

Public Abstract

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Title:THE EFFECT OF LARYNGEAL NERVE TRANSECTION ON SWALLOWING FUNCTION IN A MOUSE MODEL

Dysphagia is a common postoperative complication of cervical and thoracic surgical procedures, presumably caused by iatrogenic laryngeal nerve injury. It is unknown which laryngeal nerve contributes most to dysphagia and poor medical outcomes after injury. To address this clinically relevant question, we used our established Videofluoroscopic Swallow Study (VFSS) assay to objectively assess swallow function and our established laryngoscopy assay to assess vocal fold (VF) mobility after surgically-induced (iatrogenic) laryngeal nerve injury in a mouse model. C57BL/6J mice (n=31) underwent unilateral transection of the superior or recurrent laryngeal nerves (SLN or RLN) or a sham surgery. Swallowing was assessed through VFSS and VF mobility was assessed through laryngoscopy pre-surgery and several timepoints post-surgery. We validated our surgical procedure by confirming that our surgical technique itself was not negatively impacting swallow function or VF mobility. Unilateral SLN transection did not result in acute or chronic dysphagia or VF immobility, whereas unilateral RLN transection resulted in acute dysphagia and ipsilateral VF paralysis; dysphagia did not persist long-term, whereas VF paralysis did. SLN versus RLN transection produced different dysphagia profiles in our mouse model. In the future, we plan to use this model as a platform to investigate the pathophysiology of post-surgical dysphagia and to explore potential treatments.