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TECTAL PLATE GLIOMA IN A 3 YEAR OLD CHILD: A CASE REPORT

Paediatrics

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ABSTRACT

Brainstem gliomas accounts for almost 10%–20% of pediatric primary brain tumors. Tectal plate gliomas which accounts 5%, are a subgroup of brainstem gliomas and that typically presents with obstructive hydrocephalus secondary to enlargement of the tectal plate and obstruction of the cerebral aqueduct.

Patients usually have a long-standing history of headache. Other symptoms including visual abnormalities , oculomotor palsy, balance problems, may also be present.

Tectal plate gliomas are generally low-grade astrocytomas with a good prognosis.

Here, we present a case of 3 year old male child who presented with history of progressive headache since 4 months and multiple episodes of convulsions which were refractory to anticonvulsants.

KEYWORDS

Tectal plate Brain tumor Glioma Astrocytoma Hydrocephalus

INTRODUCTION

Tectal Glioma is a slow growing, generally benign, brain tumor in children 3-16 yrs of age situated in the upper portion or roof of the brainstem, with local extension obstruct the aqueduct of sylvius and lead to hydrocephalus.

These are a rare subset of brainstem gliomas accounting for less than 5% of brainstem tumors in children and 8% in adults.

It usually a benign course but, unfortunately, tectal glioma is known as the smallest tumor in the body that can lead to death of the patient The patient generally presents with symptoms related to increased intracranial pressure and requires treatment for hydrocephalus. No effective pharmacological treatments have yet been introduced. The management of these tumors is typically limited to placement of a ventriculoperitoneal shunt

CASE HISTORY

We here report a case of 3 yrs old Indian male child who presented with with history of progressive headache since 4 months and multiple episodes of GTCS with tightening of all four limbs and up-rollingof eye balls, which were refractory to anticonvulsants (injectable fosphenytoin,valparin,levipil).

Birth history was normal, child had achieved all milestones till 2 ½ yrs of age,when he started having difficulty in walking and diminished vision noticed by mother, since 6 months which is gradually progressive in nature.

On examination, his GCS was 15/15(normal), but he had impaired cognitive functions and mild hypertonia. All cranial nerve examination were normal except 2nd cranial nerve ,child had no vision and no response to light. Rest other systemic examinations were within normal limits. There were no neurocutaneous markers in form of café-au-lait spots or Neurofibromatosis. Baseline pathological investigations were done which were normal.

Owing to the symptoms patient was referred to Radiology department for MRI brain, which revelaed, a lobulated lesion measuring approximately 3.3 x 3.8 x 3.8cm in the region of tectal plate, with obstruction of the aqueduct of sylvius resulting in gross supra-tentorial hydrocephalus. There was no enhancement of the lesion on post contrast study.

He underwent ventriculoperitoneal shunt placement and achieved adequate control and improvement of the symptoms on follow up study

DISCUSSION:

Tectal plate gliomas are rare brain tumour and represents approximately 5% of pediatric brainstem gliomas .

Histologically it includes pilocytic, fibrillary, low-grade or anaplastic astrocytoma.

The most common clinical symptoms are headache , diplopia, visual deficits, decreased school performance, nystagmus, and seizures. Association is noted with Parinaud syndrome and neurofibromatosis.

Tectal plate is a rare location for a tumor. Among tumors found in the tectal plate, the most common is the astrocytoma, but other such as oligodendroglioma, ependymoma, ganglioglioma, medulloblastoma, primitive neuroectodermal tumors, metastasis, as well as lipoma, melanoma, dysembryoplastic neuroepithelial tumor, cavernomas, abscess, and periaqueductal gliosis have been described in the literature. Tectal tumors may extrude from the tectum into the lumen of the cerebral aqueduct and subsequently protrude to the third ventricle, pushing away the posterior commissure and enlarging the orifice.

MRI is the radiological investigation of choice for its diagnosis.

MRI of these tumors reveals tectal distortion or thickening caused by a localized mass, leading to aqueductal compression and hydrocephalus; characteristic T1 hypointensity and T2 hyperintensity. MRI is an accurate and noninvasive method of diagnosis, However definitive diagnosis requires biopsy and histopathological analysis. Management is planned according to the degree of associated signs and symptoms, and may range from diligent observation and periodic screening for advancing tumor development, to cerebrospinal fluid shunting in an effort to resolve obstructive hydrocephalus, to radio- and chemotherapy. A wide range of minimally invasive approaches using endoscopy is available for the neurosurgeon, including endoscopic third ventriculostomy and endoscopic aqueductoplasty.

DIFFERENTIAL DIGNOSIS-

When the tectum is near-normal then the differential is largely limited to:

- Aqueductal Stenosis
- no mass lesion
- a focal stenosis or web may be visible

With larger lesions, where the mass is not definitely arising from the tectal plate then the differential is essentially that of a pineal region mass and therefore includes:

- Pineal parenchymal tumours and germ cell tumours
- Pineal Cyst
- eningioma
- Cerebral Metastasis
- Cavernous Malformation

CONCLUSION-

Tectal plate gliomas may present with atypical symptoms also . Thus timely diagnosis and treatment will prevent the late sequel of disease .If the volume of glioma is around 2 -3cm , it usually has an indolent clinical and radiographic course and rarely require any intervention beyond management of hydrocephalus and radiological observation. Both ETV and shunting are reasonable options for CSF diversion and result in a decrease in ventricular size.

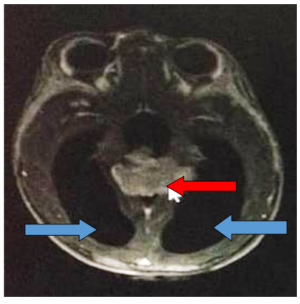

Figure 1.

Axial T1W image of the brain showing a well defined hyperintense lobulated lesion(Red arrow) measuring 3.3 x 3.8 x 3.8cm seen in the region of tectal plate, with obstruction of the aqueduct of sylvius resulting in dilatation of bilateral lateral ventricles (Blue arrow) and causing hydrocephalus.

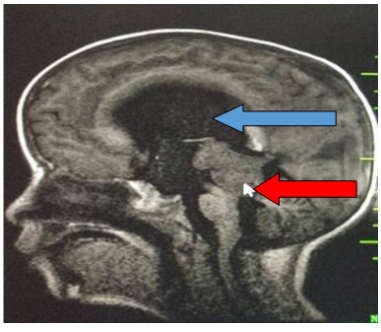

Figure 2.

Sagital T1 W image of the brain showing the lesion (Red arrow) and dilated lateral ventricles (Blue arrow)

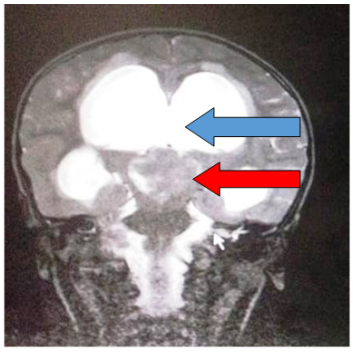

Figure 3

Coronal images of the brain showing the lesion(Red arrow) and dilatation of the lateral ventricles (Blue arrow)

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