Role of Neck Dissections in the Management of Carotid Body Tumors: A Retrospective Study

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Introduction

- Carotid body tumors (CBT) are rare neoplasms originating from the paraganglia at the carotid bifurcation.
- Although typically benign, these tumors occasionally exhibit malignant behavior and metastasize to nearby lymph nodes.
- Histopathologic analysis alone is insufficient to determine malignancy in CBT, and metastasis to non-neuroendocrine tissue is required for definitive diagnosis.
- The role of selective neck dissections (SND) in detecting CBT malignancy and guiding management is uncertain.

Study Objectives

Understand the limitations of histopathologic analysis in determining malignancy of CBT

Evaluate the utility and considerations for routine use of SND in CBT resections

Evaluate the clinical significance of lymph node involvement in CBT and its implications for treatment decisions

Methods

- Retrospective chart review of 21 patients undergoing CBT resection between 2002 and 2022 was performed.
- Patient demographics, genetic and laboratory testing, pre-operative imaging, intra-operative and post-operative complications, and follow up results were collected.
- SND were performed on all 21 patients.
- Histopathological analysis of neck dissection contents and primary tumor specimens were assessed.

Results

- Of the 21 resections, there were three cases (14.3%) of carotid artery injuries and six cases (28.6%) of nerve injuries, including six to the vagus nerve and one to the hypoglossal nerve.
- One patient (4.8%) experienced three intra-operative strokes.
- Three patients (14.3%) were found to have lymph node involvement, indicating the presence of malignancy, and later received adjuvant radiotherapy.

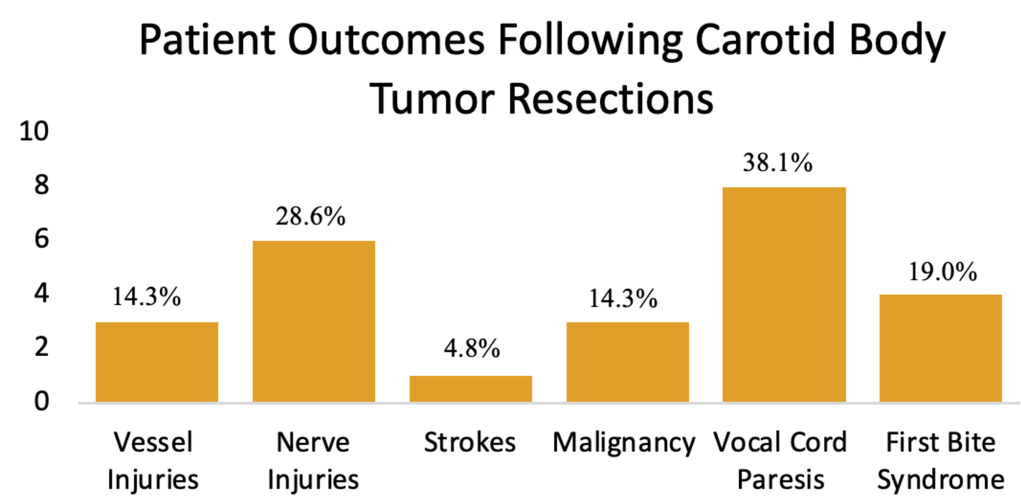

Figure 1: Summary of patient outcomes.

Conclusion

- SND are a useful adjunct in detecting malignancy during CBT resections.
- The incidence of malignancy in CBT is low but not negligible, and SND should be considered in patients with suspected malignancy or high-risk factors.
- This study's 14.3% incidence of malignancy supports the utility of systematic SND during primary CBT resection to enhance diagnostic accuracy and subsequent management.
- Due to the limited sample size, further studies with larger patient populations are required.

References