

### **Monitoring the Laryngeal Nerves During Thyroidectomy. Initial 115 Cases Experience**

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#### **Abstract**

The lesions of the laryngeal nerves, despite low incidence, are the most severe long term complications after thyroidectomy. Visualization after careful dissection of the recurrent laryngeal nerve (RLN) is now the golden standard among thyroid surgeons. We assessed traditional landmarks for the identification of RLN and anatomic high risk situation. The study also presented our initial experience using neuro-monitoring of RLN (IONM) during surgery. The results show a recognizable Zuckerkandl tubercle in 162 of the 222 cases (72,97%). After dissection RLN was found posterior from TZ in 154 cases (95,06%) and lateral from TZ in 8 cases (4,93%). The identification of the Zuckerkandl tubercle is a useful landmark for RLN localization. As concerning high risk situations we found 2 non recurrent laryngeal nerves (both on the right side). Extra laryngeal ramification of RLN is an anatomical reality with significant incidence (23,8% in our study) and major surgical involvement. Extra laryngeal ramification of RLN occurs more often between the cross point with inferior thyroid artery and larynx entry point. Monitoring the branches of RLN we obtain major EMG signal on the anterior one. The surgical meaning is that the anterior branch carries the most important motor fibers and we have to pay extra care in the correct identification and preservation of it. From a total of 222 visually identified RLN we have 215 nerves (96,84%) with positive EMG signal on monitoring. For 7 nerves (3,15%) we had no EMG signal. In 3 cases (2 total thyroidectomies and 1 lobectomy) involving 5 RLN there was a false negative result caused by electrode malposition or desoldering from endotracheal tube. Our initial experience shows that IONM is harmless, easy to handle and a useful tool for identifying the nerve and confirm its integrity. More extended studies are needed to show if intraoperative monitoring decreases the rate of RLN iatrogenic injury.

**Key words:** recurrent laryngeal nerve (RLN), tubercle of Zuckerkandl (TZ), intraoperative neuromonitoring (IONM)

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