LETTER TO THE EDITOR

Comments on the Finding of Right Non Recurrent Laryngeal Nerve During Thyroidectomy

Comentarios sobre el hallazgo de nervio laringe derecho no recurrente durante la tiroidectomía

Dear Editor,

Your recent publication of an image of the non recurrent inferior laryngeal nerve (NRLN) during thyroidectomy, is interesting for the purpose of sharing reflections on related diagnostic concepts and issues.

The aberrant right subclavian artery (ARSA) is the most frequent malformation of the aortic arch and is present in 0.2%–13.3% of the general population, with a higher incidence in patients with heart disease and Down syndrome. The ARSA is usually associated with other heart and vascular anomalies, and with right NRLN—the incidence of which is estimated to be between 0.3% and 1.6%. The incidence of left NRLN is under 0.04%, associated with situs inversus or the left aberrant subclavian artery and the probability of finding it during thyroidectomy is exceptional.

The right NRLN emerges directly from the cervical region of the vagus nerve, behind the common carotid artery and enters the larynx behind the inferior thyroid cartilage notch. Bifurcations may be present, with several possible pathways (type I from the upper end of the thyroid gland; type IIa in relation to the inferior thyroid artery or type IIb inferior to it) or present offshoots up to 40%. A NLRN may even be associated with recurrent branches between 28% and 45%. Several authors believe that these are really sympathetic trunk branches which may be confused with a possible recurrent laryngeal nerve during dissection when the latter is absent and may therefore injure the real NRLN.

Due to the above, the incidence of NRLN (not exceptional) and variability of its pathways there may be a risk of laryngeal paralysis during thyroid and parathyroid surgery.

For the surgeon there are 2 scenarios. He or she is either previously aware of the existence of an ARSA and can therefore foresee a possible right NRLN or is unaware, and detects it during surgery.

During the preoperative period the systematic search for vascular anomalies has proven to be useful through Doppler colour scans—demonstrating the absence of the right brachiocephalic trunk and the origin of the primitive carotid nerve directly from the aortic arch, with an overall precision above 98% and with negative predictive sensitivity and value of 100%, which is completed with angiography by computerised axial tomography or magnetic resonance (considered to be the gold standard).

During thyroidectomy, neuromonitoring helps to correctly differentiate the motor branches from the sympathetic trunk fascicles, and through proximal stimulation on the vagus nerve (obtaining of the signal) and distal (absence of the signal), to establish the presence of NRLN intraoperatively. This algorithm helps to identify the NRLN and its preservation, significantly reducing the incidence of laryngeal paralysis in groups where neuromonitoring is used.

The detection of NRLN during thyroidectomy is lower than real detection, and will probably increase with the systematic use of preoperative diagnostic methods such as the Doppler colour scan and intraoperative neuromonitoring.

References


Please cite this article as: Pardal-Refoyo JL. Comentarios sobre el hallazgo de nervio laringe derecho no recurrente durante la tiroidectomía. Acta Otorrinolaringológ España. 2017;68:375–376.

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5 February 2017 16 February 2017