juvenile nasopharyngeal angiofibroma. *Laryngoscope.* 2005;115(7):1201-1207. doi:10.1097/01.MLG.0000162655.96247.66
- Midilli R, Karci B, Akyildiz S. Juvenile nasopharyngeal angiofibroma: analysis of 42 cases and important aspects of endoscopic approach. *Int J Pediatr Otorhinolaryngol.* 2009;73(3):401-408. doi:10.1016/j.ijporl.2008.11.005