

## Aspects of surgical anatomy of the recurrent laryngeal nerve

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The injuries in the recurrent laryngeal nerve, reflecting injuries on the vocal chords, causing light transitory dysphonia, cough, aspiration till severe dysphonia or respiratory insufficiency, are well known as complication in thyroidectomy, parathyroidectomy, emptying cervical and access up to the cervical. This complication oscillates in literature from 3 to 17% of operations results. The aim of this study is to describe the anatomy of the recurrent laryngeal nerve (RLN) bilaterally, correlating to cervical-thoracic structures and vulnerably points of approach and injury. Methods: It has been studied ten adult corpses conserved in formalin 10% in the laboratory of Anatomy from the Department of Morphology from the Federal University of Amazon; in each corpse, it has been dissected the right and the left RLN, in all its extension, wide exposition, since the origin in the Vagus nerve until its penetration in the larynx. Analyzing the vertebra related to its origin, the vertebra associated to its penetration in the larynx and its anatomic relations to the inferior thyroid artery and thyroid glandule. Also, it has been measured the total length and the nerve length till the thyroid glandule by using a flexible ruler, with accuracy of 1 mm. The data was analyzed in terms of frequency, average and standard deviation. The left RLN had a total average length of  $9.0 \pm 1.1$  cm. Penetrates the larynx in 30% of cases in the height of C5, 20% of C4, 20% of C5-C6, 20% of C6 and 10% of C4-C5. It's recurrent in 60% of cases in height of T3, 20% of T3-T4, 20% of T4 and 10% of T5. The right RLN average total length is  $4.5 \pm 0.5$  cm. It penetrates the larynx in 50% of cases in height of C5, in 40% of C6 and 10% of C3-C4. It's recurrent in 60% of cases in the height of T1, 30% of T2 and 10% of T3. The proposal explanations for the RLN injury are: traumatic section during the surgery; direct compression, post-operative swelling of the perineural tissues leading to formation of scar tissue and nervous constriction; stretching; and compression of the endotraqueal tube. Except to the last mechanism, all the others have in common the diversity of the anatomic situation of the RLN. The literature evidences that the right RLN it is more vulnerable to surgery injures due to its oblique trajectory and unprotected by the traqueo-esophageal sulcus in smaller length, which favors the stretchiness during the exposition of deeper structures. The major suffering from the right RLN finds justifications in its particularities as evidenced in this study: average length as 4.5 cm, while the left RLN with the average length of 9.0 cm. The right RLN is more vulnerable to surgery injuries (stretching injury) due to its smaller length, besides the instrumental compression or accidental section by its oblique and unprotected trajectory, without the cover of the traqueo-esophageal sulcus.