

Recurrent Laryngeal Nerve Identification and Assessment During Thyroid Surgery: Laryngeal Palpation

Content

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Electrical identification and monitoring of the recurrent laryngeal nerve (RLN) has been proposed as an adjunct to standard visual identification of the nerve during thyroid and parathyroid surgery. This study was undertaken to assess laryngeal palpation as an intraoperative technique for identifying and assessing the RLN during surgery and to investigate the relation between laryngeal palpation and associated laryngeal electromyographic (EMG) activity. The postcricoid region of the larynx during surgery was palpated through the posterior hypopharyngeal wall to sense posterior cricoarytenoid muscle contraction in response to ipsilateral RLN stimulation (i.e., the "laryngeal twitch response.") Laryngeal palpation was performed in a series of 449 consecutive thyroid and parathyroid surgeries with 586 RLNs at risk. All patients underwent preoperative and postoperative laryngoscopy to assess vocal cord mobility. In a subset of patients, laryngeal palpation and simultaneous laryngeal EMG recordings were compared during intraoperative RLN stimulation. In this series, there was no permanent RLN paralysis. There was one case of temporary RLN paralysis secondary to neural stretch that resolved 6 weeks postoperatively (temporary paralysis rate: 0.2% of patients, 0.2% of nerves at risk). Intraoperative laryngeal palpation of the laryngeal twitch response reliably correlated with normal postoperative vocal cord function. Loss of the laryngeal twitch response occurred in the single case of temporary paralysis in the setting of an anatomically intact nerve. Laryngeal palpation correlated well with simultaneous laryngeal EMG activity. There were no palpation-induced laryngeal injuries or laryngeal edema. There were also no RLN injuries due to repetitive neural stimulation. Intraoperative laryngeal palpation during RLN stimulation is a safe, reliable method for neural monitoring that can assist in RLN identification and assessment during thyroid and parathyroid surgery. Most importantly, it provides important prognostic information regarding ipsilateral vocal cord function at the completion of the initial side of the thyroid or parathyroid surgery. Intraoperative laryngeal palpation allows the surgeon to stage contralateral surgery if RLN damage is diagnosed, thereby avoiding the potential for bilateral vocal cord paralysis. We believe that laryngeal palpation is useful as an adjunct to formal EMG monitoring during thyroid and parathyroid surgery.