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THE NON-RECURRENT LARYNGEAL NERVE: AN ANATOMICAL “TRAP”

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Research on the non-recurrent laryngeal nerve (NRLN) is significant for several reasons. Firstly, understanding the NRLN's anatomical variations is crucial to avoid nerve damage during surgical operations, particularly thyroid surgery, where identifying its presence is essential to prevent complications like vocal cord paralysis. This research also enriches medical education, enhancing students' knowledge of anatomy and influencing their future clinical practice. Additionally, familiarity with NRLN variations is vital for surgical training programs, fostering development of safer surgical techniques. Ultimately, a comprehensive understanding of the NRLN anatomy supports better surgical planning, reduces the risk of nerve injuries, and may lead to innovative surgical approaches that accommodate anatomical variations, ensuring improved patients' safety and outcome.

The purpose of our research was to study literature data on the recurrent and non-recurrent laryngeal nerves, their embryological origin, clinical implications, methods of identification.

Our research was based on a combination of search terms (recurrent and non-recurrent laryngeal nerves, their embryological origin, clinical implications of their damage, their identification), systematic reviews and original articles in English were identified and reviewed.

The NRLN is an uncommon anatomical variant, occurring in approximately 4-6% of individuals, with 97.1% of cases identified on the right side and 2.3% on the left side. Pre-operative detection of aberrant subclavian arteries and NRLNs using imaging techniques such as ultrasonography and computed tomography can be nearly 100% effective. Intraoperative nerve monitoring serves as an additional method to identify these variations during surgery.

The likelihood of a right sided NRLN is significantly correlated with the presence of an aberrant subclavian artery, which is associated with Dysphagia Lusoria (Bayford-Autenrieth Dysphagia). While symptoms related to an aberrant subclavian artery are often absent, they can sometimes manifest as dysphagia, chronic coughing and unexplained ischemia of the right upper limb.

The NRLN is a rare yet clinically significant structure for surgeons and poses an increased risk of iatrogenic injury, most often resulting in temporary or permanent vocal cord paralysis. A thorough understanding of the prevalence, origin, and associated pathologies is vital for preventing injuries and complications during surgical procedures.