Arytenoid Chondroma

Jaime Eaglin Moore, Amanda Hu, and Robert T. Sataloff

Department of Otolaryngology – Head and Neck Surgery, College of Medicine, Drexel University, 1721 Pine St., Philadelphia, PA 19103, USA

Address correspondence to Jaime Eaglin Moore, eaglinjm@gmail.com

Received 8 August 2013; Accepted 29 August 2013

Copyright © 2013 Jaime Eaglin Moore et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract Introduction. To our knowledge, there is only one other reported case of arytenoid chondroma (1956). Our case report highlights the diagnosis and management of this rare disorder. Case report. A 33-year-old woman presented with a two-month history of episodic severe dysphonia and shortness of breath. On examination, she had left arytenoid fullness and left vocal fold hypomobility. A magnetic resonance imaging (MRI) of the neck with and without gadolinium showed a mass arising from the left arytenoid with soft tissue swelling. She underwent micro-direct laryngoscopy with excisional biopsy of the cartilaginous mass revealing chondroma without malignant changes. Follow-up at one year showed no interval re-growth and resolution of her symptoms. Conclusion. Chondromas are benign and account for less than 1% of laryngeal tumors. They usually arise from the cricoid cartilage. Chondromas are usually small (< 2 to 3 cm) and occur in children and young adults, while chondrosarcomas frequently are larger and occur later in life. It is important to distinguish between these two tumors through biopsy. For chondromas, complete excision and close follow-up are recommended; chondromas have a high incidence of local recurrence.

Keywords arytenoid chondroma

1. Introduction

Cartilaginous tumors of the larynx are rare, accounting for only 1% of laryngeal neoplasms [3]. No cause has been defined, but it has been suggested that abnormal ossification process occurring later in life may contribute to their development [7]. Chondromas and “low-grade” chondrosarcomas are the most common of these tumors [3]. There is controversy as to the frequency of chondromas in relation to chondrosarcomas, and prevalence is difficult to determine because of their rarity. Traditionally, the percentage of chondromas has been estimated at around 72–80% [7]. However, there are conflicting reports in the literature. Studies have found chondrosarcomas to account for as high as 67% or as low as 30% of cartilaginous tumors [3,7]. Furthermore, long-term follow-up studies have shown that lesions diagnosed initially as chondromas may develop into chondrosarcomas potentially explaining this discrepancy [1,7].

Arytenoid cartilages are made up of both elastic and hyaline cartilage, with the vocal process consisting of elastic cartilage [7]. Chondromas frequently occur in hyaline cartilage and rarely develop in elastic cartilage, explaining why they may be less likely to occur in the mixed arytenoid cartilage [7]. They typically present in the hyaline cartilage of the cricoid and thyroid cartilages and develop at the site of ossification, which occurs at the site of muscle insertion [7]. The posterior cricoarytenoid, lateral cricoarytenoid, and interarytenoid muscles insert on the posterior wall of the cricoid. Because of this, chondromas are most frequent found in the cricoid cartilage, specifically the endolaryngeal portion of the posterior lamina [3].

2. Case report

A 33-year-old woman presented with a two-month history of episodic dysphonia and shortness of breath. She was referred urgently for abnormalities found on a recent magnetic resonance imaging (MRI) of the neck obtained for these complaints. Her episodes of dysphonia and shortness of breath were increasing in severity and frequency. She complained of throat clearing, post-nasal drip, and dysphagia, but she denied aspiration or cough. She was a healthy female except for a remote history of pericarditis.

On examination, she was severely dysphonic without stridor or signs of respiratory distress. She had mild laryngopharyngeal reflex and a left medial arytenoid mass that appeared to be about 5 mm in size. Her left vocal fold was hypomobile. Because of her impaired closure from the arytenoid mass, she had insufficiency throughout the glottis resulting in dysphonia. No additional abnormalities were noted on examination including lymphadenopathy, mucosal abnormalities or cranial nerve neuropathies.

The MRI of neck with and without gadolinium showed a subtle heterogenous mass arising from the left arytenoid and extending into the false vocal fold. There was surrounding non-obstructive soft tissue edema. A fine cut CT scan (1 mm) of the neck provided less detail of the mass and soft tissue edema. Laryngeal electromyography revealed a 40% reduced recruitment in the distribution of the left superior laryngeal nerve and 20–30% reduced recruitment in the
distribution left recurrent laryngeal nerve. Laboratory tests for infectious or autoimmune causes of paresis were normal. She underwent micro-direct laryngoscopy with excision of the submucosal cartilaginous mass protruding from the superior-medial aspect of the arytenoid (Figures 1 and 2). Subtotal excision was performed to obtain a pathologic diagnosis. Follow-up oncologic resection was planned if malignant cells were identified. Pathology revealed mature hyaline cartilage consistent with chondroma without malignant changes (Figure 3). MRI imaging obtained following surgery showed no residual mass, and no further immediate surgical intervention was advised.

Her dysphonia and shortness of breath resolved promptly after surgery, as the arytenoid mass was no longer impairing closure. On strobovideolaryngoscopy following the procedure, she was found to have residual left vocal fold paresis but complete glottic closure confirming the arytenoid chondroma was the cause of her dysphonia. The patient has been followed closely for the past year with no dysphonia and no recurrent mass noted on imaging and in-office laryngoscopy. Follow-up is scheduled every three months to monitor the patient for recurrent disease with in-office laryngoscopy, and imaging studies are being obtained every six months at present.

3. Discussion
The only other report of an arytenoid chondroma is from the Royal Society of Medicine’s proceeding from 1956. A case of a 59-year-old female with 13 years of hoarseness presented with a 3.75 cm right arytenoid mass [5]. She underwent resection via an external approach with tracheotomy and eventual decannulation [5]. Pathology revealed a chondroma with no malignant features. Limited follow-up showed no residual mass [5]. Arytenoid chondrosarcomas are slightly more common, with 15–20 cases estimated in the literature [4].

There are four types of cartilaginous tumors of the larynx. They are metaplastic cartilaginous nodules (chondrometaplasia), chondromas, chondrosarcomas, and cartilaginous material in other neoplasms [3,6]. Metaplastic cartilaginous nodules consist of multiple well-defined nodules with mucochondroid changes in a soft tissue matrix [6]. Chondromas and chondrosarcomas are more difficult to distinguish. Chondromas are homogenous masses with no nuclear atypia and mitosis. They are hypocellular (30–40 nuclei/HPF), whereas chondrosarcomas have more cellularity (>40 nuclei/HPF) [6]. As the grade of chondrosarcomas increases, there is increasing atypia, pleomorphism, and mitosis [6]. Biopsy is needed to differentiate between chondromas and chondrosarcomas. As cartilaginous masses, they are difficult to biopsy. With only focal areas of chondrosarcoma usually present, adequate biopsy is important to make the correct diagnosis [7]. Distant metastasis occurs in 8 to 14% of chondrosarcomas with local regional metastasis.
rare [1, 3]. These tumors spread to the lungs, kidneys and spine hematogenously, with death being rare [1, 3].

Chondromas can occur at all age groups, but they are more common in younger patients. They are frequently 1–2 cm in size and almost always smaller than 2 to 3 cm [3, 7]. Chondrosarcomas are usually greater than 3 cm and typically occur later in life at between 50 and 80 years of age [3, 4, 7]. There is a male predominance [4]. Presentations vary based on location of the mass and size, but symptoms included dyspnea, dysphonia, dysphagia, and stridor [1, 3].

CT scans are reportedly the standard imaging technique for laryngeal chondromas [3], but MRIs are used commonly with potentially better diagnostic capabilities in extralaryngeal chondromas [2]. Classically chondromas appear as hypodense, expansile, and well-circumscribed masses on CT imaging [8]. Calcifications are seen in 75–80% of cases [1, 8]. MRIs are not used as frequently in laryngeal cartilaginous tumors because of cost and usage acquisition time, but they can aid in diagnosis because of improved soft-tissue resolution [3, 4]. In our case, the patient presented with a previously obtained MRI suggesting the presence of an arytenoid mass. Additional imaging with fine cut CT scan (1 mm) did not show the chondroma, because of the small size of the mass and lack of calcifications. The utility of MRI for chondromas has not been studied in the literature [3].

For chondromas, complete excision including the perichondrum and close follow-up are recommended [1, 3]. There is no role for radiation therapy and chemotherapy [1, 3]. These tumors have a high rate of local recurrence with no metastatic potential [1, 3]. Some authors have suggested more radical excision to prevent recurrent disease, but studies have shown that conservative excision with later re-excision does not affect survival [3, 8]. Close follow-up is required. Chondrosarcomas require more aggressive surgery; and, depending upon the extent of the tumor, total laryngectomy and neck dissection may be indicated [1, 3].

Competing interests The authors declare that they have no competing interests.

Authors’ contributions R. T. Sataloff interpreted the patient data. J. E. Moore contributed in writing the manuscript, and A. Hu and R. T. Sataloff edited the manuscript. All authors approved the final manuscript.

Acknowledgments Figure 3 was provided courtesy of pathologists Alysia Browne, MD and Steven Hou, MD, College of Medicine, Drexel University.

References