Two cases of non-recurrent laryngeal nerve: routine nerve exploration in total thyroidectomy

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ABSTRACT

Recurrent laryngeal nerve injury is one of the main complications of thyroidectomy. Since variability in the course of the nerve increases the risk of injury, routine nerve exploration is recommended. In this report, we present two cases of non-recurrent laryngeal nerve found during total thyroidectomy performed for benign pathologies. Total thyroidectomy was performed on two female patients (52 and 54 years old) with a diagnosis of multi-nodular goiter in our clinics. Nerve exploration was performed routinely and non-recurrent laryngeal nerve was noted in both patients. Patients were discharged on the first postoperative day without any complications. Recurrent laryngeal nerve exploration does not increase the risk of nerve injury and ensures safety in case of non-recurrent laryngeal nerve presence, despite its rarity.

Key Words: Non-recurrent laryngeal nerve, total thyroidectomy, nerve exploration

INTRODUCTION

One of the most important complications in thyroidectomy is recurrent laryngeal nerve injury. The recurrent laryngeal nerve shows anatomical variations in its course. Rarely, the inferior laryngeal nerve can be non-recurrent. Due to differences in the anatomic course of the nerve, it is recommended that the nerve should be seen and protected to reduce the possibility of injury. Herein we report two cases that underwent total thyroidectomy for benign thyroid pathology and were detected to have non-recurrent inferior laryngeal nerve anomaly during nerve dissection.

CASE PRESENTATION

Two female patients aged 52 and 54 years old complaining of swelling in the neck were evaluated at the general surgery outpatient clinic. As a result of laboratory and imaging tests, surgery was recommended to both patients with a diagnosis of multi-nodular goiter. After routine preoperative preparation and anesthesiology evaluation, total thyroidectomy was performed. During surgery, standard recurrent laryngeal nerve dissection was performed in both the left and right sides. First by lateral approach, the nerve was dissected at the area where it courses close to the inferior thyroid artery. If the nerve could not be visualized at this level, dissection was carried on at the level of the ligament of Berry since it is anatomically fixed (3, 4).

The easiest point to reach the nerve during exploration of the inferior laryngeal nerve is the area where it courses close to the lower pole and in close proximity to the inferior thyroid artery. Although more difficult to dissect, the recurrent laryngeal nerve can also be observed at the level of the ligament of Berry since it is anatomically fixed (3, 4).

DISCUSSION

There are many variations of the recurrent laryngeal nerve. This increases the risk of nerve injury during thyroidectomy. The recurrent laryngeal nerve may be located in the trachea-oesophageal groove (50-77%), para-tracheal area (17-40%), para-oesophageal area (6%) or within thyroid parenchyma (4%) (1). The recurrent laryngeal nerve can be divided into two or three branches before entering the larynx, in close proximity to the cricoid cartilage, and these branches also need to be protected during thyroidectomy (2).

Very rarely recurrent laryngeal nerve is separated from the vagal nerve in the cervical region and is named non-recurrent laryngeal nerve. This anomaly is seen on the right with a rate of 0.6%, and of
explored the nerve. When the nerve could not be visualized
complete course of the nerves (10). In both our cases, we
suggest a surgical dissection technique that demonstrates
ditional recurrent branch were detected in the right side. They
these seven patients both a non-recurrent nerve and an ad-
thyroidectomies, found 7 non-recurrent nerves, and in two of
the risk of injury is very high. Sanders et al. (10), in their 1000
tected during surgery if nerve exploration is done, otherwise
abnormalities are asymptomatic, can be recognized and pro-
non-recurrent laryngeal nerve is due to its susceptibility to in-
aortic arch and situs inversus (5-8). The surgical importance of
panying to left non-recurrent laryngeal nerve are right-sided
and the absence of the innominate artery. Anomalies accom-
right non-recurrent laryngeal nerve can be detected together
with anomalies like the presence of aberrant subclavian artery
and the absence of the innominate artery. Anomalies accom-
panying to left non-recurrent laryngeal nerve are right-sided
aortic arch and situs inversus (5-8). The surgical importance of
non-recurrent laryngeal nerve is due to its susceptibility to in-
jury during thyroidec-omy (9). Non-recurrent laryngeal nerve
anomalies are asymptomatic, can be recognized and pro-
tected during surgery if nerve exploration is done, otherwise
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thyroidectomies, found 7 non-recurrent nerves, and in two of
these seven patients both a non-recurrent nerve and an ad-
tional recurrent branch were detected in the right side. They
suggest a surgical dissection technique that demonstrates
complete course of the nerves (10). In both our cases, we
explored the nerve. When the nerve could not be visualized
with standard dissection in the area in close relation to the in-
ferior thyroid artery, dissection was performed at the level of
the ligament of Berry. The nerves were detected at this level and
were followed to the carotid sheath, revealing type I non-
recurrent laryngeal nerve anomaly in both cases.

CONCLUSION
One of the most important complications of thyroidec-omy is
recurrent laryngeal nerve injury. The recurrent laryngeal nerve
shows anatomical variations in its course. Rarely, the inferior
laryngeal nerve can be non-recurrent. Due to these anatomical
differences, it is emphasized that a safe area to operate on
cannot be defined without visualization of the nerve. In our
clinic, we implemented total thyroidec-omy as standard and
we perform routine recurrent laryngeal nerve dissection dur-
ing thyroidec-omy. Recurrent laryngeal nerve dissection does
not increase the risk of nerve damage and provides a safe
surgery in also rare cases like non-recurrent laryngeal nerve
anomalies.

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