



## **Pediatric Laryngeal Nerve Injury: Practice Updates and Treatment Outcomes**

Brandon Temel, BS; Malek Bouzaher, MS

*Virginia Tech Carilion School of Medicine*

### Objectives:

To review pediatric laryngeal nerve injuries including incidence, common mechanisms associated with injury, diagnostic work-up, and treatment options and outcomes.

### Materials and Methods:

A systematic review of the literature regarding pediatric laryngeal nerve injuries was performed with emphasis on studies published after 2010. Outcome data from our institution, including video and speech samples, were included to support our findings.

### Results:

Pediatric laryngeal nerve injuries are rare, often related to birth trauma or surgical procedures. Infantile cardiothoracic surgeries are the most common cause, with an overall incidence of only 4-7%. Evaluation of patients with a suspected laryngeal nerve injury consists of a thorough physical examination, nasopharyngoscopy, and laryngeal electromyography to confirm neuronal origin. Multiple treatment options exist, which must consider anticipated growth, pediatric airway anatomy, and the extent and timeframe of the injury. Conservative measures include observation with close follow-up, while more invasive treatments include injection laryngoplasty, framework surgery, or reinnervation. Outcomes are variable and associated with the extent of injury, time since injury, and if applicable, longevity of injection or implant materials used. Reinnervation provides an effective permanent solution, and shows promise as an emerging standard of care, even for patients over a decade post-injury.

### Conclusions:

Laryngeal nerve injuries are rare but can have profound impacts on development and quality of life in children. Current research is limited and, as a result, no established standard of care exists for treatment of these injuries. Additional investigations are necessary to help identify patients most likely to benefit from individual treatment options.