Chondrosarcoma of the arytenoids- a rare laryngeal malignancy

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Abstract

Even though laryngeal malignancies are the most frequent primary malignancies of the upper aero digestive tract except for oral cavity cancers, laryngeal chondrosarcomas are rare tumors, constituting less than 1% of all laryngeal tumors. We present a rare case of chondrosarcoma arising from the right arytenoid cartilage with sub glottic extension. The mode of presentation and management of the case is presented along with a review of the literature.

Keywords Larynx · Chondrosarcoma · Arytenoids · Total laryngectomy

Introduction

Laryngeal malignancy is the most frequent primary malignancy in the upper aero digestive tract except for oral cavity malignancies. Squamous cell carcinomas form the vast majority of malignant laryngeal diseases (more than 90%). Malignancies can also arise from the structural elements of the larynx, these tumours are usually sarcomas. Chondrosarcoma is the most frequent of sarcomas, followed by fibrosarcoma. However, chondrosarcomas of the larynx are rare tumours, constituting approximately less than 1% of all laryngeal tumours. A literature review disclosed approximately 250 cases since 1816 [1]. It predominantly affects men (M:F=4:1) between ages 50 and 70 years. Chondrosarcomas most frequently involve the cricoid cartilage (70%) – specially the posterior lamina ; the thyroid cartilage(20%) and the body of the arytenoids(10%). We report a case of chondrosarcoma of larynx arising from the right arytenoid cartilage.

Case report

A 42-years-old Hindu male presented with a history of progressive respiratory distress and hoarseness of voice. Enquiry revealed that the patient had earlier sought medical intervention about an year ago for gradually increasing hoarseness of voice. A smooth swelling involving the right arytenoid had been found and a punch biopsy was taken by direct laryngoscopy. The histopathological report suggested chondroma of the larynx. The patient had been discharged from that institution without further management and had not sought any medical help through out the following year.

Two months before attending this institution, he started having difficulty in respiration, which gradually increased in severity till he was forced to attend our institute and an emergency tracheostomy had to be done.

CT scan of larynx done subsequently showed an isodense soft tissue mass arising from the right arytenoid

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cartilage and involving the cricoid cartilage with evidence of erosion and areas of mottled calcification. There was no evidence of enlarged cervical lymph nodes.

Direct laryngoscopic examination was done under general anesthesia. A smooth, mucus membrane covered 2 cm × 2 cm swelling arising from the right arytenoid was found extending towards the sub glottis, causing narrowing of the airway with severe distortion of the laryngeal anatomy.

Biopsy was taken and the histopathological report now came as chondrosarcoma of the larynx (Low grade, well differentiated). Metastatic work up was done, which revealed no evidence of metastasis.

As greater than 50% of the cricoid cartilage was involved, total laryngectomy with primary pharyngeal reconstruction was done. Post-operative period was uneventful. The patient was followed up for one year. He presently is symptom free without any sign of recurrence.

Fig. 1 CT scan showing mass arising from the right arytenoid with areas of mottled calcification and erosion

Fig. 2 HP picture of lower magnification Magnification x 100

Discussion

Chondrosarcoma of the larynx is an unusual tumour, more so from the arytenoids. Chondrosarcomas arise from the hyaline cartilages of the larynx. Lewis and others reported on 47 laryngeal cartilage tumours and suggested 44 were low grade malignancies, whereas 3 were classified as benign [2]. Similar to previous studies (Nicolai and others [3]) 70% were based on the cricoid cartilage, 20% were related to thyroid cartilage, 10% were from arytenoid and only 1 was epiglottic. The tumour in our case originated from the right arytenoid cartilage with subsequent subglottic extension.

Growths originating from elastic cartilage are not clearly low grade sarcoma because some authors regard them as metaplastic cartilage [4]. The cytology of the tumour has made the distinction between chondroma and low grade

Fig. 3 Histopathology showing lobules of chondroid tissue, increased cellularity, osseous metaplasia and endothelial proliferation Magnification x 400

Fig. 4 Resected specimen of larynx

malignancy difficult in past reports but Lewis and others thought that there was a clear histological pattern consistent with low grade malignancy. According to Thomas et al (1979) there is no evidence of malignant transformation from chondroma to chondrosarcoma [5]. The histopathological variety in our case was low grade well differentiated variety, which is very difficult to distinguish from chondroma, thus leading to possible misinterpretation in the first histopathological report. It is difficult to know the true incidence of chondrosarcoma because the low grade variety is often confused with benign chondromas.

Symptoms of chondromas are similar to those of laryngeal carcinoma. Chondrosarcoma arising from the cricoid cartilage tends to grow into the airway and cause progressive airway obstruction; whereas chondrosarcoma arising from the thyroid cartilage typically protrudes laterally and presents as a firm mass in the neck.

Endoscopically, the tumor appears as a firm submucosal mass which being very dense is difficult to biopsy.

Radiologically, these lesions are typically hypodense, well circumscribed masses containing areas of mottled calcifications with smooth walls centered within the cartilage [5].

The patient in our case had a tumor arising from the right arytenoid with subglottic extension and presented with progressive hoarseness of voice and respiratory distress. Direct laryngoscopy revealed a submucosal mass and CT scan showed areas of mottled calcification.

Macroscopically the tumor develops within the cartilage of origin and only rarely extends beyond the perichondrium into the surrounding tissues. Microscopically the tumours are divided into low; medium and high grade (myxoid) and histological grade correlates well directly with prognosis.

Regional and distant metastases occur in 8% to 14% overall [6]. The lungs is the most common site of metastasis followed by cervical lymph nodes. Metastasis was absent in our case.

The management of chondrosarcoma varies with the grade and extent of tumor. The primary modality is surgi-

cal. For low grade and medium grade tumors most authors recommend partial laryngectomy with voice preservation and reoperation if the tumor recurs. High grade chondrosarcoma and clinically aggressive ones usually require total laryngectomy, but neck dissection is generally reserved for clinical and radiographic evidence of metastasis [3]. Though histologically our case was of mild grade, total laryngectomy was done as there was more than 50% involvement of the cricoid cartilage.

Conclusion

We present a rare case of chondrosarcoma arising from the arytenoid cartilage of the larynx. Low grade, well differentiated chondrosarcoma is difficult to distinguish from chondromas on HP examination. Lack of information makes management decisions difficult, but treatment is primarily surgical.

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