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 and 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. In both patients, during dissection in the right lobe, the nerve was localized at the point of entrance to the larynx and tracing its course a type I non-recurrent laryngeal nerve abnormality was observed (Figure 1, 2).

The patients were discharged on the first postoperative day, following withdrawal of the surgical drain, without any postoperative complications.

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).

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).

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 additional recurrent branch were detected in the right side. They in 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 detected during surgery if nerve exploration is done, otherwise abnormalities are asymptomatic, can be recognized and pro-

safety area to operate on recurrent 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 thyroidectomy as standard and we perform routine recurrent laryngeal nerve dissection during thyroidectomy. 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 abnormalities.

CONCLUSION
One of the most important complications of 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 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 thyroidectomy as standard and we perform routine recurrent laryngeal nerve dissection during thyroidectomy. 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 abnormalities.

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