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# Intracranial solitary chondroma

## Case report

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✓ A patient is described who had a solitary left frontal intracranial chondroma originating from the falx cerebri. The tumor was totally removed. The diagnostic value of computerized tomography and the surgical findings in this rare pathological condition are discussed.

KEY WORDS • **chondroma** • **computerized tomography** • **intracranial tumor** • **falx**

CHONDROMAS are benign tumors that may be found in any part of the body; however, tumors of cartilaginous origin are very rare among intracranial neoplasms.[31] Intracranial chondroma was first reported by Hirschfield in 1851, according to Chorobski, *et al.*[8] Since then, several reports have appeared,[8,12,24] in which most of the tumors arose from the base of the skull.[6,12,17,24,27] Localization in other parts of the intracranial cavity, such as in the frontoparietal,[8] intraventricular, or parasagittal[3] regions, is rare.

We present a case of a solitary intracranial chondroma arising from the falx cerebri. The diagnosis, surgical results, and follow-up findings of this pathological condition are discussed.

### Case Report

This 39-year-old man was admitted complaining of headaches and seizures. He had experienced seizures for 4 years and headaches for 2 years. Neurological examination was entirely negative except for bilateral papilledema. Plain roentgenograms were normal. Computerized tomography (CT) revealed a large irregularly calcified intracranial mass in the left frontal region in close proximity to the frontal bone, but there was no bone destruction or hyperostosis. Enhancement with contrast material showed no difference in the size but a very slight increase in the density of the mass (Fig. 1). Left carotid angiography showed downward displacement of the left anterior cerebral artery by an avascular left frontal parasagittal mass (Fig. 2). The mass was diagnosed preoperatively as a left frontal parasagittal meningioma.

Left frontal craniotomy revealed intact bone and dura. On reflection of the dura, the surface of an opalescent white tumor was revealed. The tumor could easily be separated from the brain and completely removed together with its attachment to the falx cerebri. The patient's postoperative course was satisfactory and he was discharged on the 10th postoperative day without any complaint or pathological finding.

Microscopically, the tumor consisted of a fine fibrous capsule surrounding lobules of well differentiated car-

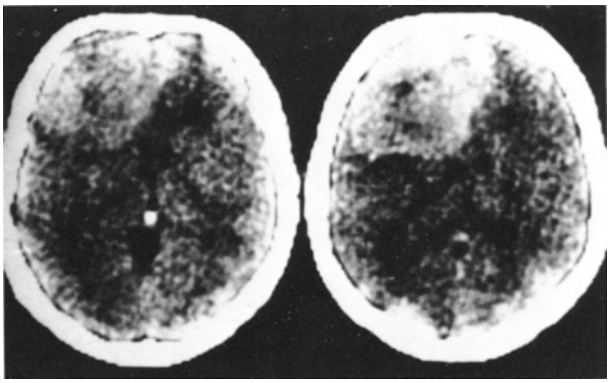

FIG. 1. Computerized tomography scans showing a solid giant left frontal mass.

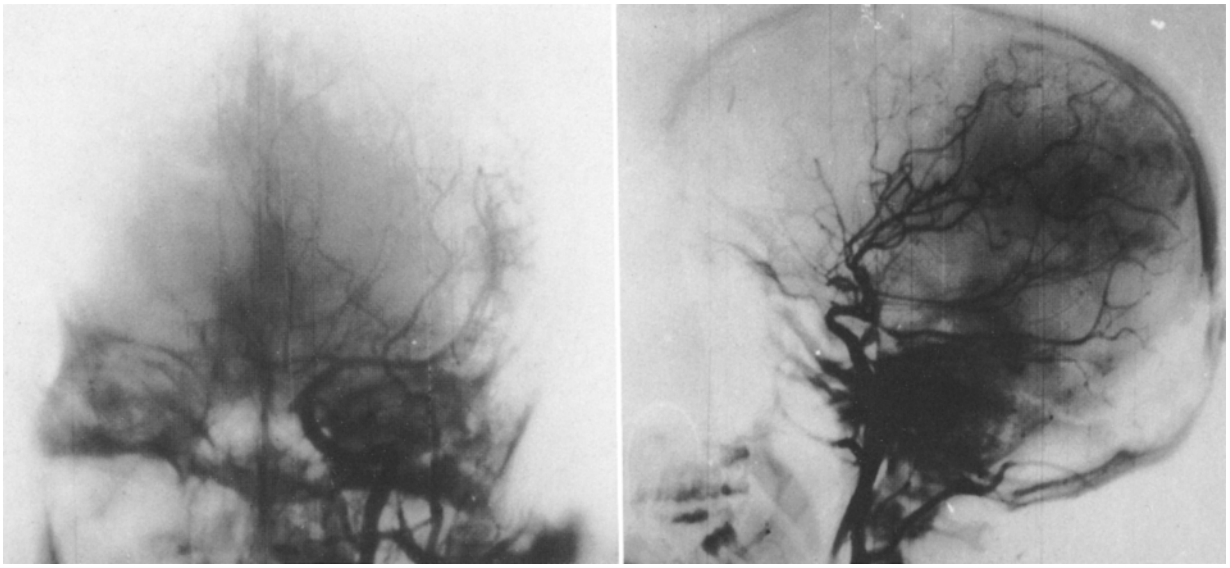

FIG. 2. Left carotid angiography, anteroposterior *(left)* and lateral *(right)* views, showing downward displacement of the anterior cerebral artery, indicating an avascular frontal parasagittal mass.

tilaginous tissue. The chondrocytes were situated in an abundant chondroid matrix, and showed no evidence of atypical cells, multinucleation, or mitotic activity (Fig. 3).

One year after surgery the patient was found to be asymptomatic. Follow-up CT revealed left frontal atrophy (Fig. 4). Four years after surgery the patient remains neurologically normal.

## Discussion

Intracranial chondromas are rare. In Cushing's series of 2023 intracranial tumors,[9] only three were osteochondromas. Leitholf[23] found four chondromas among 4135 brain tumors at the Serafimer-Lasarettet in Stockholm, and Kleinsasser and Friedmann[20,21] discovered nine chondromas in a series of 6000 intracranial tumors. Intracranial chondromas can be either solitary or a component of Ollier's multiple enchondromatosis. Solitary intracranial chondromas are usually located at the base of the skull.[1,3–7,10–12,14,17,22,24,25,27,29,30] Tumors arising from the dura,[26,28] choroid plexus, leptomeninges,[13] or within the brain parenchyma[2,18] are less common. Berkmen and Blatt[7] collected 113 cartilaginous tumors from the literature, with only seven arising from the falx.

The etiology of intracranial chondromas with no attachment to the basal bones, such as those arising from the ventricles or falx, is not clearly established. The cause of these tumors was attributed to metaplasia by Chorobski, *et al.*,[8] and Forsythe, *et al.*[13] Russell and

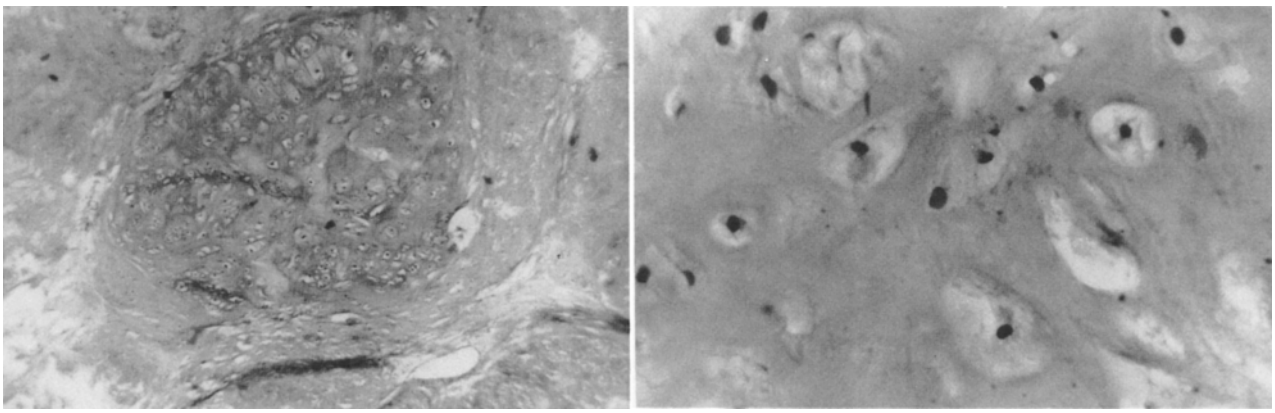

FIG. 3. Photomicrographs of the tumor material consisting of well differentiated cartilaginous tissue with chondrocytes showing no unusual formation, multinucleation, or mitotic activity. H & E, × 100 *(left)* and × 300 *(right)*.

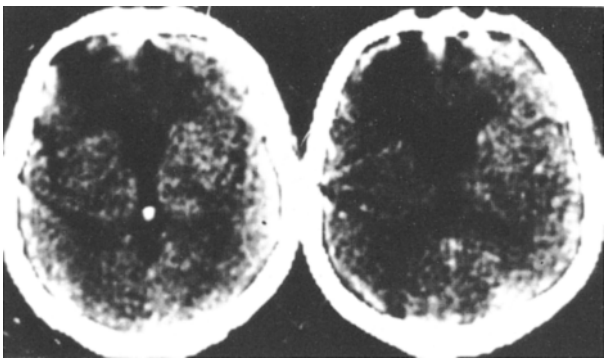

FIG. 4. Computerized tomography scans 1 year after operation showing left frontal cerebral atrophy with enlargement of the left frontal horn.

Rubinstein[31] stated that aberrant rests of cartilage could lead to chondromas in parts of the intracranial cavity other than the base of the skull.

On admission, our patient was asymptomatic, apart from seizures for 4 years. Because of the slow growth of these tumors, this clinical picture is typical of chondromas.[7,14,24] There is no characteristic appearance of chondromas on routine x-ray films or angiography.[7,27,30] Although a hypodense appearance on CT scans has been reported by others,[10,15,19,20] CT in our patient revealed a hyperdense mass with slight enhancement.

Surgical resection is the treatment of choice in falcial chondromas. No recurrence need be expected after total removal. Our patient is symptom-free after 4 years. Hardy, *et al.*,[16] reported a patient with dural chondroma who survived for 44 years after total excision.

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