

INTRADURAL SOLITARY CHONDROMA

A Case Report

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SUMMARY :

A case of solitary chondroma with a dural attachment is presented. The unusual fronto-parietal localisation, the computerized tomographic images and histological findings of this rare tumour are discussed. No recurrence is expected after total removal.

KEY WORDS :

Chondroma, dural attachment.

Intracranial chondromas, showing an expected incidence of less than 0.2 % of intracranial tumours, are extremely rare benign tumors (1,2,3,11). They can be classified into four groups. The first group consists of tumours which arise from the base of the skull, particularly in the spheno-occipital region (5,6,7,8,9,10, 18,20,24,25,28,37,40). The second group comprises lesions originating from the paranasal sinuses and extending into the cranial cavity (4,13,17,29,30,34,39). The third group consists of cartilagenous lesions arising from the choroid plexus (35) and the fourth group tumours with a dural attachment (3,12,15).

We present a very rare case of solitary intradural chondroma which has a dural attachment. Histopathological findings of our case can be classified in a group that reflects a fairly small percentage, i.e. 15 % of all intracranial chondromas (39).

CASE REPORT

A 30-year-old, right-handed male was admitted to the Neurosurgery Clinic of Ankara Numune Hospital with a history of frontal headache and progressive weakness in the right arm and leg of six months' duration. Neurological examination revealed a right spastic hemiparesis and papilledema. Plain X-rays were normal, CT revealed an isodense mass with multiple calcifications and a hyperdense portion at the cortical face in the left frontoparietal region. There was a slight homogenous enhancement after intravenous injection of contrast material (Fig. 1-2).

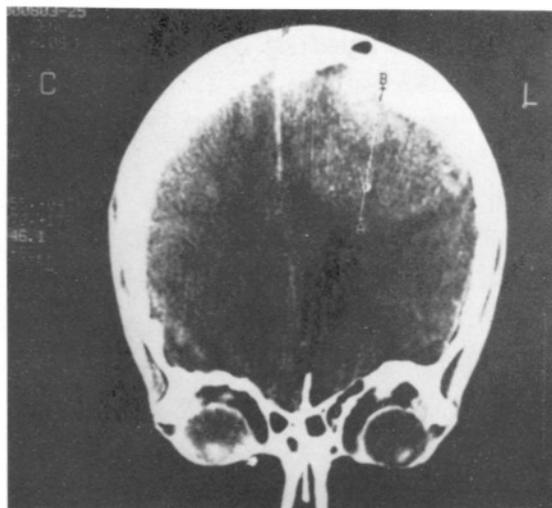
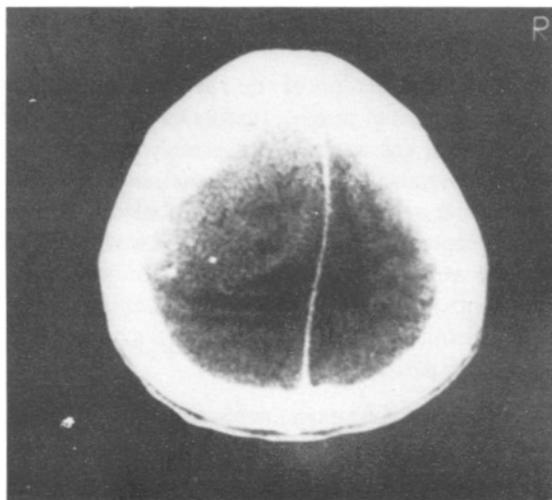


Fig.1 and 2 : After IV injection of contrast material, CT showing a slight homogenous enhancement.

Left carotid angiography showed an avascular fronto-parietal mass. A fronto-parietal craniotomy was performed. When the bone flap was elevated, the borders of the tumour could be palpated under the dura. No bone invasion was detected. The dural incision revealed a pearl white, hard consistency tumour which could be separated and removed easily from the inner layer of the dura. The tumour had compressed the left parietal lobe. There were two small vessels with a calibre of 2 mm penetrating into the tumour from the brain tissue. The inner layer of the dura over a surface of 1 sq cm seemed irregular. This small portion was coagulated by bipolar cautery and the dura was closed. The patient did well and had an uneventful recovery. He was discharged on the 8th postoperative day without any complications.

PATHOLOGY

Gross examination of the specimen revealed a mass of 160 gm in weight, 10x8.0x3.0 cm in size, pearl white in colour, hard consistency and covered with a thin transparent capsule. Serial sectioning showed scanty areas of bleeding and lobulation due to fibrous septa. Under the microscope, it was observed that the well-encapsulated tumour had numerous fibrous septa surrounding the well-differentiated cartilage containing lobules so regular that the tumour had a multilobulated appearance.

High power field examination showed tumour tissue comprising indolent chondrocytes with their lacunae dispersed haphazardly within a dense chondroid matrix. Occasionally there were hyperchromatic nuclei (Fig.3). Some lacunae were filled with two or more chondrocytes but neither mitotic figures, nor multinucleated cells, i.e. malignancy criteria, were seen (Fig.4).

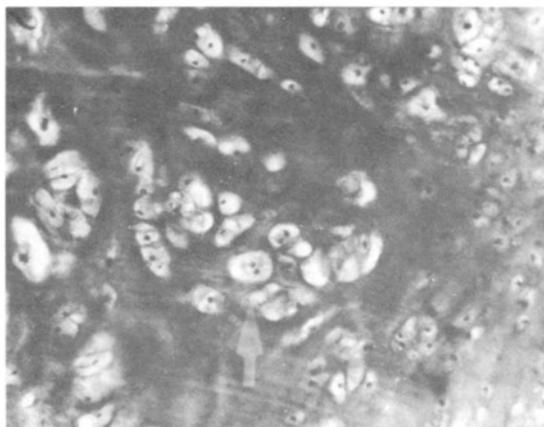


Fig.3 : Photomicrographs of the tumour tissue showing the chondrocytes in the lacunae.

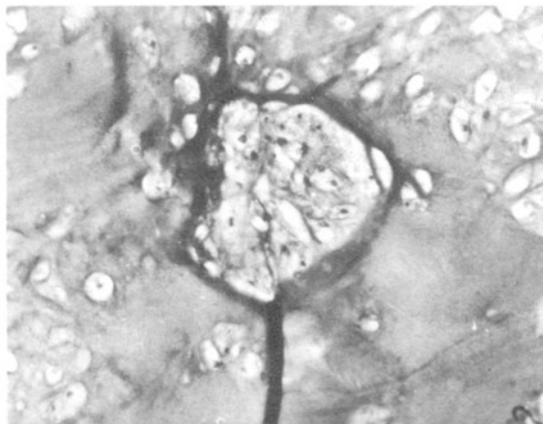


Fig.4: High power field of the tumour tissue indicating some lacunae are filled with two or more chondrocytes neither mitotic figures nor multinucleated atypical cells are present.

DISCUSSION

Intracranial chondromas are extremely rare benign tumours. Hirschfield (1851) was probably the first to report an intracranial cartilaginous tumour, specifically a chondroma (16). Intracranial chondromas can be either solitary or a component of Ollier's multiple chondromatosis (32,33). Maffuci's syndrome is similar to Ollier's disease with the additional presentation of multiple haemangiomas (14,27). Intracranial involvement has also been reported (19).

The majority of patients with intracranial chondroma range between 20 and 60 years of age with a peak at the 3rd decade (7). There is no sex predilection although a slight female predominance is reported (23).

The clinical manifestations of intracranial chondroma are characterised by local tissue damage, seizure and symptoms of increased intracranial pressure (15). Skull X-rays may demonstrate bone destruction and tumour calcifications. Angiography reveals an avascular mass lesion (7,23,24). Our angiography showed downward displacement of left anterior cerebral artery by this particular avascular left fronto-parietal mass.

The CT findings of intracranial chondromas have been reported by many authors (21,26,31,35,38,40). In general they are hypodense (21,29), or hyperdense (1,11,31,35) on non-contrast CT and show slight to moderate contrast enhancement on postcontrast CT (31,35,40). Our non-contrast CT revealed an isodense mass with multiple calcified areas and a hyperdense portion at the dural face. There was only a slight homogenous enhancement after the intravenous injection of contrast material. In one case no contrast

enhancement was reported (22). Hyperdensity might be due to intratumoural bleeding or calcifications. The CT findings may be useful for the differential diagnosis of neurinoma, meningioma and chondroma. Intratumoural calcifications are against neurinoma. Early contrast enhancement is suggestive for meningioma, but late contrast enhancement may be evidence of chondroma (21).

Histopathologically, there are lobules of hyaline cartilage which usually contain only one cell per lacuna (39). Although the criteria of malignancy are the presence of more than one nucleus for each lacuna microscopically, and being bigger than 6-10 cm in diameter, our case was not interpreted as a malignant cartilagenous tumour, because despite the fact that on microscopic examination, some lacunae were filled with two or more nucleated chondrocytes, there was no evidence of malignant changes such as mitotic figures and pleomorphism. Our patient's tumour size was 10.0x3.0 cm and weighed 160 gm. The tumour size itself could not be accepted as a sole reliable criterion. Therefore this rare tumour was accepted as a benign chondroma and no recurrence is expected after total removal (38).

The treatment of chondromas is surgical. Krayenbühl and Yaşargil recommended total surgical removal of these tumours since subtotal excision could only ameliorate symptoms for a few years (23). Hardy reported a patient with dural chondroma who survived for 44 years after removal of his tumour in toto (15). Many authors think that radiation therapy has no place in the treatment of these rare tumours (3,4,7,9,26,30).

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