Non-Recurrent Inferior Laryngeal Nerve: Case Series and Literature Review

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INTRODUCTION: Non-recurrent inferior laryngeal nerve (NRILN) is a well recognized and reported finding in the medical literature. When occurring on the right side it is commonly associated with an aberrant right subclavian artery and on the left side it is associated with situs inversus. Thus, the nerve is located in an abnormal position and may course from the vagus perpendicularly to the great vessels and may be found at one of several different levels. Consequently, the NRILN is more prone to injury during thyroid, parathyroid, and vascular surgery in the neck. We report three cases of pre-operatively identified right sided aberrant subclavian artery (SCA) in patients undergoing thyroidectomy. In one of these patients, the right inferior laryngeal nerve was found within the tracheo-esophageal groove as opposed to the expected non-recurrent configuration.

METHODS: 3 cases were reviewed for NRILN in the setting of vascular anomaly. Intraoperative position was noted and discussed. A review of the literature was performed by using PubMed keyword search. Search terms used were aberrant right subclavian artery, and non-recurrent inferior laryngeal nerve. Articles were included in our review if they both performed radiographic diagnostics to identify vascular anomaly, and also carried out surgical identification of the inferior laryngeal nerve. References of the included articles were also scanned to identify other appropriate articles for inclusion.

CONCLUSION: This report illustrates the variety of positions of the ILN in the setting of an aberrant right subclavian artery. This makes identification of the nerve intra-operatively a technical challenge. Preoperative knowledge of an aberrant right subclavian artery should alert the surgeon to the high likelihood of a NRILN being identified during dissection. As demonstrated by a review of the literature and our case above, the surgeon should also be prepared to identify the ILN within the TE groove in its normal anatomic location even in the setting of vascular anomaly.

- ILN palsy following endocrine surgery has been reported to account for nearly 50% of all litigation associated with endocrine surgery in the U.S., the most frequent source of litigation following thyroid surgery.
- There are several methods available to pre-operatively identify vascular anomalies that predict ILN aberrancy.
- Susception for a NRILN in the pre-surgical setting is useful as this knowledge may guide surgical dissection to anticipate the ILN in a position other than within the TE groove as it ascends to enter the larynx at the cricothyroid joint.
- In a small percentage of cases, patients with aberrant right subclavian artery the NRILN may be found within the TE groove despite the vascular anomaly.