Objective Carotid Body tumors (CBTs) are rare, slow-growing neoplasms derived from the parasympathetic paraganglia of the carotid bodies. Although inherently vascular lesions, the role of preoperative embolization prior to surgical resection remains controversial.

Methods All surgically resected CBTs between 2013 to 2019 at a single institution were retrospectively identified and data collected. All patients received preoperative embolization by interventional neuroradiologists and all were operated on by a combined team of cerebrovascular neurosurgeons and otolaryngology-head and neck surgeons. The clinical, radiographic, endovascular, and perioperative data were collected. All procedural complications were recorded.

Results Of the 22 CBT patients, 63.6% were female with a median age of 55.5 years at the time of surgery. Most common presenting symptom included palpable mass (59.1%) and voice changes (22.7%). The average tumor volume was 15.01 ± 14.41 cm³. The majority of CBTs were of Shamblin type II (95.5%). The blood supply was predominantly from the branches of the ascending pharyngeal artery, with an average of two vascular pedicles (range 1–4). Fifty percent of the tumors were embolized with more than one material: Polyvinyl alcohol (PVA) 94%, Onyx 44%, and n-BCA glue 11%. The average reduction in tumor blush following embolization was 83% (range, 40–95%). No embolization procedural complications occurred. All surgical resections were performed within 30 hours of embolization. The average operative time was 173.9 minutes, with an average EBL of 151.8 mL, and median length of hospital stay of 4 days. The rate of permanent post-operative complication was 0%; two patients experienced transient hoarseness and one patient had medical complications related to alcohol withdrawal.

Conclusion This series highlights that endovascular embolization of CBTs is a safe and effective technique for tumor devascularization, making pre-operative angiography and embolization an important consideration in the management of CBTs. Moreover, the successful management of CBT at our center rests on a multidisciplinary approach, whereby endovascular surgeons, neurosurgeons, and ENT-head and Neck surgeons work together to optimally manage each CBT patient.

Disclosures J. Carnevale: None.