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Case Report

Right nonrecurrent laryngeal nerve: a surgical trap

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ABSTRACT

Head and neck surgeons must be aware of Non recurrent laryngeal nerve, a rare entity, to avoid postoperative morbidity. In this case report, a 38-year-old female who underwent thyroid surgery and a right non-recurrent laryngeal nerve was identified intra-operatively were reported.

Keywords: Thyroidectomy, Non-recurrent laryngeal nerve, Dysphagia lusoria

INTRODUCTION

While doing a thyroidectomy, a surgeon's primary concern is the recurrent laryngeal nerve (RLN). The inferior laryngeal nerve is commonly referred to as recurrent because it wraps around the aortic arch on the left side and the subclavian artery on the right.[1] The right inferior laryngeal nerve follows a "non-recurrent" path in 0.7% of the general population.[2] We share this case to highlight the rarity of nRLN and the importance of constantly keeping it in mind during thyroidectomy to prevent accidental damage.

CASE REPORT

A 38-year-old female presented to us with a painless anterior neck swelling since last 6 years. She did not report any dysphagia. Ultrasound revealed multiple, variable size, well defined nodules in thyroid gland which were hyperechoic and size varied from 12-25 mm in diameter, largest measuring 24×25 mm suggestive of multinodular hyperplasia (goitre) of thyroid gland. The FNAC showed colloid goitre (Category II as per Bethesda's system of reporting thyroid cytopathology). Following confirmation of the patient's euthyroid status, a total thyroidectomy was performed. Blunt dissection was done to separate the fascia between common carotid artery and thyroid gland searching for right recurrent laryngeal nerve. A Type2A NRLN was found coursing from the vagus nerve, parallel to inferior thyroid artery entering behind the cricothyroid membrane. Left RLN followed a normal course. Following surgery, vocal cord functioning was normal. Following surgery, the patient underwent a barium swallow to check for an abnormal right subclavian artery. There was no oesophageal indentation visible during the barium swallow.

Figure 1: Type 2A NRLN directly arising from vagus.
a: Right NRLN, b: Vagus nerve, c: Internal carotid artery, d: Retracted thyroid

DISCUSSION

In addition to noting an abnormality in the right subclavian artery's origin and course, Steadman was the first person to see a NRLN in a cadaver in 1863. He concluded that the aberrant right subclavian artery, was closely associated with the NRLN.[6] The majority of individuals with NRLN have them on the right side, whereas a left NRLN is a very uncommon condition with a prevalence of 0.004%[7] and is associated with situs inversus.[8] Due to the abnormal Subclavian artery compressing the oesophagus, 5% of these patients will exhibit dysphagia (dysphagia lusoria).[1]

Here is an overview of three types of NRLN: Type 1 originates directly from the vagus and travels alongside the vessels of the superior thyroid pedicle.

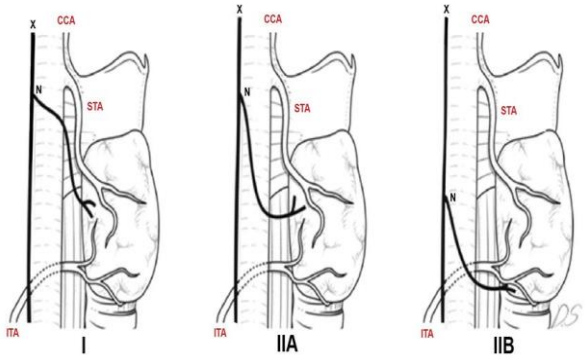

Figure 2: Avisse classification of NRLN.

Type IIA runs parallel to and over the trunk of the inferior thyroid artery. Type IIB travels in a transverse direction that is parallel to and beneath the trunk or between the branches of the inferior thyroid artery.[9] We have identified type 2A NRLN.

Most authors believe that the safest method for thyroid and parathyroid procedures is to identify and fully expose the RLN because of its numerous anatomical variations.[10] Intraoperatively, the best way to avoid morbidity is to identify the RLN with a systematic dissection to open the fascia between the thyroid gland and the carotid artery. All transversely coursing structures apart from the middle thyroid vein are retained, until the RLN is located low in the neck, which is then traced superiorly. We were able to find a right NRLN in one such case by using this surgical technique.

CONCLUSION

Ignoring nonrecurrent laryngeal nerve might have disastrous consequences as it is a rare entity. Awareness of existence of NRLN, solid anatomical knowledge and methodical dissection to locate RLN help in minimizing morbidity during thyroid surgeries.

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