Quadrigeminal cistern lipoma

Quadrigeminal cistern lipomas make up approximately 25% of intracranial lipomas and are located within the quadrigeminal cistern. They may be associated with hypoplasia of the inferior colliculus or agenesis of the corpus callosum.

Clinical features

Lipomas of the quadrigeminal plate/ambient cistern produce symptoms in 20 percent of patients [1].

Radiographic features

CT and MRI findings are characteristic for a fat-containing mass or lesion, however located in the quadrigeminal cistern.

CT CT demonstrates a lobulated, non-enhancing fat attenuating (often (HU = − 50 to − 100) mass in the quadrigeminal cistern. Peripheral calcification can be present in some cases.

MRI MRI reveals signal characteristic of fat:

T1: high signal intensity T2: high signal intensity T1 C+ (Gd): no enhancement fat saturated sequences: low signal intensity SWI: can produce blooming due to susceptibility artifact [2].

Differential diagnosis

Differentials specific to its location (quadrigeminal plate) include tectal plate glioma or mass, tectal plate cyst, arachnoid cyst, dermoid cyst and epidermoid cyst [3].

Treatment

Lipomas, in general, are mostly asymptomatic. Asymptomatic lesions often do not require treatment. If there is mass effect causing seizures or hydrocephalus, then surgical management can be considered [4] [5] [6]

Case series

A series of 12 patients with quadrigeminal cistern lipoma were followed up between 2010 and 2013 at the Kayseri Training and Research Hospital's Department of Neurosurgery. MRI characteristics and clinical features of the 12 patients were evaluated.

Results: A total of 12 patients were followed up. The mean age was 36.25 years (range 6 - 74 years). All patients' neurological findings were normal, except one patient had strabismus. MRI revealed a tubulonodular type lipoma in eleven patients and curvilinear type lipoma in one patient. Two patients (16.6%) had associated Chiari malformation type 1. Calcification was found only in two patients (16.6%). None of patients had a corpus callosum malformation or associated hydrocephalus. The mean follow-up period was 17.2 months (range 3-36 months) and no patient showed progression.

Conclusion: Intracranial lipomas are considered benign, slow-growing congenital malformations due to infiltration of adipocytes into the neural tissue and conservative management should therefore be preferred [7)].

Case reports

https://radiopaedia.org/cases/tectal-plate-lipoma

A 65-year-old male presented with a rare lipoma in the quadrigeminal cistern manifesting as left abducens nerve paresis which was effectively treated by total extirpation. The usual neurological symptoms of lipoma in the quadrigeminal cistern are intracranial hypertension and hydrocephalus which can be successfully treated by shunt operation. Direct surgery is indicated when the symptoms are ascribed to localized symptoms, but tumor removal should be partial if the superior cerebellar arteries are involved [8)].

A case of neonatal congenital triventricular hydrocephalus due to a small intracranial lipoma in the quadrigeminal plate cistern is reported. The patient was treated by a ventriculoperitoneal shunt. The mechanism of obstructive hydrocephalus caused by the intracranial lipoma is discussed [9)].

Two of six cases had lipoma occurred at the quadrigeminal cistern. To one of them showing advanced enlargement in circumference of the head in the postnatal period, the V-P shunt was conducted for obstructive hydrocephalus. Another case had agenesis of the corpus callosum associated with interhemispheric cyst. One case out of six had lipoma originating from the left sylvian fissure and the remaining adult patient had lipoma located in the interpeduncular cistern. Four cases out of those six were associated with agenesis of the corpus callosum. Based on published reports, the etiology, neuroradiological features, clinical symptoms and signs, differential diagnosis and surgical indication were discussed [10)]

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