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CASE REPORT

Cervical Chondrosarcoma- Rare Malignancy: A Case Report

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Abstract To highlight an uncommon bone malignancy, which presented to our institute, as a neck swelling in the supraclavicular region. A 30 year old man presented with history of swelling on the left side of neck since 1 year and numbness of left upper limb since 6 months. Magnetic Resonance Imaging of the Cervical spine & MR Angiography showed a 7.4×4.6 cm expansile lesion involving transverse process of C5-C7 vertebrae. As the tumour was found to be deep to the phrenic nerve & brachial plexus, a dual approach was used, anteriorly via neck incision and posteriorly via the spine. The tumour was resected & iliac crest grafted along with stabilization of the cervical spine. Patient is disease free and the cervical spine stabilized with normal movements at two and half years follow up. We need to consider tumour arising from the vertebra as a differential diagnosis for any deep seated hard neck swelling in the supraclavicular region. Even low grade malignancy of this region when resected en-bloc will have a good prognosis.

Keywords Chondrosarcoma · Supraclavicular mass · Cervical spine · Bone tumor

Introduction

Chondrosarcoma is the third most common primary malignant bone tumour in the whole body [1–3]. It commonly affects the thoracic spine followed by cervical and lumbar spine [4]. Only 1–12 % of these cases are reported to occur in the head and neck region [5]. The intricate anatomy of this region and the presence of vital structures, poses a challenge in its surgical management [6]. We intend to highlight one such case of a cervical chondrosarcoma and its management.

Case Report

A 30 year old male patient presented with painless progressive left sided neck swelling since 1 year and numbness of the left upper limb since 6 months. On examination, a 5×5 cm, non tender, hard, fixed swelling was palpable in the left supraclavicular area with sensory deficit and Grade 2 power of the left upper limb muscles with wasting of the flexor group of muscles in the forearm.

Plain Computed Tomography (CT) scan of the neck was suggestive of benign bone pathology mainly involving the transverse process of C6 vertebra. Magnetic Resonance Imaging (MRI) of the cervical spine revealed a mixed intensity mass measuring 7.4×4.6 cm. The epicentre of this tumour was at C5, C6 and C7, lower extension to D1 and D2 with spinal canal compression at C6-7. Magnetic Resonance Angiography (MRA) of the neck revealed no vascular compromise with minimal anteromedial displacement of left vertebral artery.

To rule out multicentric origin and metastasis, three phase bone scan with technetium 99 was performed which showed an increased radiotracer concentration in the left sided neck mass with no evidence of metastasis. CT scan of the thorax was done which did not reveal any lung metastasis.

Fine Needle Aspiration Cytology was suggestive of a benign chondroid tumour, possibly a chondroblastoma.

In the view of its location, a combined anteroposterior approach was used. Anteriorly, a transverse cervical incision was taken and subplatysmal flaps were raised. Great vessels

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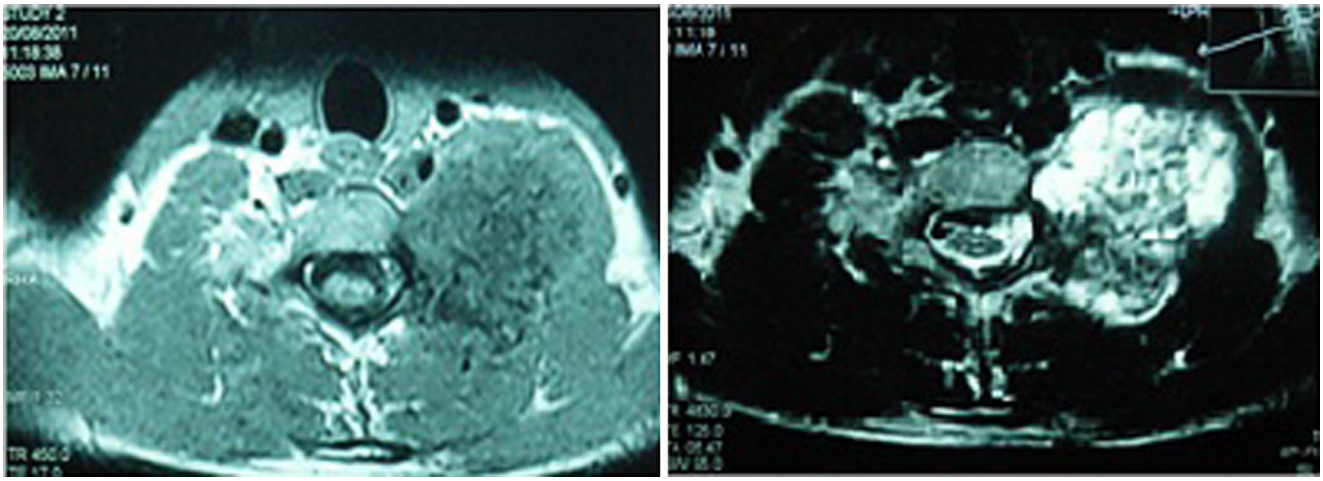

Fig 1 Preoperative imaging by Magnetic Resonance Imaging -T1 weighted image with low signal intensity of the tumour mass arising from C5, C6, C7 and T2 weighted image showing high signal intensity

and sternocleidomastoid were retracted. The tumour was seen arising below the prevertebral muscles. Brachial plexus was present over the tumour. The tumour was seen arising from the lateral cervical vertebral border and the transverse process. Preliminary measures done by the neurosurgery team to facilitate en bloc resection through posterior approach included dissecting the tumour free of the brachial plexus and exposing it anteriorly and making the anterior cut at the lateral border of the vertebral body. This also helped prevent injury to the brachial plexus (Figs. 1, 2, 3 and 4).

The patient's position was changed and the tumour approached posteriorly as a second step. The intraoperative picture was consistent with preoperative MRI. The tumour was removed by making further cuts at the lamina of the C6, C7 & T1 vertebrae on left side preserving all the critical structures. The spine was stabilised by an iliac crest graft, screws and rods. The postoperative histopathology revealed Grade 1 chondrosarcoma. He was rehabilitated with active physiotherapy.

Follow-up of the patient was done at regular 3 monthly intervals. The protocol included clinical examination, CT scan of neck and X-ray of chest to rule out local recurrence and lung metastasis. He developed normal movements by 3 months. The left upper limb muscle power is grade 5 at present. A repeat CT scan of neck taken at the end of 3 months and 1 year showed fully united bone grafts and no recurrence. He was disease free at two and half years follow up.

Discussion

Chondrosarcoma is the third most common primary malignant bone tumour in the whole body [1, 3]. The most common symptom is a painless mass followed by pain and neurological deficit [7].

Radiologically it can be diagnosed by a well defined mass with internal calcification on X-ray. A plain CT scan shows calcification in the shapes of rings and arcs. MRI shows low intensity signal on T1 weighted images and heterogeneous low & high signal intensity on T2 weighted images [4].

For histopathological diagnosis of primary vertebral body tumours, diagnosis on fine needle aspiration cytology can become difficult. Thus open biopsies or CT-guided large-core biopsies are required [8].

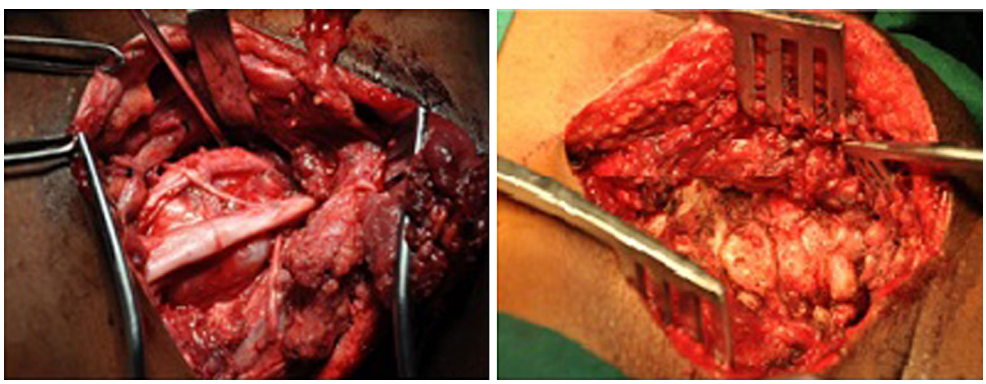

Fig 2 Per operative picture demonstrating anterior approach with tumour below the brachial plexus and posterior approach with the spine exposed

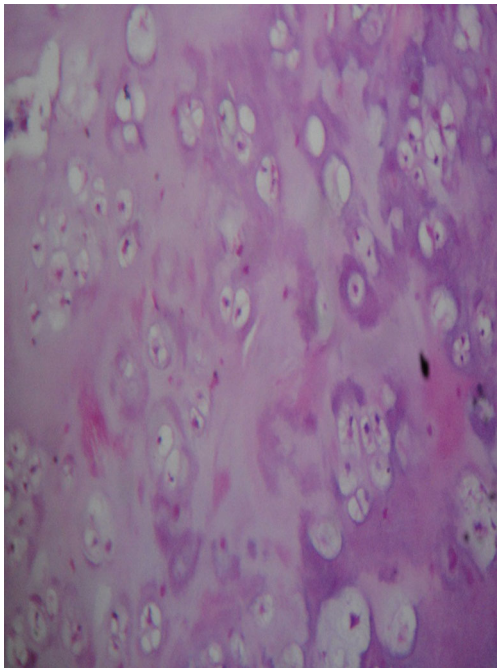

Fig 3 Postoperative Histomicrograph showing chondrosarcoma

Histologically, chondrosarcoma is classified into conventional & variant type. The conventional type is further divided into primary & secondary types. The variant type is sub classified as low grade clear cell & high grade mesenchymal variety [1, 4].

En-bloc resection remains the treatment of choice for spinal chondrosarcoma [2, 9–11]. In patients where it is not feasible due to proximity to vital neurovascular structures of spine, piece-meal removal is recommended but assurance of margins free from tumour must be obtained [9, 11]. Local recurrence is common in patients with piecemeal or intralesional excisions [2].

Adjuvant radiotherapy has a limited role and maybe useful in situations with incomplete surgical margins or for palliation [3, 7, 12]. Chemotherapy has not been of any proven benefit and hence not recommended [3].

Follow-up is designed to detect local recurrence or metastasis particularly lung metastasis at a time when treatment is still possible and effective. Follow up should include clinical examination of the tumour site, assessment of the function and possible complications of reconstruction. Local imaging and Chest X-ray/ CT scan have to be done. It is done at regular intervals every 2–3 months for first 2 years; every 2–4 months for years 3–4, every 6 months for years 5–10 and later every 6–12 months [2, 7].

Prognosis of the spinal chondrosarcoma is relatively good with a 5 year survival of 90 % for grade 1, 81 % for grade 2 and 43 % for grade 3 tumours [5].

This case report highlights one such rare case of a cervical chondrosarcoma with a very benign presentation. FNAC was also suggestive of a benign tumour, probably chondroblastoma. In view of its location and intricate anatomy of this region, we adopted a dual team anteroposterior approach, thereby resected the tumour en-bloc and achieved a disease free postoperative period.

Conclusion

We need to consider a bony tumour from the vertebra as a differential diagnosis for any deep seated hard neck

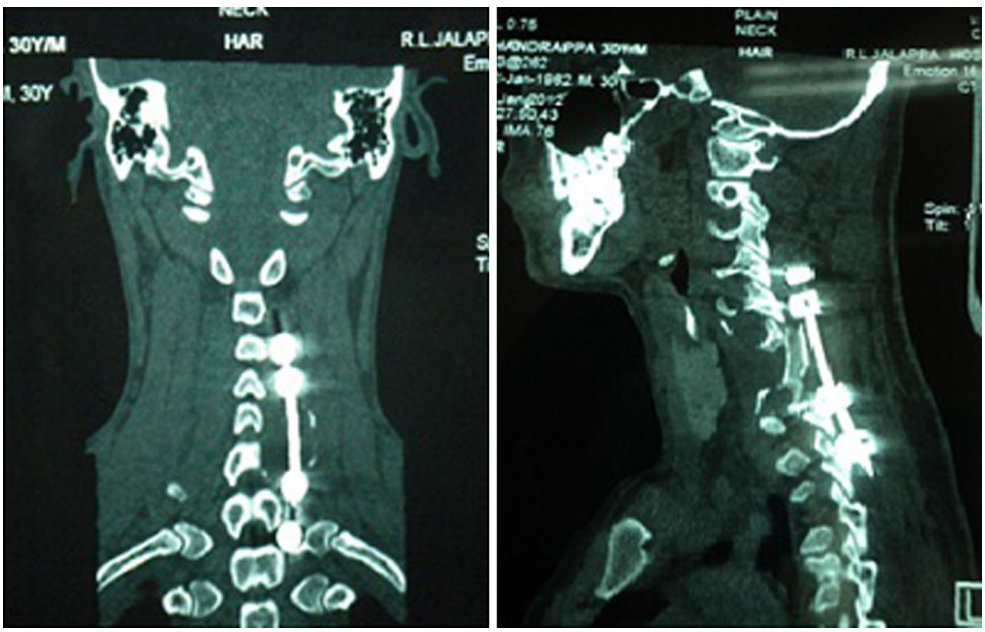

Fig 4 Reconstructed postoperative CT scan at 3 months of follow up with well united bone with the plate in situ

swelling in the supraclavicular region. Even low grade malignancy of this region when resected en-bloc, will have a good prognosis.

Informed Consent Informed consent of the patient has been obtained to publish this case report.

Conflict of Interest The authors declare that they have no conflict of interest.

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