



## SWSC 2020 On-Demand Meeting Abstracts

### 21. PRE-OPERATIVE EMBOLIZATION MAY BE UNNECESSARY IN THE MANAGEMENT OF CAROTID BODY TUMORS

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**Background:** Carotid body tumors (CBT's) are rare vascular tumors of the head and neck, representing 65% of head and neck paragangliomas. They are typically benign and sporadic but may be associated with congenital syndromes. Although increased prevalence is noted at high altitudes, the pathophysiological etiology has yet to be elucidated. Surgery is the standard of care for CBTs and can provide tumor control. There is some enthusiasm for pre-operative embolization of these tumors to assist in operative dissection however data on the safety and or efficacy of this technique is lacking. We sought to evaluate patient pre-operative characteristics and outcomes in our high altitude, high-volume center where pre-operative embolization is not routinely performed.

**Methods:** A retrospective analysis of all CBT's surgically treated from January of 2000 to December of 2018 was performed. Patients included were individuals aged 18-90 and with CPT codes of excision of CBT's with and without carotid artery excision and pathology confirmed CBT. Data was obtained regarding preoperative demographics, intraoperative details, postoperative morbidity and long-term outcomes. Subgroup analysis was then performed based on anatomic tumor characteristics.

**Results:** A total of 70 patients were identified. 75% were female (53), 24% were male (17). Acknowledging this Denver-based study, 77% (n=54) of patients with CBT lived at altitudes between 5000-7000 feet. Mean age at presentation was 56 years old. Most common presenting complaints were: cervical mass 67% (47), asymptomatic/incidental finding 23% (16), 7% (5) history of prior paragangliomas. The mean preoperative tumor size was 2.5cm based on CTA. 47% of tumors (33) were Shamblin I, 28% (20) Shamblin II and 20% (14) Shamblin III. 5% (4) of patients required intraoperative revascularization and the only repair performed with vein patch angioplasty. There were no observed complications of stroke or death and preoperative embolization was not performed on any patient. Temporary nerve deficits were seen in 14% of patients (10) with permanent deficits seen in 4% (3). The most common cranial nerve (CN) affected was CN XII 8% (6). There was an observed 2% (2) tumor recurrence rate based on post-operative CTA. Pearson's chi squared test was used to assess outcomes based on Shamblin class and found an association with higher class and nerve injury ( $p=0.02$ ), as well as need for revascularization ( $p=0.02$ ). Kruskal-Wallis test revealed that Shamblin class was not however associated with hospital length of stay ( $p=0.56$ ).

**Conclusion:** CBT's can be treated surgically with minimal morbidity and mortality regardless of Shamblin class. Pre-operative arterial embolization is rarely necessary and may provoke unnecessary risk with reported complication rates as high as 2-25% and serious complications of stroke and blindness from 0-6%. This represents one of the largest collections of CBT's surgeries of any single institution, providing addition to the body of knowledge of this uncommon disease.