

Recurrent laryngeal nerve localization and protection in thyroidectomy

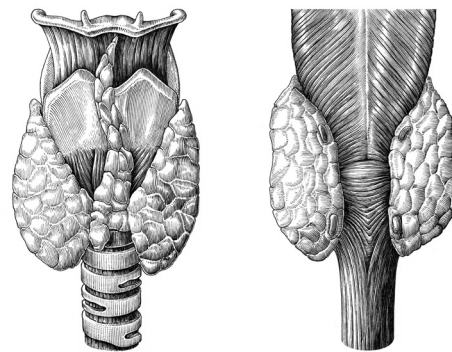
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In this White Paper, we'll discuss the use of the Checkpoint® Head & Neck Stimulator/Locator in thyroidectomy procedures. While everyone would agree that visualization of the Recurrent Laryngeal Nerve (RLN) is the "Gold Standard" in thyroidectomy surgery, visual identification and preservation of the RLN alone does not guarantee normal postoperative vocal cord function. Anatomical continuity of a motor neuron does not ensure function because there are other causes of nerve injuries such as stretching and excessive dissection of the nerve with ischemia.¹

Additionally, there is ongoing debate on the benefit of the use of Intraoperative Nerve Monitoring (IONM) as a tool to reduce the risk of nerve injury and improve outcomes. IONM has proven to be highly useful in certain circumstances but has not been definitively proven to protect the nerve any more effectively than the gold standard of nerve visualization.²

The bottom line is that the key to good surgical outcomes is, first and foremost, good surgical skills. We have to remember that any technology, and in our case, "new technology", should be considered an added "tool" to augment or provide additional information to the surgeon during his surgical procedures.

Nofal and El-Anwardoi³ remind us that routine identification of the recurrent laryngeal nerve during thyroidectomy represents the "standard of care" in thyroid surgery, as it reduces the incidence of definitive postoperative vocal cord palsy. 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.⁴ Unfortunately, as the NIM and other IONM devices have been introduced into head & neck surgery, many residents and surgeons have either forgotten or were never trained in this procedure and only rely on IONM to ensure nerve integrity.



RLN Testing. Simply locate the cricoid cartilage with your finger tip and slide finger posterior placing your fingertip directly on the posterior and or lateral cricoarytenoid muscles. Utilizing Checkpoint's biphasic waveform and ability to produce a tetanic muscle contraction, stimulate the RLN at 2 mA, which produces a robust contraction that is easily palpable and reproducible.

Regardless of surgical approach, technique and advancement of technology, a safe and reliable means of RLN localization and verification can sometimes be a clinical challenge, especially when the thyroid gland is large and the surrounding soft tissue planes are distorted. The Checkpoint Stimulator offers the surgeon a new safe, reliable technology to assist in this localization and verification.

Who might consider Checkpoint in thyroid surgery?

- Surgeons who primarily want to safely and reliably verify function of the RLN during or after the removal of the Thyroid and before moving to the second side
- Surgeons who only use IONM for RLN confirmation
- Surgeons who currently use IONM, but are looking for a more cost effective, safe alternative
- Surgeons who do not use IONM, but want to reliably test RLN

References

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3. Nofal A.A.F. & El-Anwardoi M.W. (2015). *Clin. Otolaryngol*. doi: 10.1111/coa.12509
4. *World J Surg*. 2004 Aug;28(8):755-60. Epub 2004 Aug 3.



About the author

Kevin Scanlan, OTR, is Vice President of Clinical Services for Checkpoint Surgical, Inc. He was part of the initial development and launch team for Checkpoint Surgical in 2009 and has served as Vice President of Clinical Services since 2015.

The Checkpoint Stimulator is a single-use, sterile device intended to provide electrical stimulation of exposed motor nerves or muscle tissue to locate and identify nerves and to test nerve and muscle excitability. Do not use this Stimulator when paralyzing anesthetic agents are in effect, as an absent or inconsistent response to stimulation may result in inaccurate assessment of nerve and muscle function. For a complete list of warnings and precautions regarding the use of the Stimulator please see www.checkpointsurgical.com.

Note: White Papers are company funded and non-peer reviewed.