Use of the GlideScope to Facilitate Direct Laryngoscopy and Biopsy of a Supraglottic Tumor in a Patient with Severe Spinal Stenosis

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ABSTRACT

Direct laryngoscopy requires neck extension in order to achieve an adequate view of the larynx. The resultant cervical spine extension needed during this maneuver means that conventional direct laryngoscopy may be difficult or inadequate in patients with cervical, vertebral, or spinal cord trauma, cervical fusion or spinal stenosis. In such instances where the neck cannot be extended, it is possible to use a GlideScope® (Verathon Inc., Bothell, WA, USA) to examine and biopsy the larynx while keeping the neck in the neutral position. To date, there are no reports in the head and neck cancer literature on the use of a GlideScope during laryngoscopy. In this case report we report its use in a patient with high risk cervical stenosis.

We present the case of a 53 year-old woman with a 1.5 cm mass arising from the left aryepiglottic fold. During the workup for this mass, a CT scan of the neck revealed moderate to severe narrowing of the C5-C6 spinal canal. Follow-up MRI showed spinal cord compression with myelomalacia. Following consultation with a spine surgeon, the decision was made to proceed with biopsy in the operating room to obtain a tissue diagnosis. Using a GlideScope to obtain indirect visualization, we successfully completed this procedure with the cervical spine in the neutral position. Our novel approach allowed reasonable visualization and biopsy of this supraglottic tumor while maintaining cervical spine stabilization.

INTRODUCTION

A 53 year-old woman presented to our clinic complaining of a hoarseness for the past three months. This was associated with dysphagia to solids and liquids and also associated with left sided otalgia. She did not complain of hoarseness, weight loss or fatigue. Her only significant past medical history included hypertension. She drank alcohol heavily and was a ½ pack per day smoker for 30 years. Flexible nasopharyngoscopy revealed a 1.5 cm exophytic mass centered on the left aryepiglottic fold. This lesion minimally obstructed the airway and vocal cord motion was intact bilaterally. There was no palpable cervical lymphadenopathy.

A routine contrast enhanced CT scan of the neck demonstrated a 1.5 cm supraglottic lesion (Figure 1), but also noted moderate to severe C5-6 cervical spinal stenosis. As a result of this finding, an MRI was ordered of the cervical spine and the Orthopedic Spine service was consulted. The MRI confirmed moderate to severe spinal stenosis at C5-6 and C6-7 as well as associated myelomalacia. (Figure 2) Based on these findings, the Orthopedic Spine service recommended against neck extension during operative direct laryngoscopy and biopsy. She had no limitations on neck range of motion preoperatively.

In order to maintain the neck in a neutral position during direct laryngoscopy and biopsy, we elected to use a GlideScope to visualize the larynx. After induction of general anesthesia, the patient was intubated by the anesthesiologist using the GlideScope. The oral cavity had been retracted, and the GlideScope was first examined with a DeLee laryngoscope. Next, the GlideScope was inserted into the vallecula while an assistant held the head in a neutral position. The larynx was then surveyed in a systematic fashion and the mass was easily identified. The use of the glideScope in this scenario has an advantage over traditional approaches in minimally invasive endolaryngeal procedures.

Figure 1. Axial contrast enhanced CT demonstrating the left 1.5 cm supraglottic lesion.

Figure 2. Sagittal T2 MRI demonstrating moderate to severe spinal stenosis at C5-6 and C6-7 with corresponding myelomalacia.

Case Report

The GlideScope is an indirect laryngoscope device that uses a camera at the end of a curved laryngoscope blade.

In the Anesthesia literature, the GlideScope has been shown to facilitate direct cervical spine motion compared to traditional direct laryngoscopy when cervical spine immobilization is needed. In a study of 50 patients with cervical spines immobilized with a Philadelphia collar, the GlideScope provided a superior laryngeal visualization and a high likelihood of intubation success compared to a Macintosh blade.

Unlike an Otolaryngology specific direct laryngoscope, the GlideScope is designed to sit exclusively in the vallecula. Therefore, evaluation of the vallecula, piriform sinuses, and hypopharynx, especially the post-cricoid space, is inadequate. The GlideScope was best suited for evaluating supraglottic and endolaryngeal structures to the level of the true vocal cords. Blind insertion of both the GlideScope blade and biopsy instrumentation may lead to mucosal laceration or perforation. In cases where an exophytic, friable tumor is present, blind instrumentation poses a risk of causing bleeding before the examination even begins.

CONCLUSIONS

We present a novel use for the GlideScope. Studies in the Anesthesia literature have demonstrated its usefulness for visualization of the larynx when cervical spine stabilization is required. In our case, severe spinal stenosis prevented a traditional laryngoscopy survey and biopsy by direct laryngoscopy. The GlideScope allowed adequate visual inspection of the endolarynx and biopsy of a supraglottic mass without damage to the spinal cord.

REFERENCES


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