Chondroma of Falx: Case Report of a Rare Condition

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Abstract- Chondroma is a benign tumor which mostly occurs in extremities but also sometimes in brain. Most intracranial chondromas arise from skull base, but chondroma of falx origin is a rare circumstance. Indeed, the intracranial chondromas rise from falx is mostly in relation with syndromic disorders such as Mafucci's syndrome or Ollier's syndrome. Here, we reported a rare case of falxian intracranial chondroma in a young man who has normal physical examination and no signs of any syndromic disorder. The goal of this paper was to raise awareness about chondromas and suggest that chondroma be ruled out in any patient with masses arising from falx.

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Introduction

Chondroma is a benign common cartilaginous tumor which is found at several sites of the body, most frequently in the small bones of the hands and feet but exceedingly rare intracranial tumors have been reported (1). According to literature intracranial chondromas have incidence up to 0.5% of primary cranial tumors and mostly originates from the skull base or bulges into the cranial cavity from nasal sinuses (2-7). But, chondromas of dural origin is much less common and are usually associated with syndromic diseases such as Ollier's multiple enchondromatosis or Mafucci's syndrome (8). In the current communication we report a case of falcine chondroma.

Clinical summary

A 15-year-old right handed boy presented by new onset seizures with unremarkable past medical history. His general physical and neurological examinations were normal. Computed tomography (CT) scanning showed a giant non-enhancing space-occupying mass in left frontal region. Magnetic resonance imaging showed a relatively large hyposignal extra-axial mass measuring 6×5 centimeter in diameters with small fluid intensity zone at the antero-lateral portion based on anterior falx and located in left frontal region, with no significant enhancement after gadolinium. Extension of the mass to the opposite side and erosion of internal table at left frontal bone were also noted (Figure 1a,b). A craniotomy for tumor resection was suggested, and the tumor was totally removed.

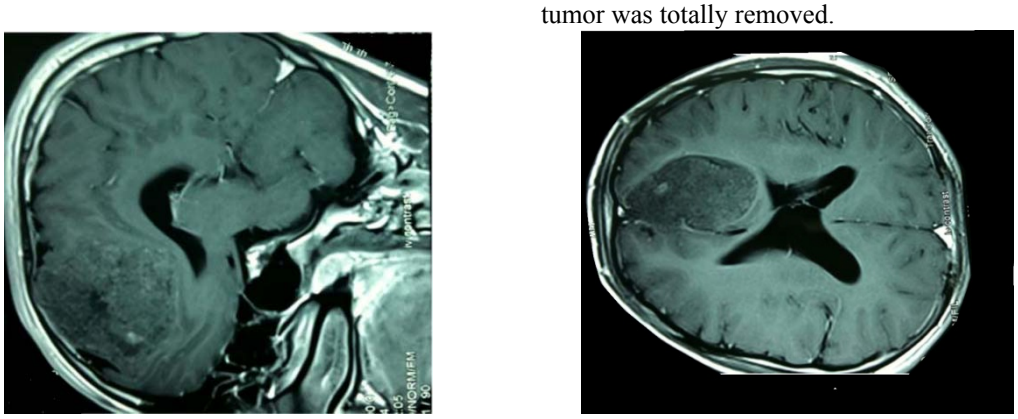

Figure 1. a (left side) and b (right side) showing MRI of the patient with hyposignal intracranial lesion in the frontal lobe.

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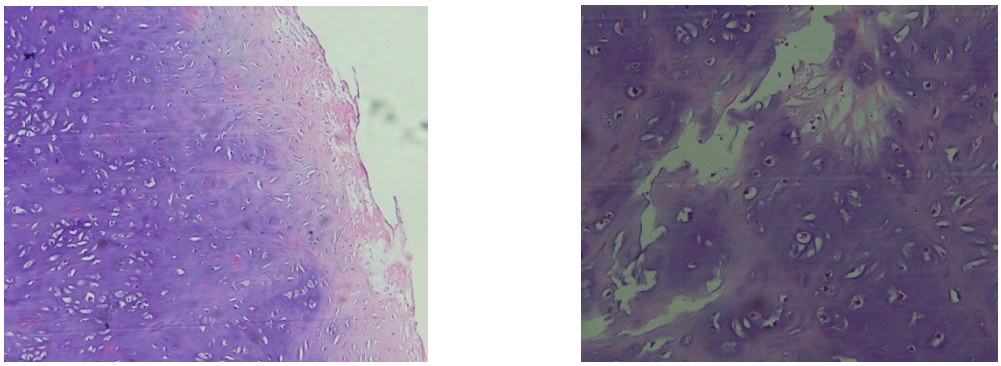

a b

Figure 2. Photograph of the tumor. (a) Shows a well differentiated cartilage tissue. (b) High magnitude of the same tumor, showing one cell per lacuna.

Pathologic findings

Microscopic examination of resected specimen showed an encapsulated rather lobular cartilaginous proliferation with focal ossification. Cellularity was variable and mild focal atypia was noted. No mitotic activity was identified. Mostly one nucleus was seen per lacuna. No meningeal or brain tissue was identified (Figure 2a,b).

Discussion

Intracranial chondroma originating from falx is a rare neoplasm with no more than 30 reported cases available. Most of the reported chondromas originate from the base of the skull but falx, cerebral parenchyma or choroid plexus are other rare origins. Some theories were introduced to explain the histopathogenesis of the tumor. In some studies, it's mentioned that the tumor may be originated from meningeal fibroblasts metaplasia, some others suggested that the tumor may arise from multipotential or perivascular mesenchymal cells or aberrant nests of cartilage forming cells in the dura mater. Traumatic displacement of cartilage is another theory which is accepted by some authors in accordance to existing cases of head trauma presenting with chondroma in the site of trauma. Most these theories are acceptable for dura base tumors but cannot fully explain the genesis of falx cerebri chondromas. There is controversy over gender dominancy. Although, most of the reports suggest no sex predominance, but there are studies showing male or female predominance (9). According to the literature the reported patients' age has a range between 15 months up to 60 years with a peak at the third decade (10,11).

Chondromas of the brain have a slow growth pattern which result in delayed clinical manifestation, late diagnosis and large tumor size at presentation. Clinical manifestation of the tumor is not specific and usually depends on tumor location such as neurologic defects, increased intracranial pressure and psychological or personality disorders. Radiologic manifestation of the tumor is not specific and although advances have occurred but definite diagnosis of the tumor is still histological. Radiologically, the tumor has been classified into two types: class 1 which is the classical and more common type of the tumor refers to tumors with homogenous and isodense pattern on CT scan and type 2 refers to tumors with hypodense cystic central area on CT scan (12). The most common differential diagnosis of the tumor is meningioma which cannot be distinguished by radiologic features.

Microscopic examinations in our study were in accordance with most of other reports of cranial chondromas. The mild focal atypia noted in our case is also mentioned occasionally in other cranial chondroma reports with no clinical or prognostic importance (13). On the whole, it can be concluded that in tumors of falx cerebri with unusual features, chondroma should also be considered in the differential diagnosis.

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