

Laryngeal Chondrosarcomas: Case Study & Literature Review

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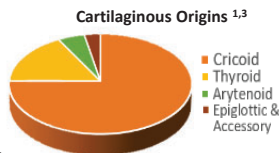
Introduction

Background

- Laryngeal chondrosarcomas (LC) are a rare (1% of all laryngeal neoplasms; 0.1% of all head and neck neoplasms), slow growing tumor typically arising from the cricoid cartilage with low-grade histology, and low tendency for metastatic spread and/or reoccurrence.^{1,3}

Symptoms^{1,4}

- Dysphonia from compression of laryngeal nerves and narrowing of the glottic plane
- Dyspnea from endolaryngeal growth
- Dysphagia from extra laryngeal growth and compression of surrounding tissues



Objective

- Due to its rarity, literature surrounding LCs is limited and mainly consists of cases arising from the cricoid cartilage, with far less consideration on chondrosarcomas arising from other sources of cartilage^{1,3,7,10}
- The objective of this paper is to highlight a case of chondrosarcoma arising from the thyroid cartilage and review its implications on histological diagnosis, staging, patient prognosis, and treatment options

Case Study: History

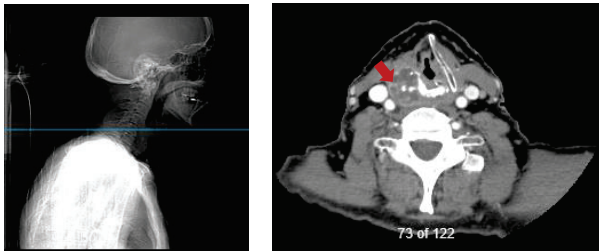


Fig.1 CT scan revealing a large destructive tumor

- The patient, with a previous laryngeal resection several years prior, was admitted with progressing dysphonia, dysphagia, and stridor
- Based on pre-operative findings, the risks and benefits of a total laryngopharyngectomy, cricopharyngeal myotomy, level VI neck dissection, and partial glossectomy were discussed with the patient and ultimately performed

Results

Surgical Resections

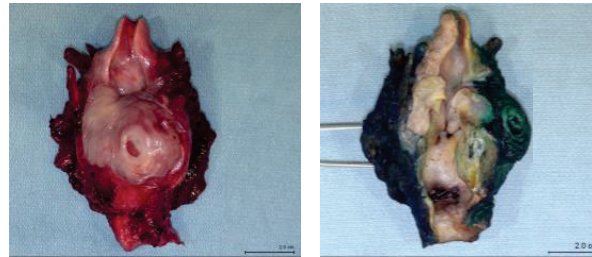


Fig.2 Location of primary mass at fresh (A) and once inked, fixed, and bisected (B)

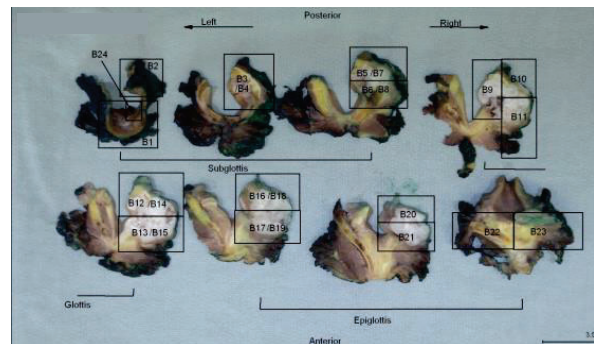


Figure 3. Sectioned mass and mapping of the blocks submitted for histological analysis of the specimen which consists of a total laryngo-pharyngectomy and partial pharyngectomy with attached hyoid bone.

Histology

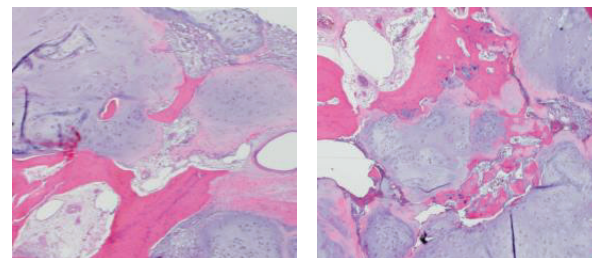


Figure 4. Pictomicrographs of the mass primarily consisting of grade I chondrosarcoma with foci of grade 2 invading the surrounding cartilaginous tissue, H&E stain, low power

Discussion

Comparing Case Study & Literature

- Macroscopically, LCs range in size from >1 cm to up to 10 cm with smooth translucent, lobular tissue portions (Fig. 2)^{4,8}
 - Case study mass: 10.1 cm SI, 7.6 cm ML, 5.3 cm AP
 - Size yet to be shown to correlate with prognosis^{4,8}
- Histological diagnosis of cartilaginous malignancies are as follows:

Grade I	Grade II	Grade III
- No mitosis >2 nuclei - Areas of calcification and actual bone tissue	- Increased hypercellularity - Low N:C ratio - Scarce mitoses	- Multinucleated cells - Increased N:C ratio - High number of mitoses

- Majority of the mass in present study is Grade I with foci of spindling, myxoid matrix, absence of lacunae, and relative hypercellularity consistent with Grade II morphology⁸

Issues in imaging

- Imaging does not definitively differentiate chondrosarcomas from chondromas^{1,2,4}

Prognosis, Metastasis & Recurrence

- LC survival rate, regardless of grade, is 95% at 10 years⁸
- Local and distant metastases seldom occur (12-15% of cases)⁶
- Recurrence seen from months to years after initial treatment and is typically attributed to the incomplete removal of the primary neoplasm^{7,9}
 - Recurrence rates cited in literature varies over a wide range (18-40%)⁷⁻⁹

Conclusion

- Generally, LCs are characterized by a good prognosis
 - Determined by the radicality of the resection, extension of the mass, and histological grade⁵
- Strategies for managing LCs are based on retrospective studies heavily consisting of neoplasms arising from the cricoid cartilage¹¹
 - This case presents a LC arising from thyroid cartilage
- By being mindful of the source of tumor origin, perhaps the underlying mechanism of LCs can be better understood and met with minimally invasive therapies targeted to the tumor origin site

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