Case Report

Chondroblastic Osteosarcoma of Nasal Bone - Report of a Rare Case

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ABSTRACT

Introduction

Chondroblastic osteosarcoma is a rare malignant bone tumor which is characterised by the presence of osteoid and cartilaginous components and its occurrence in the lateral nasal wall is extremely unc ommon which presented with nasal obstruction.

Case Report

A 15 year old boy presented with a history of chronic right nasal obstruction lasting for more than 1 year. It was gradually progressive in nature. Clinical examination revealed a large sinonasal mass in the right nasal cavity. On Anterior rhinoscopy the mass extended upto the middle meatus. Posterior rhinoscopy revealed that the mass was extending laterally towards the maxillary sinus. It was insensitive on probing and free on the medial side. Laterally the probe could not be moved as the mass was attached.

Conclusion

Chondroblastic osteosarcoma of the lateral nasal wall and nasal bone is an extremely rare entity and only a few cases have been reported in the literature. It predominantly affects the adolescents and young adults with a slight male predominance. The clinical presentation is often non specific and includes symptoms such as nasal obstruction, facial swelling, epistaxis and pain. Radiological imaging including CT and MRI is essential for assessing the tumour extent and the involvement of adjacent structures. Surgical management with wide excision is the mainstay of treatment. Adjuvant Radiotherapy and chemotherapy may be considered depending on the risk factors. Histopathological examination and Immunohistochemistry play a crucial role in confirming the diagnosis.

Keywords

Chondroblastic Osteosarcoma; Nasal Bone; Lateral Nasal Wall; Histopathology; Immunohistochemistry

Chondroblastic osteosarcoma is a rare malignant bone tumour characterized by the presence of osteoid and cartilaginous components. Its occurrence in the lateral nasal wall and nasal bone is extremely uncommon.[1,2] Only a limited number of cases have been reported in the literature. We present a case of chondroblastic osteosarcoma of the right lateral nasal wall and right nasal bone in a 15-year-old boy who presented with chronic nasal obstruction. The patient underwent surgical management with lateral rhinotomy and medial maxillectomy, resulting in complete tumour removal and post operative radiotherapy. Histopathological examination confirmed the diagnosis of chondroblastic osteosarcoma, which was further supported by immunohistochemistry.[3] This case report highlights the clinical presentation, radiological features, management and pathological characteristics of chondroblastic osteosarcoma of the lateral nasal wall and the nasal bone, along with a review of the existing literature on this rare entity.[4,5,6]

Chondroblastic osteosarcoma is a subtype of osteosarcoma characterized by the presence of both osteoid and chondroid components. It primarily affects the long bones and involvement of the craniofacial skeleton, particularly the nasal bone[3] is extremely rare.

Incidence

Incidence of Sino nasal carcinoma is 1-2 per 1000000 person and Chondroblastic Osteosarcoma is 0.5% to 8.1% among Sino nasal carcinomas.[8]

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Case Report

A 15-year-old boy presented with a history of chronic right nasal obstruction lasting for more than 1 year. It was insidious in onset and gradually progressive in nature. Primary complaint was nasal obstruction without any pain. Clinical examination revealed a large sinonasal mass in the right nasal cavity. Anterior Rhinoscopy revealed the mass was extending upto the inferior meatus. Posterior Rhinoscopy revealed that mass was extending laterally towards the maxillary sinus. On probing, the mass was senseless. Probe could be moved freely on the medial side and was attached on the lateral side. Visual acuity was normal.

Fig. 1. Preoperative picture showing Right nasal fullness

Fig. 2. CT scan coronal view showing Right nasal wall and maxillary sinus is completely filled with tumor.

Radiological investigations including computed tomography (CT), demonstrated an enhancing mass in the right nasal cavity, with destruction of the nasal septum and erosion of the orbit, right lateral nasal wall and was extending into the right maxillary sinus.

Fig. 3. Medial maxillectomy with full exposure

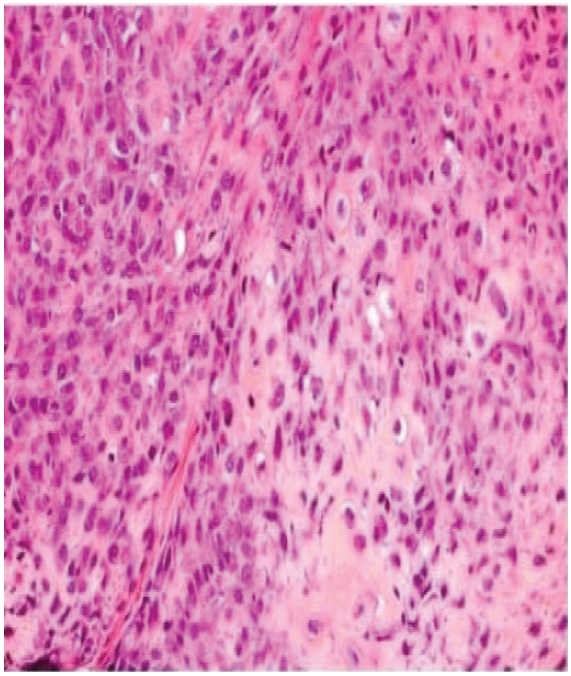

Fig. 4. Histopathology image with 40x magnification (using H&E stain) showing predominant chondroid matrix with hyaline cartilage along with abnormal osteoid matrix deposition

The patient was advised to undergo surgical intervention for tumour excision. Lateral rhinotomy and medial maxillectomy was performed, resulting in complete en bloc removal of the tumour followed by radiotherapy. Histopathological examination revealed a proliferative osteoblastic tumour involving the lateral nasal wall and nasal bone. Further immunohistochemistry analysis confirmed the diagnosis of chondroblastic osteosarcoma[6,7]. The patient responded very well to surgery and post op radiotherapy and there is no recurrence till five years under strict follow up.

Discussion

Chondroblastic osteosarcoma of the lateral nasal wall and nasal bone is an extremely rare entity and only a few cases have been reported in the literature. It predominantly affects the adolescents and young adults, with a slight male predominance[2]. The clinical presentation is often nonspecific and includes symptoms such as nasal obstruction, epistaxis, facial swelling, and pain.[1,2,5] Radiological imaging, including CT and MRI is essential for assessing the tumour extent and involvement of the adjacent structures.[3,7] Surgical management with wide excision is the mainstay of treatment and adjuvant chemotherapy and radiotherapy may be considered depending on the risk factors associated with the tumour.

Histopathological examination plays a crucial role in confirming the diagnosis of chondroblastic osteosarcoma.[2,4,5] The presence of osteoid and chondroid components within the tumour, as observed in our case, is characteristic of this subtype of osteosarcoma.

Immunohistochemistry including markers such as osteocalcin, S-100 protein is diagnostic. Chondroblastic osteosarcoma of the nasal bone carries diagnostic challenges due to its rarity and resemblance to other benign and malignant nasal tumors. Differential diagnosis includes chondrosarcoma, osteoma, fibrous dysplasia, and sinonasal carcinoma.

Immunohistochemistry plays a crucial role in differentiating chondroblastic osteosarcoma from these entities.[2,6,7] Positive staining for osteocalcin and S-100 protein, as observed in our case, supports the diagnosis of chondroblastic osteosarcoma.[1,6]

The prognosis of chondroblastic osteosarcoma of the lateral nasal wall and nasal bone is variable and largely dependent on tumour stage, histological grade, and adequacy of surgical resection.[1]

Tumour size, depth of invasion, lymph node involvement, and the presence of metastasis are significant prognostic factors. The overall survival rates for chondroblastic osteosarcoma of the nasal bone are relatively lower compared to osteosarcomas in other locations, emphasizing the aggressive nature of this tumour.

The role of adjuvant chemotherapy and radiotherapy in the management of chondroblastic osteosarcoma remains controversial. Limited evidence exists regarding the use of chemotherapy for nasal bone osteosarcomas due to the rarity of the disease[5]. However, in cases with high-risk features such as large tumour size, deep invasion, positive surgical margins, or evidence of metastasis, adjuvant chemotherapy may be considered to improve the outcomes[1,2]. Close surveillance with regular follow-up visits and imaging is crucial to detect any recurrence or metastasis.

A review of the existing literature reveals a scarcity of reported cases of chondroblastic osteosarcoma of the lateral nasal wall and nasal bone. The rarity of this tumour carries challenges in understanding its natural history, optimal treatment strategies and long-term outcomes. Collaborative efforts among different institutions are necessary to accumulate more cases and gain a better understanding of this entity.

Chondroblastic osteosarcoma is a rare subtype of osteosarcoma, accounting for approximately 25% of cases. While it commonly affects the long bones, its occurrence in the nasal bone is exceptionally rare, with only a few cases reported in the literature.[1,6,7]

The optimal management of chondroblastic osteosarcoma involves a multimodal approach.[2,7]

Surgery remains the mainstay of treatment, with the

goal of achieving complete tumour resection while preserving functional and aesthetic outcomes. Adjuvant therapies including chemotherapy and radiotherapy are often employed to target micro metastatic disease and minimize the risk of local recurrence.[1]

Prognosis in chondroblastic osteosarcoma is generally poor due to its aggressive nature and high metastatic potential.[5,6] The presence of distant metastasis at the time of diagnosis, incomplete tumour resection and large tumour size are associated with an unfavourable prognosis.[2]

Conclusion

Chondroblastic osteosarcoma of the lateral nasal wall and nasal bone is an extremely rare entity.[1] This case report highlights the clinical presentation, radiological features and management options for this aggressive malignancy. Prompt diagnosis, appropriate surgical intervention and multimodal treatment approaches are crucial for improving the patient outcomes. Further studies and case reports are warranted to enhance our understanding of this rare subtype of osteosarcoma and refine treatment strategies.[4,5]

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