

- **Title:** The natural growth rate of residual juvenile nasopharyngeal angiofibroma
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- **Topic:** Vascular lesions
- **Financial Relationship:** Dr. Snyderman is a stockholder for SPIWay LLC.
- **Introduction:** The surgical management of juvenile nasopharyngeal angiofibromas (JNA) is well described; however, the exact role and time course of postoperative surveillance and imaging remains unknown. With reported recurrence rates of upwards of 50% in some cases, the need for post-operative imaging following surgical resection of JNA is relevant. It has been hypothesized in the literature that a surge in hormones during puberty may induce growth of residual tumor. However, the natural growth rate of this rare tumor in the postoperative setting remains unknown. The goal of this study is to examine the postoperative growth rate of residual disease in a large series of patients relative to pediatric growth parameters and other prognostic factors, and to establish an algorithm for postoperative surveillance.
- **Study Design:** Retrospective review
- **Methods:** Retrospective chart review between September 2005 and June 2015 that includes patient demographics, tumor stage, surgical therapy, postoperative imaging and pediatric growth curves.
- **Results:** 38 patients who underwent surgical resection of a JNA were identified. The mean follow-up time was 24.1 months. Sixty-eight percent (26/38) of patients achieved gross total resection and 32% (12/38) had persistent postoperative disease. No patients with gross total resection had recurrence of disease. The most common site of residual disease was the infratemporal fossa in 50% (6/12) of patients. Patients with postoperative residual disease were more likely to have a more advanced stage of disease at presentation ( $p=0.008$ ). Of those with postoperative residual, 66.6% (8/12) were observed and stable without growth for a mean duration of 37 months (range 0.5-80 months) with modal time of interval scans every 6 months. Thirty-three percent (4/12) of patients with postoperative residual demonstrated regrowth of disease, with a median time to regrowth of 7.5 months. The oldest patient age who demonstrated regrowth of disease was 16.45 years. Three of the four patients with regrowth of disease required further surgery. Patients who required further treatment were younger than patients with stable postoperative residual, though not statistically significant ( $p=0.18$ ). Patients with regrowth of residual disease tended to have larger changes in height at their 6 month follow-up.
- **Conclusions:** The appropriate postoperative follow-up for JNA remains controversial. Based on these results, patients with skull base involvement and residual vascularity following preoperative embolization are more likely to have residual postoperative disease and warrant longer postoperative follow-up. Postoperative imaging at 6 month intervals appears to be an appropriate window to monitor persistent disease. Younger, pre-pubescent patients may be more likely to need further intervention for residual postoperative disease.