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Case Report

Chondrosarcoma of Thyroid Cartilage - Case Report

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ABSTRACT

Chondrosarcomas of the larynx are rare, mainly arising from cartilages of the larynx, including cricoid cartilage, thyroid cartilage epiglottis, and arytenoid cartilages. These can be misdiagnosed initially as benign malignancy. Historically, the treatment used to be surgery, which usually is total thyroidectomy with a loss of voice forever. No gross improvements in treatment occurred, and surgery was the mainstay of the treatment. Chondrosarcoma from other anatomical regions can very rarely cause thyroid metastasis. Here, we present a case of an elderly male who presented with a multinodular goiter and underwent thyroidectomy. On histopathology, he was diagnosed with grade 2, conventional chondrosarcoma.

Keywords: Laryngeal chondrosarcomas, Multinodular thyroid, Thyroid cartilage.

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INTRODUCTION

Chondrosarcoma is a slowly growing and rare primary bone tumor. It is prevalent in the third and fourth decades of life. Its origin is mesenchymal with cartilaginous matrix. Of all primary bone tumors, its share is 10-20%. It ranks third in most common bone sarcomas. About 1-12% of chondrosarcomas are found in the head and neck area, which makes up only 0.2% of head and neck area malignancies.[1] Cervical nodal or distant metastases are rare in all laryngeal malignancies, as with laryngeal chondrosarcomas. So, it may be less aggressive, with only about 8.5% having nodal metastasis. Local recurrences do occur but usually can be salvaged with surgery.[2] Here, we present a case of an elderly male who presented with a multinodular goiter and underwent thyroidectomy.

CASE REPORT

A 72-year-old diabetic male presented with a history of multinodular goiter for the last two months. The thyroid function test was within the normal range. A thyroid scan showed goiter with a non-functioning (cold) nodule involving the left lobe and isthmus. FNAC showed primary thyroid mucinous carcinoma of Bethesda category VI. A computed tomography (CT) scan showed a single nodule measuring 4.5 cm into 4.5 cm in the left lobe of the thyroid gland. CT scan was repeated with contrast, which showed an enlarged isthmus and left lobe of thyroid cartilage with multiple internal hypodense and peripherally enhanced nodules. The left lobe extended into the neck up to the hyoid bone and was causing rarefaction of the thyroid cartilage (Figure). His thyroidectomy was done, and the sample was sent for histopathology. Immunohistochemistry analysis showed negative results for tumour markers CK, Cam-5.2, Brachyury, GFAP, CD34, ASMA, INI-1, and CKAE1/AE3, while S100 and SOX 9 were positive. The histopathological review was suggestive of chondrosarcoma grade II with positive margins. Post-operative ultrasound showed residual thyroid tissue with cervical lymphadenopathy.

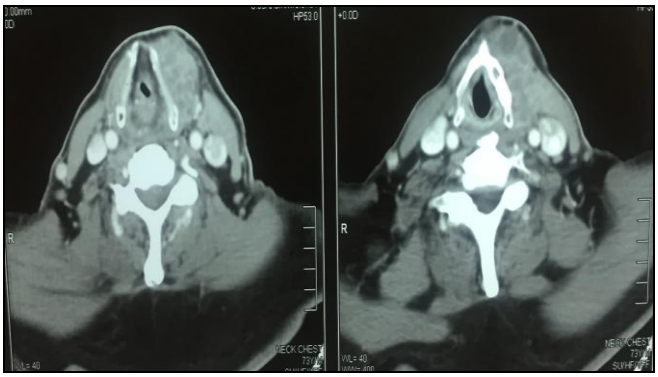

Figure: CE CT (Contrast-Enhanced Computed Tomography) Scan Neck Showing Mass in Left Thyroid Lobe

A modified radical neck dissection of the right neck was performed. Per-operative findings were multiple nodules along the middle part of the sternocleidomastoid, the largest 1x1 cm. Histopathology showed no positive node out of eleven recovered. The case was again discussed in a multi-

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disciplinary team meeting; consensus was adjuvant radiotherapy. The patient was given 60 grays in 30 fractions of radiotherapy with a volumetric arc technique and placed on follow-up. CT scans were normal after 3, 9, and 15 months of radiotherapy. CT scan at 21 months of radiotherapy showed recurrence at para-pharyngeal, right cervical level 1-B, and superior mediastinal nodes. He was given three cycles of single-agent Ifosfamide and developed an ipsilateral middle ear mass. Biopsy showed chondrosarcoma and, hence, progressive disease. Patient disease was rapidly progressing and general health was deteriorating. His performance status did not allow any further systemic treatment. He had severe pain and was managed by a palliative care team. The patient expired 34 months after diagnosis.

DISCUSSION

Chondrosarcomas is one of the invasive, slowly progressing sarcomas. In the head and neck region, they are found in the mandibular, nasal cavity, sinuses, and maxillary areas in descending order three. Very rarely can arise from the laryngeal cartilages like thyroid and cricoid cartilages. It has slightly more preponderance for the male gender. It is found at a relatively older age than other primary bone sarcomas during the third to sixth decades of age.[4,5] Chondrosarcomas in females are mostly of bone origin and present in younger than 50-year females. At the same time, chondrosarcomas in males are soft tissue or cartilaginous origin and present in people older than 50 years.[6] The overall survival at five years' ranges from 70-80%, with a better prognosis; however, it can progress and give multiple metastases, slowly and eventually, with passing the time.

Chondrosarcomas of the head and neck region usually present with mass, swelling, nasal obstruction, and dyspnea and, in advanced stages, can cause pain.[4] Many factors can be associated with the development of chondrosarcomas, including previous history of radiotherapy, chondromyxoid fibroma, multiple hereditary exostoses, and Ollier's disease.[7]

Chondrosarcoma can have morphological features such as multiple cells with multiple and or large irregular nuclei and giant cartilage cells with large multiple or single nuclei and clumped chromatin. It can be histopathologically classified into three grades. [8]

Metastasis of chondrosarcomas to the thyroid gland is extremely rare and found in only 0.4% of cases.[9] This rarity can be clarified by metabolic theory, which describes the cancer-suppressing effects of iodine and thyroid hormones. Also, there is a higher concentration of antitumor factors in the thyroid due to increased blood flow.[10]

The gold standard treatment for chondrosarcoma is surgery with clear margins and wide en-bloc resection. Radiotherapy and chemotherapy do not significantly affect local control, metastasis, or survival, so radiotherapy is mainly reserved for palliative intent treatments or incomplete resection. The role of neoadjuvant chemotherapy is emerging in myxoid and dedifferentiated chondrosarcomas.

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

MSN, UJ, AZ, MYK: Conception, data acquisition, drafting the manuscript, critical review, approval of the final version to be published.

Author agrees to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

REFERENCES

1. Kremenevski N, Schlaffer SM, Coras R, Kinfe TM, Graillon T, Buchfelder M. Skull base chordomas and chondrosarcomas. J Neuroendocrinol 2020; 110(9-10): 836-847. https://doi.org/10.1159/000509386
2. Nicolai P, Sasaki CT, Ferlito A, Kirchner JA. Laryngeal chondrosarcoma: incidence, pathology, biological behavior, and treatment. Ann Otol Rhinol Laryngol Suppl 2341990; 99(7): 515-523. https://doi.org/10.1177/000348949009900704
3. Jindal G, Batra SS, Badwal JS, Uppal S, Bhandari S. Surgical management of chondrosarcomas of Head and Neck. Int Dent J Stud Res 2016; 4: 101-104.
4. Prado FO, Nishimoto IN, da Cruz Perez DE, Kowalski LP, Lopes MA. Head and neck chondrosarcoma: analysis of 16 cases. Eur J Oral Implantol 2009; 47(7): 555-557. https://doi.org/10.4103%2Fjomfp.JOMFP_169_15
5. Ortiz S, Tortosa F, Simões MS. An extraordinary case of mesenchymal chondrosarcoma metastasis in the thyroid. Endocr Pathol 2015; 26(1): 33-36.
6. Koch BB, Karnell LH, Hoffman HT, Apostolakis LW, Robinson RA, Zhen W, et al. National cancer database report on chondrosarcoma of the head and neck. Head Neck 2000; 22(4): 408-425. https://doi.org/10.1002/1097-0347(200007)
7. Kökoğlu K, Canöz O, Doğan S, Gülmez E, Yüce I, Cağlı S. Laryngeal chondrosarcoma as a rare cause of subglottic stenosis. Case Rep Otolaryngol. 2014; 2014: 730643. https://doi.org/10.1155%2F2014%2F730643
8. de Jong RJB, van Lent S, Hogendoorn PC. Chondroma and chondrosarcoma of the larynx. Curr Opin Otolaryngol Head Neck Surg 2004; 12(2): 98-105. https://doi.org/10.1097/00020840-200404000-00008

9. Ishikawa M, Hirano S, Tsuji T, Ito J. Management of metastasis to the thyroid gland. Auris Nasus Larynx 2011; 38(3): 426-430. https://doi.org/10.1016/j.anl.2010.11.009

10. Darouassi Y, Touati MM, Chihani M, Nadour K, Boussouga M, Ammar H, et al. Chondrosarcoma metastasis in the thyroid gland: a case report. J Med Case Rep Rev 2014; 8(1): 157.