Case report

NON RECURRENT LARYNGAL NERVE –A CASE REPORT

Zahir Hussain* S ,Kamaludeen M N

Department of Endocrine surgery, Madras Medical College, Chennai - 600 003

Corresponding Author: Zahir Hussain* S

ABSTRACT

The non-recurrent laryngeal nerve (nRLN) is a rare abnormal condition that the endocrine surgeon must aware , in order to avoid postoperative morbidity. High index of suspicion, Preoperative recognition of patients with situs inversus, dysphagia lusoria, identification of medialised vagus nerve and meticulous dissection can minimize the preoperative risk of injury to nRLN. We are reporting a case of nRLN observed during total thyroidectomy for 35 year old patient who had multinodular goiter

Keywords : Non recurrent laryngeal nerve , Situs inversus ,Total thyroidectomy , Vagus nerve

INTRODUCTION

Identification of recurrent laryngeal nerve during thyroid and parathyroid surgery is very essential to avoid morbidity .Understanding and thorough knowledge of anatomy of the neck structures is vital in neck surgery. Even though non recurrent laryngeal nerve (nRLN) is very rare identification is must.

nRLN may arise directly from the cervical part of vagus nerve and courses medially to the larynx and usually associated with anomalous variation in subclavian artery¹². Three types of anomalous variation may be there:

Type 1 arises directly from the vagus and runs together with the vessels of the superior thyroid pedicle;

Type 2A follows a transverse path parallel to and over the trunk of the inferior thyroid artery Type 2B follows a transverse path parallel to and under the trunk or between the branches of the inferior thyroid artery³

Left nRLN is extremely uncommon and always associated with a ortic arch anomaly and situs inversus 1 $\ ^2$

Case report

A 35 year old female was referred to our department with thyroid swelling of three years duration .On examination patient was found to be in euthyroid state with no pressure symptoms. Ultrasonography examination of thyroid showed multinodular goiter of both lobes each about 5x4x3 cm in size and showed calcification. FNAC of the nodule was follicular neoplasm. So we planned for total thyroidectomy. Total thyroidectomy was proceeded by lower cervical collar incision and strap muscles were retracted .Thyroid gland was exposed and and total thyroidectomy was proceeded .The nRLN was identified taking transverse course from the cervical vagus running towards the larynx .No other recurrent laryngeal nerve was found in the tracheoesophageal groove .Total thyroidectomy was completed and postoperative period was uneventful. Histopathological examination demonstrated colloid nodular goiter .

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DISCUSSION

Identification of RLN is an important step in thyroid and parathyroid surgery. The recurrent laryngeal nerves supply all intrinsic muscles of the larynx except the cricothyroid muscle.⁴ These muscles act to open and close the vocal cords, and include the posterior cricoarytenoid muscles, the only muscle to open the vocal cords.⁵ The nerves also carry sensory information from the mucous membranes of the larynx below the lower surface of the vocal fold,⁶ as well as sensory, secretory and motor fibres to the cervical segments of the esophagus and the trachea⁷

Injury to RLN cause hoarseness of voice in unilateral injury and breathing difficulty in bilateral nerve injury. Non recurrent laryngeal nerve, a rare anomaly, passes transversely into larynx with or without its recurrent branches directly arising from the vagus nerve which is very vulnerable during thyroid surgery. Steadman was the first to observe a nRLN and anomaly of origin of subclavian artery in a cadaver in1823. Incidence of non-recurrent laryngeal nerve varies from 0.2% to 0.79 % on right side and 0.004% on left side in various studies .Marone et al demonstrated nRLN in 2(0.2%)⁸ patients out of 992 thyroid and parathyroid surgeries while Defechereux et al reported 20(0.79%)⁹ nRLN out of 2517 thyroid surgeries. Intraoperatively, the best way to avoid injury is to identify the nerve with a systematic dissection based on usual anatomical landmarks like tracheoesphageal groove ,berry ligament, inferior thyroid artery and middle thyroid vein. Presence of a nRLN should be suspected when the nerve is not found at the normal site. In such cases any transversely running structure between the carotid sheath and the larynx should be carefully examined with meticulous dissection. In addition to meticulous dissection and knowledge of anatomy intraoperative nerve monitoring is another option to reduce the injury to RLN.¹⁰

CONCLUSION

Although non recurrent laryngeal nerve is rare anomaly, thorough knowledge about anatomy and meticulous dissection is essential to avoid morbidity during thyroid surgery.



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