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RIGHT VERSUS LEFT SIDED EXPOSURES OF THE RECURRENT LARYNGEAL NERVE (RLN) AND ITS' BRANCHES- A FRESH CADAVERIC STUDY RELEVANT TO THE CERVICAL SPINE

Introduction/ Aim

The higher vulnerability of RLN in anterior approach to the cervical spine on the right versus left sides is the subject of ongoing debate. Whilst most cadaveric studies have focused on in situ variations in course and local structural relations of the RLN as a suitable guide, they have mostly been done in preserved (fixed) cadavers or without relevance to the needs of spinal exposure.

Our aim was to perform surgically relevant exposures of the anterior cervical spine with particular attention to observing the potential vulnerabilities of the RLN on right and left side in fresh cadaveric specimens. In addition, we aimed to explore its branches.

Materials and Methods

12 cadavers had extensive layer by layer dissections by 2 surgeons (one with extensive experience as anatomy dissector). The RLNs and its branches were exposed in their entire length and explored for vulnerability. (Each stage was photographed)

Results

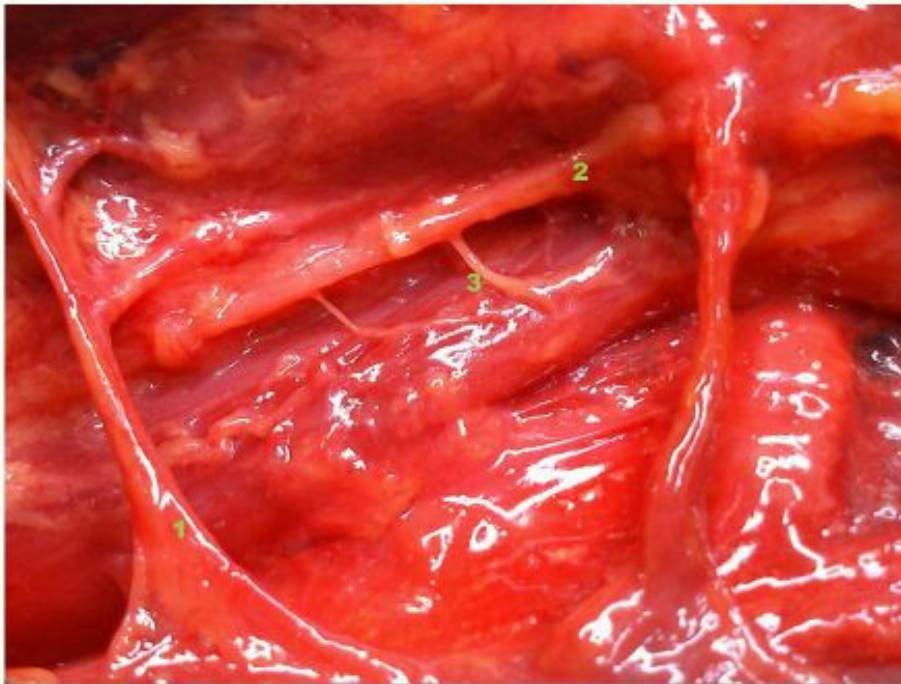
In all specimens, we demonstrated that right sided approach clearly causes undue stretch of the nerve and its branches particularly below C5 (photographed). The left side provided a good exposure without undue traction on the nerve. However, the terminal oesophageal branches of the nerve were especially vulnerable to this stretch or direct pressure on the left side.

Discussion

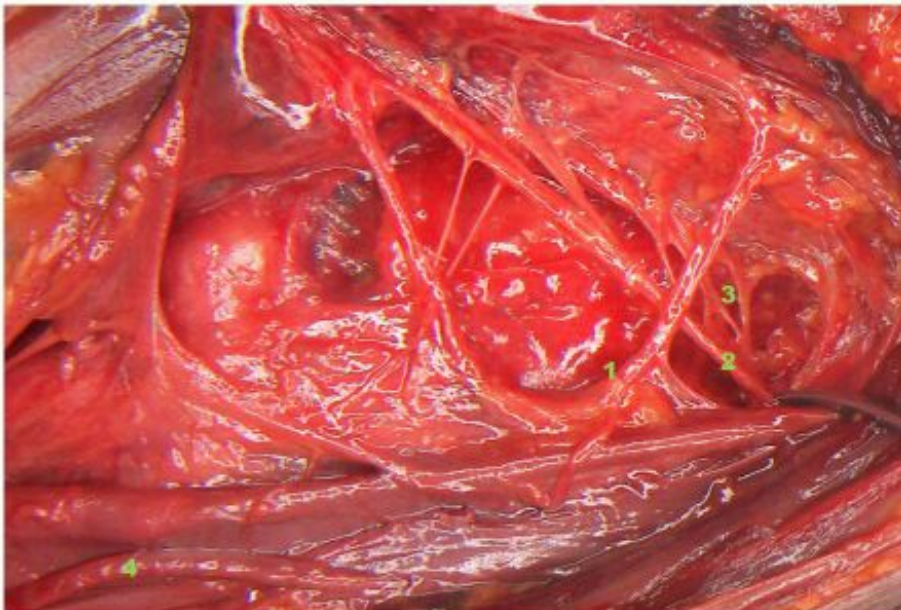
Traction neuropraxia of the upper oesophageal branches of the RLN nerve may provide an alternative explanation for the transient post-op dysphagia (upto 60%). The laryngeal supply of the RLN benefits from Galen's anastomotic nerve supply of SLN (Ansa of Galen) and hence the neuropraxia of the nerve is less frequently symptomatic.

Conclusion

Bleow C5, the left sided anterior cervical approach permits a wider access to the entire anterior cervical spine with less risk to the RLN. Neuropraxia induced on the oesophageal branches (directly by retractors or indirectly by traction) could provide a possible explanation for transient post-op dysphagia. We believe that this will help spinal surgeons to refine their surgical technique and thus reduce the incidence of iatrogenic injury.



1. Inferior Thyroid Artery 2. Lt. RLN 3. Oesophageal Branches of RLN Vulnerable to Neuropraxia



1. Inferior Thyroid Artery 2. Rt. RLN 3. Oesophageal Branches of RLN Vulnerable to stretch Neuropraxia 4. Rt. Vagus n.



Left Exposure C2-T1 (Orange-White midline pins) 1. Lt. RLN in Tracheoesophageal Groove not under traction



Right Exposure Partially Accessible C2-C6 (Orange-Blue midline pins) (White pin not visible) 1. Rt. RLN under traction 2. Rt. Vagus looping around to RLN 3. Subclavian a. 4. Common Carotid a.