A Novel Reconstruction for Posterior Cricoid Resection

Karen Hawley MD; Tim Haffey MD; Robert Lorenz MD

1Cleveland Clinic Foundation: Head and Neck Institute

INTRODUCTION

Objective: To understand a new technique to reconstruct a posterior cricoid defect with tracheal advancement and rotation.

Method: We present a case of a 65 year old male with hoarseness for 2 years, and noted to have a submucosal mass of the left posterior subglottis with ipsilateral vocal cord immobility and superior displacement of the vocal process. CT demonstrated an expansile mass of the left posterior cricoid.

Surgical Technique: After the laryngeal complex was exposed, the intraoperative biopsy obtained was most suspicious for chondrosarcoma. The left cricoartenoid joint was disarticulated and the left hemicricoid with 1 cm of the right posterior cricoid was resected, leaving both vocal cords, the anterior commissure and the right cricoartenoid joint in tact. The trachea was mobilized, rotated approximately 90 degrees and then freed from the esophagus and the right recurrent nerve. The left arytenoid was pexied to the most superior tracheal ring, leaving the left cord in an ideal paramedian position with height match to the right cord. The posterior tracheal wall was split and sutured to the free edge of the posterior cricoid and inferior aspect of the left cord. Finally, the remaining superior tracheal rings were sutured to the anterior aspect of the thyroid cartilage.

Result and Conclusion: Final pathology revealed a Grade 1-2 chondrosarcoma with negative margins. The patient has been decanulated and is without evidence of recurrence.

CASE PRESENTATION

- We present a case of a 65 year old male with a history of diabetes and approximately 2 years of hoarseness.
- He denied any associated symptoms such as odynophagia, dysphagia, hemoptysis, otalgia or neck masses.
- Physical exam was notable for only a breathy voice; and no stridor.
- Flexible laryngoscopy revealed bilateral mobile cords, but incomplete closure. The subglottis was notable for a 25% obstructing erythematous mass centered on the left posterior cricoid (Figures 1A-B).
- A CT scan of the neck revealed a 2.2 x 1.3 x 2.2 cm expansile lesion of the left posterior cricoid and sclerosis of the adjacent arytenoid. No lymphadenopathy noted (Figure 2).
- Chondrosarcoma was at the top of the differential diagnosis, therefore the patient was taken to the operating room for complete surgical excision and temporary tracheostomy placement.
- Pathology revealed a Grade 1-2 chondrosarcoma and negative margins were obtained.

RESULTS: POST OPERATIVE COURSE

- The patient recovered from surgery well and was discharged from the hospital on post operative day six at which time he was tolerating a regular diet.
- As described, his left vocal cord was fixed at the completion of surgery and laryngoscopy in the hospital revealed a completely mobile right cord.
- Over time however, the right cord did become hypomobile as he developed a small amount of posterior interarytenoid scarring.
- Therefore, he underwent essentially a type 1 left CO2 laser cordectomy. A small amount of subglottic/tracheal scar tissue was also removed at that time with the CO2 laser. He was subsequently decanulated approximately 4 months from the time of his original resection.
- CT scan done at six months did not reveal any recurrent disease.
- Although his voice is slightly breathy, he does have an improved airway and he is doing well, tolerating a normal diet, approximately 7 months from the time of his original surgery (Figures 4A-B).

DISCUSSION

- Laryngeal chondrosarcoma is a rare disease without a uniform surgical approach.
- Due to the overall slow growing nature and excellent prognosis associated with this tumor, goals of surgery include complete excision with preservation of laryngeal function.
- Because this patient's disease was localized to the left hemicricoid, an open approach with a more traditional partial laryngectomy was more than he required.
- His voice at this point is still weak, however further vocal augmentation may be an option once his airway has done well without a tracheostomy for a longer period of follow up.
- In addition to the partial cordectomy, there is a height miss-match as the trachea has slightly pulled the left cord inferiorly (Figure 3).
- If this approach were to be used again, one might attempt to secure the mobile arytenoid to the remaining contralateral cricoid. This was a large gap in this patient, and therefore not attempted.
- For similar tumors, authors have described an endoscopic approach, leaving the perichondrium as an anterior border. Jackson et al described a trans-cervical "microdissection" technique; using the microscope to remove tumor with a curette leaving the mucosa intact.2,3

REFERENCES