ABSTRACT Background: Chondrosarcoma (CHS) is a malignant tumour characterized by the formation of a chondrogenic cartilage matrix. Only 6%-10% are known to occur in the spine. Cervical localization is very rare. A case of CHS arising from the cervical transverse of the 3rd to 6th cervical spine is reported. 

Case report: A 30-year-old man presented with progressive left-sided neck swelling for 1 year. On examination, a 7 x 4 cm, fixed swelling was palpable in the left supraclavicular area and extending to the mandibular angle. This mass presented a mixed intensity on T1-W, showing iso and hypersignal intensity and in T2-W images. Enhancement was strong. This mass arises from the cervical transverse of the 3rd to 6th cervical spine. Surgery was made via the vertical pre sternocleidomastoidian approach. After meticulous sharp dissection after vascular control, the tumour was removed in Toto. Histological study showed chondrosarcoma. The literature suggests that gross-total resection of the CHS provides the best chance for prolonging the disease-free interval in patients. Subtotal excision should be avoided whenever possible. But this technic is difficult in the cervical area according to its proximity to vital neurovascular structures and combined with the complex spinal anatomy, (vascular, nervous, and parapharyngeal space). 

Conclusion: CHS must be considered as a diagnosis differential of any deep-seated neck tumefaction.

KEYWORDS Neck swelling, MRI, cervical Chondrosarcoma, surgery, total en-bloc removal

Introduction

Chondrosarcoma (CHS) is a malignant tumour characterized by the formation of a chondrogenic cartilage matrix [1-6]. These types of neoplasms are more common in the elongated bones, pelvis, and ribs. Chondrosarcoma is a rare type of cancer that usually begins in the bones but can sometimes occur in the soft tissue near bones. Only 6%-10% are known to occur in the spine [7-10]. Magnetic Resonance Imaging (RMI) of the cervical spine shows an encapsulated, well-defined mass located at the left parapharyngeal space, with contact with the lateral cervical spine [11,12,13]. Most occur in the thoracic spine. Cervical CHS is very rare. However, a cervical spinal CHS is reported.

Case report

A 30- year-old man presented with painless progressive left-sided neck swelling for 1 year. No family history of head or neck tumours or vascular abnormalities. The clinical examination found the patient in good general condition. On examination, a 7 x 4 cm, non-tender, hard, fixed swelling was palpable in the left supraclavicular area and extending to the mandibular angle—no inflammatory signs or pain on palpation. The neurological exam was normal. No cervical lymph node was noted. The somatic examination was unremarkable. Laboratory blood tests are normal. MRI of the cervical spine shows an encapsulated, well-defined mass located at the left parapharyngeal space, with contact with the lateral cervical spine. This mass presented a mixed intensity on T1-W, showing iso and hypersignal intensity. This lesion showed intense enhancement after infusion of contrast. On T2-W images, hypersignal involve the left cervical intervertebral foramen of the cervical C3-C4 and C5. The spinal cord was intact. No intracranial was documented. No signs of invasion of...
adjacent structures or intracranial extension were observed. The patient underwent surgery with a teamwork (ENT and neurosurgeon) team. A vertical pre sternocleidomastoidian incision was made. Some great vessels were seen on the tumour capsule and coagulated by bipolar electrocoagulation. Meticulous sharp dissection after vascular control, the tumour was removed in Toto. The tumour was firm and cartilaginous in consistency in the macroscopical section. The Postoperative was favourable. Histological study showed a proliferation cartilaginous matrix by neoplastic cells. (Fig 1). The final diagnosis was low-grade CHS. No complication was noted. The patient has been referred to the oncology center for adjuvant therapy.

Figure 1: MRI of neck and cervical. (A) Coronal T1-W after infusion of contrast showing heterogeneous enhancement. MRI T1-W (B and C) axial view without (B) and after infusion contrast. (D) Coronal T1-W after contrast showing lateral contact the tumour with cervical spine. (E) Sagittal MRI T2-W image showing good alignment spine without any instability. Cervical chondrosarcoma.

Discussion

Chondrosarcoma (CHS) is a malignant neoplasm characterized by the formation of a cartilaginous matrix by neoplastic cells, with a high propensity for local recurrences. Chondrosarcoma range from low-grade tumours with low metastatic potential to high-grade, aggressive tumours characterized by early metastasis. [1] Long bones, ribs, shoulder, and pelvic girdles are common locations for CHS and only 6%–10% are known to occur in the spine. [10-13]. Most occur in the thoracic spine. Cervical CHS is very rare. It can present as a primary tumour or may develop as a secondary tumour in an already preexisting benign cartilaginous lesion. Chondrosarcoma is a rare type of cancer that usually begins in the bones but can sometimes occur in the soft tissue near bones. In our case, a tumour was seen arising from the cervical transverse of the 3rd to 6th cervical spine. The parapharyngeal space was respected. Our case appears originally from the lateral cervical spine, spreading in the neck and sternocleidomastoidian region. Most of the spinal CHS occur in the thoracic spine followed by the cervical region and are relatively rare in the lumbar vertebra. However, they can arise from the body and posterior elements of the vertebral column. Strike SA and al. [10] reported 16 cases of CHS in the spine. The cervical spine was involved in four cases. He reported and analyzed the major series of CHS in the literature. Chondrosarcomas can be classified into the following three histologic grades, depending on findings of cellularity, atypia, and pleomorphism. According to the WHO classification, Grade I chondrosarcoma or atypical cartilaginous tumour is grouped under locally aggressive (intermediate) cartilaginous tumours. In contrast, Grade II and Grade III chondrosarcomas and Clear cell, mesenchymal, and dedifferentiated subtypes are classified as malignant chondrogenic tumours [11]. Grade III is characterized by high cellularity, prominent nuclear atypia, and the presence of mitosis. The higher the grade, the more likely the tumour is to spread and metastasize. The higher the grade, the more likely the tumour spreads and metastasises. Grade I lesions rarely metastasize, whereas 10-15% of grade II lesions and more than 50% of grade III lesions metastasize. [1] The most commonly reported symptoms of cervical spinal chondrosarcomas include pain, swelling, sensory and motor deficits resulting from spinal brachial plexus or spinal cord compression, and pathological fractures. In cervical X-rays, calcifications can be visible in the matrix tumour. Flaky calcifications in “popcorn” are the most typical. CT shows a lobulated lesion containing lump or diffuse calcifications with areas of new bone formation [9]. MRI remains very useful for determining the tumour’s exact location and its relationship with adjacent structures, nervous and vascular. Angio-IRM can detect vascular compression. MRI shows a low-intensity signal on T1 weighted images and heterogeneous low and high signal intensity on T2 weighted images. However, the aspect MRI of chondrosarcoma is not specific and discusses other tumours, including chondroma, aggressive osteoblastoma, osteosarcoma, osteosarcoma. In addition, arteriography can show the vascularization of the tumour, and embolization can be performed before the surgery in some cases [6,10-13]. Management: Chondrosarcoma treatment usually involves surgery. The literature suggests that gross-total removal of the CHS provides the best chance for prolonging the disease-free interval in patients. Therefore, subtotal excision should be avoided whenever possible. Cervical spinal CHS surgery is critical; it should aim to preserve and possibly improve the spine’s functionality, relieve pain, and control local tumour recurrence, which promises a longer survival.
rate. Owing to its proximity to vital neurovascular structures and combined with the complex spinal anatomy (vascular, nervous, and paraphernal space), Chondrosarcoma of the cervical spine poses difficulties about the surgical procedures performed, and the majority of these lesions cannot be excised in an ideal en bloc manner. When cervical spine instability is noted, an instrumented fusion must stabilize the spine. A combined anterior and posterior approach are sometimes necessary to achieve complete resection of chondrosarcoma and cervical fusion. [9]. Adjuvant radiotherapy has a limited role and may be useful in situations with incomplete surgical margins or palliation. CHS is considered to be radiation resistant. Conventional radiotherapy did not affect the outcomes. Chemotherapy has not been of any proven benefit and hence not recommended. Chondrosarcoma cell lines, as well as primary tumours, are variably radioresistant [7,8,14,15]. Therefore, for high-grade tumours, partially resected tumours, and patients who do not accept surgery or palliative treatment, adjuvant radiotherapy may be recommended. Proton–beam therapy was used with some good results. Demizu, Yusuke et al. [14] demonstrated that Proton beam therapy is safe and effective for treating bone sarcomas, including CHS of the skull base and spine in Japan. The possibility of metastasis correlates with poor prognosis inducing malignancy grade. However, the prognosis of 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 [9].

Conclusion
Chondrosarcoma must be considered as a diagnosis differential of any deep-seated neck tumefaction near the cervical spine.

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Conflict of Interest
There are no conflicts of interest to declare by any of the authors of this study.

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