Transoral Robotic Resection of a Massive Laryngeal Lipoma

Adedoyin Kalejaiye, MD; Lacey Adkins, MD; Stanley H. Chia, MD
1 Medstar Georgetown University Hospital Department of Otolaryngology/Head and Neck Surgery, Washington, DC
2 Medstar Washington Hospital Center Department of Otolaryngology/Head and Neck Surgery, Washington, DC

Lipomas are the most common benign tumor of the soft tissues. Less than 15% of all lipomas occur in the head and neck, and laryngeal lipomas account for less than 1% of all benign laryngeal tumors. Small pedunculated laryngeal lipomas have been managed with endoscopic techniques but larger submucosal lipomas usually necessitate open external approach which can cause significant morbidity. Transoral robotic surgery (TORS) is an effective alternative to open approaches for oropharyngeal tumors but there are also increasing applications to glottic and supraglottic lesions. We present a report of a rare laryngeal lipoma, successfully resected with TORS.

INTRODUCTION

Lipomas are the most common benign tumor of the soft tissues. Less than 15% of all lipomas occur in the head and neck, and laryngeal lipomas account for less than 1% of all benign laryngeal tumors. Small pedunculated laryngeal lipomas have been managed with endoscopic techniques but larger submucosal lipomas usually necessitate open external approach which can cause significant morbidity. Transoral robotic surgery (TORS) is an effective alternative to open approaches for oropharyngeal tumors but there are also increasing applications to glottic and supraglottic lesions. We present a report of a rare laryngeal lipoma, successfully resected with TORS.

CASE PRESENTATION

An otherwise healthy 66 year old male presented with 6 months of progressive dysphagia, dyspnea, and muffled voice. His past medical history was significant for recently diagnosed adult onset asthma for which he was placed on albuterol. He denied weight loss, odynophagia, hemoptysis, and otalgia. On flexible fiberoptic laryngoscopy, a massive, smooth mass was seen filling the oropharynx and obstructing visualization of vocal folds and hypopharynx (Figure 1). CT imaging revealed an 8.5 x 4.9 cm low attenuation mass extending from the right paraglottic space posteriorly into the hypopharynx and oropharynx. On MRI, the mass was T1 hyperintense with slight rim enhancement and showed complete suppression on T2 weighted fat saturation, suggestive of a lipomatous lesion (Figure 2).

SURGICAL TECHNIQUE

An awake tracheostomy was performed in order to secure the airway. The tongue was retracted anteriorly with a 2-0 silk suture, and an FK retractor (Gyrus Medical Inc., Maple Grove, MN) was used to extend the mouth and visualize the posterior oropharyngeal airway. The da Vinci robot (Intuitive Surgical Inc., Sunnyvale, CA) was then brought into the surgical field and was used for the remainder of the procedure.

A 30 degree telescope was used for visualization and the robot arms were introduced into the oral cavity. The mucosa overlying the mass was incised until the capsule of the mass was identified (Figure 3). Dissection was then carried inferiorly until the larynx was visualized along with its extension into the posterior aspect of the right false vocal fold.

En-bloc removal was not possible given the size of the mass, and the mass was removed in a piecemeal fashion. Dissection was carried into the paraglottic space between the right arytenoid and thyroid cartilage until the lesion could no longer be adequately visualized. The mucosal attachment to the posterior larynx was then transected at its entry point into the endolaryngeal structures.

RESULTS

Histopathologic examination of the mass was consistent with lipoma (Figure 5) and our patient did well following his resection. On postoperative day 1, he was tolerating a pureed diet and was decannulated by postoperative day 8. His dysphagia improved and his respiratory difficulty and dysphagia resolved completely. At his 2 month follow up visit, we noted a small amount of residual endolaryngeal lipoma suggested by fullness of the right false vocal fold (Figure 6). We offered the patient microlaryngeal surgery to address this area but he was satisfied with the initial procedure and declined further intervention.

DISCUSSION

Laryngeal lipomas are rare, comprising approximately 0.6% of benign laryngeal lesions. They present as smooth, well-encapsulated masses that may be sessile or pedunculated, usually arising in the supraglottic larynx. Common symptoms include dysphagia, dyspnea, hoarseness, and globus sensation. On CT, these lesions are of low attenuation with densitometric values less than that of water (<0 Hounsfield units). On MRI they are non-enhancing, hyperintense on T1 weighted sequences, and hypointense on T2 weighted sequences. Endoscopic removal is preferred for small lesions, but larger lesions often require open cervical approaches such as lateral pharyngotomy and laryngofissure. These external approaches can result in significant cosmetic and functional morbidity. Suspension microlaryngeal surgery for larger lesions is limited by the narrow channel of the laryngoscope which makes instrumentation challenging. While TORS is most commonly used in the head and neck for oropharyngeal tumors, it has also been used as an alternative to open and endoscopic resection of lesions of the larynx and hypopharynx. TORS offers the advantage of three-dimensional magnification, increased degrees of motion, and tremor-free movements.

CONCLUSIONS

Laryngeal lipomas are rare benign lesions, often presenting with airway obstruction, necessitating surgical resection. To our knowledge, this is the first report of transoral robotic resection of a laryngeal lipoma. We propose the use of TORS for large benign lesions of the larynx in order to avoid the morbidity of an open cervical approach.

REFERENCES