Intracranial Chondrosarcoma: A Rare Case Report

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Abstract

Chondrosarcoma is a malignant mesenchymal tumor with cartilaginous differentiation. Most chondrosarcoma arise de novo, but some develop in a pre-existing benign cartilaginous lesion. Intracranial, extraosseous chondrosarcoma of the classic type are rare [1]. The same is true for extraskeletal myxoid chondrosarcoma, which has been reported to arise within the brain as well as in the leptomeninges of the brain [2]. Chondroid tumors occur predominantly in the axial skeleton and rarely may have an extraskeletal origin. Intracranial chondrosarcoma constitute approximately <0.16% of all primary brain neoplasms [3]. It is assumed that chondrosarcomas originate from remnants of embryonal cartilage or from metaplasia of meningeal fibroblasts [4].

Keywords: Chondrosarcoma, mesenchymal tumor, intracranial.

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INTRODUCTION

Chondrosarcoma is a malignant mesenchymal tumor with cartilaginous differentiation. Most chondrosarcoma arise de novo, but some develop in a pre-existing benign cartilaginous lesion. Intracranial, extraosseous chondrosarcoma of the classic type are rare [1]. The same is true for extraskeletal myxoid chondrosarcoma, which has been reported to arise within the brain as well as in the leptomeninges of the brain [2]. Chondroid tumors occur predominantly in the axial skeleton and rarely may have an extraskeletal origin. Intracranial chondrosarcoma constitute approximately <0.16% of all primary brain neoplasms [3]. It is assumed that chondrosarcomas originate from remnants of embryonal cartilage or from metaplasia of meningeal fibroblasts [4].

CASE REPORT

We are reporting a case of an 18-year-old male presented with complaints of right sided weakness with alleged history of road side accident. MRI of the head showed large acute to subacute extra dural haemorrhage along left frontoparietal temporal convexity with mass effect causing effacement of ipsilateral gyral sulci spaces and left lateral ventricle with dilatation of contralateral right ventricle and midline shift measuring 6.5mm towards right side with left uncal herniation. Provisional diagnosis of meningioma was made by the consultant. Left Fronto-tempero-parietal craniotomy was done and with excision of lesion was done. Sample sent in 10% formalin to pathology department for Histopathological examination. On gross- Received an already cut opened multiple gray-white glistening tumor tissue pieces measuring 8 cm × 4 cm × 3 cm. External and cut surface is light brown with glistening appearance [Figure A]. On microscopy [Figure B, C, D]- sections examined show tumor arranged in the lobules having attached congested benign meningeal tissue and separated by fibrovascular stroma. These tumor oval-to-spindle-shape cells along having round to oval hyperchromatic nuclei and moderate amount of eosinophilic to vacuolated cytoplasm. Few binucleated and multinucleated chondrocytes with plump hyperchromatic nucleus were seen. Impression-the histological features are those of mesenchymal tumor possibly of chondrosarcoma grade I was given.
DISCUSSION

Chondrosarcomas are the third most common primary malignant neoplasms of bone [1]. Chondrosarcoma can occur in wide age groups. Most mesenchymal chondrosarcomas are reported in the second or third decade with a slight female preponderance [5]. Most frequent intracranial location of chondrosarcoma is the skull base (76.19%), in the middle cranial fossa, arising from the sphenoi-occipital synchondrosis. Four subtypes of chondrosarcoma are known: conventional (hyaline or myxoid), dedifferentiated, clear cell, and mesenchymal [6]. According to the World Health Organization, chondrosarcomas are divided into three categories based on their histological grade: grade I: well-differentiated, grade II: moderately-differentiated, and grade III: poorly-differentiated [7]. Grade I chondrosarcoma might be differentiated from enchondroma with difficulty, featuring slightly higher cellular density and more cellular atypia compared to enchondroma [8, 9]. Grade II chondrosarcoma is more cellular compared to grade I, with a lobulated growth pattern. The tumor cells feature enlarged, irregular and hyperchromatic nuclei. Grade III chondrosarcoma is hypercellular with enlarged and hyperchromatic cell nuclei that may become fusiform. The prognosis of chondrosarcomas depends on the histological grade. Mitotic figures and necrosis are commonly seen [8, 9]. Their exact histogenesis is not known. In a study of review of 55 cases, majority of mesenchymal chondrosarcomas showed an attachment to meninges. Three theories were postulated to explain the presence of cartilage in meninges: first, metaplastic change of meningeal fibroblasts; second, origin from primitive multipotential mesenchymal cells; and third, tumor may arise from embryonal rests of cartilaginous matrix of the skull in the dura [10]. Mesenchymal chondrosarcoma is a rare high-grade tumor with very
Conclusions

Most common intracranial location of chondrosarcoma is the skull base but in our case report lesion was found in fronto-parietal region which is rarest of rare. Intracranial mesenchymal chondrosarcoma is very difficult to differentiate by radiologic studies, hence it should also be considered as differential diagnosis in intracranial lesions.

References