Concept in Surgical Technique in Subglottic Chondrosarcoma

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Abstract

Laryngeal chondromas are very uncommon cartilaginous benign tumors of the larynx. Although, total laryngectomy is reserved for high-grade laryngeal chondrosarcomas, some studies indicate that conservative approach in typical chondrosarcoma has increased the occurrence of local recurrence. Two cases of cricoid chondrosarcoma and chondroma is reported in young adult men with obstructing the laryngeal lumen without vocal cord paralysis. The chondroma and chondrosarcoma were totally excised through a laryngo-fissure approach to protect laryngeal function. Minimal invasive operation through a laryngo-fissure approach may yield a proper laryngeal function without any recurrence of the chondroma and chondrosarcoma for more than 2 years after operation time.

INTRODUCTION

Laryngeal chondromas are very rare cartilaginous benign tumors. They occur in the senescent, with a peak incidence in the 7th decade. The cricoid cartilage is most usually involved [1]. Primary cartilaginous tumors of the larynx are uncommon neoplasms. Chondrosarcomas (CSs) constitute less than 1% of all laryngeal tumors. Although the laryngeal CS most commonly arises from cricoid cartilage, involvement of the other laryngeal sites such as thyroid, arytenoid, corniculate cartilages and epiglottis is also possible [2]. The true incidence has probably been underestimated by the early literature, in which the distinction between chondromas and low-grade chondrosarcomas was not clearly made [3]. The report of two cases of cricoid chondrosarcoma and chondroma treated with laryngo-fissure approach without total laryngectomy.

CASE PRESENTATION

First case

A 64-year-old man presented with hoarseness that had developed over a period of 3-4 month. He had no difficulty in swallowing. Endoscopic laryngeal examination showed a subglottic rugged mass almost mildly obstructing the subglottic region. The two-sided vocal cords were mobile. There was no mass in the neck region. Computed tomography scan showed a relatively expansile calcified cartilage lesion with non-uniform density in the right posterior cricoid cartilage that was highlighted the posterior part of the right vocal cord, which mildly obstructed the subglottic region (Figure 1). Pathology specimen exam reported fragments of well-differentiated cartilaginous tissue compatible with chondroma, laryngo-fissure incision was applied and tumor exposed and excision was undertaken with 2mm free margin. It originated in the posterior part of the cricoid cartilage protruding through the laryngeal lumen. Approximately 20% of the subglottic area was obstructed by the tumor. The lesion was totally excised with segmental resection of posterior cricoid cartilage. The mass was expansive, rigid and smooth with sandy calcifications and revealed chondroma or chondrosarcoma on macroscopic examination. Histopathological sections showed mature lobules of hyaline cartilage showing foci of myxoid degeneration. There was no recurrence of the lesion 2 year postoperatively (Figure 2).

Second case

The second patient was a 46-year-old man complaining of hoarseness and dysphagia since 6 months ago. Preoperative and postoperative axial CT scan of the patient showed destruction of the lower part of larynx, submucosal extension of the mass close to vocal process of right arytenoid near to bulged subglottic area which was toward the posterior part, underwent direct laryngoscopy and biopsied (Figure 3A). On microscopic examination sections showed a hypercellular hyaline cartilage composed of chondrocytes with mild pleomorphic hyperchromatic nuclei, occasional 2 or more nuclei per cell as well as 2 or more cells per lacuna. No mitosis, necrosis or myxoid change was diagnosed as low grade conventional chondrosarcoma. Laryngo-fissure was the procedure of choice. Tumor was observed below true vocal cord (TVC) and posterolateral area of the larynx. Mass was separated from top of the cricoid as far back to the posterior wall of the larynx and right arytenoid. The defect was filled with...
primary reconstruction. Two of four presented laryngeal cases were treated with laryngectomy with radical neck dissection and this was constant with their clinical course. Nonetheless, the manner of all four laryngeal tumors supports the general experiment that larynx chondrosarcomas have a favorable course of disease [5]. Likewise, early correct diagnosis is important to elude multiple recurrences. Park et al. have checked the role of p53 in the pathogenesis of this tumor. They showed that a genetic mutation of p53 is a rare event, whilst its over expression may occur in a notable percentage of clear cell chondrosarcoma [6]. Laryngeal clear cell chondrosarcoma is associated with allelic loss at chromosome 18q21. This has not been described for chondrosarcomas so far [7]. The global actuarial survival rate was 95% for 5 years. The 5-year disease-free survival and overall recurrence rate approximates were 72% and 54%, respectively. With a median 5 years follow up, 12 of 13 patients were without recurrence. 9 were alive and 4 died during follow up, and only 1 patient died from disease. Three patients required definitive tracheotomy. After 2 years follow up we found no sign or symptom of recurrence. Primary cartilaginous neoplasms of the larynx subtitled chondrosarcomas and chondromas, which are often considered for low grade as the identical histological existence although the criteria for differentiating benign from malignant lesions are well appointed [8]. Differential diagnosis of chondrosarcoma from chordoma is tough, and diagnosis of the tumor with biopsy is not definite. The accurate diagnosis is based on clinical, histological, and radiological data. In cricoid tumors, when the tumor involves less than half of the cartilage, conservative treatment through laryngo-fissure is feasible and conservative surgery is preferable. Endoscopic Laser

DISCUSSION

Chondrosarcoma is three times more common in men than in women, and it is seven times more common in whites than in African-Americans [3]. The benign chordomas may occur at any age, but malignant lesions increase in frequency with age. The majority of these lesions arise from the posterior or postero-lateral aspect of the cricoid. The cause of the chondrosarcoma is unknown. It is felt that these lesions originate either from the perichondrial connective tissue, or from the body of the cartilaginous tissue. The fact that it occurs in an older age group has led some to postulate that inflammation may trigger a metaplastic change in the branchial tissues. The relationship of radiation, asbestos, iron, aluminum, and Teflon exposures have also been occasionally noted [3]. The most common signs and symptoms are hoarseness (74%), dyspnea (56%), dysphagia (21%), and an neck mass (15%) [3]. The essential point in treatment of head and neck chondrosarcoma is wide and aggressive surgical resection and results in a favorable prognosis. Metastases are not usual in head and neck chondrosarcoma [4]. The 5-year survival rate for head and neck chondrosarcoma varies from 43% to 95% [4]. However, total laryngectomy is reserved for high-grade laryngeal chondrosarcomas; several studies indicate that conservative method in conventional chondrosarcoma has increased the occurrence of local recurrence from 77% to 86% [5]. In these cases we show that chordoma and low grade chondrosarcoma can be treated with conservative approach and

Figure 1 Preoperative and post op CT scan of the lesion on the cricoid cartilage of the first case.

Figure 2 Pre-operative & post-operative stroboscopy in patient which chondroma is removed by CO2 laser with no recurrence after two years.

Figure 3 Pre& post-operative axial CT scan of the chondrosarcoma of the larynx.

Figure 4 Shows Postoperative stroboscopy of the chondrosarcoma after reconstruction, addition and abduction of TVC of the larynx are acceptable.
resection is a swift and efficient procedure, which permits one to immediately restore breath without significant complication [6]. If tumors might be rally hemorrhagic at the site of the resection, laser is very helpful to stop bleeding. It is strict having tumor-free margins with this method, but this does not represent a guarantee that recurrence will not occurred. Clear margins do not prevent recurrence after conservative open surgery as well as radical surgery [8]. Treatment of chondromas needs surgical excision. However, high recurrences of the disease occur because of incomplete resection. Cricoid chondromas usually require tumor excision with segmental resection of the cricoid cartilage or even total laryngectomy. Here we presented two cricoids cartilage chondroma/chondrosarcoma obstructing the laryngeal lumen without vocal cord paralysis. We excised the chondroma and chondrosarcoma totally through a laryngo-fissure approach to protect laryngeal function. Hence, total laryngectomy is usually choice of the treatment [10]. Various techniques leave complete resection and recovery of all laryngeal function in lesions involving less than 50% of the cricoids [8]. In our case, we preferred to excise the lesion via a laryngo-fissure approach to eschew injury to the recurrent laryngeal nerve at the cricothyroid junction. In contrast to the literature, the post-cricoid segment was not involved, enabling us to excise the lesion quite by preserving the confirmation larynx or cricoid with no necessity for reconstruction. Ischemic change in a chondroma may contribute to the development of chondrosarcoma. In developed recurrence cases, wide local resection can be used again, especially with laser surgery. Recent reports have described endoscopic laser therapy with CO2 as a procedure to deal with recurrences, or primary lesions too [10].

CONCLUSION

The laryngeal chondromas are benign, slow growing tumors; surgeons tend to for bear total resection of tumors requiring reconstruction of the larynx or total laryngectomy. Therefore, recurrences are usual even with partial excision. However, our case shows that Minimal invasive operation may yield a larynx functioning properly without any recurrence.

SUMMARY

Minimal invasive operation through a laryngo-fissure approach may yield a proper laryngeal function with good visible route for investigation of recurrence of the chondroma and chondrosarcoma.

REFERENCES


Cite this article