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Case Report

Brain tumor masquerading as dengue in a three-year-old boy

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ABSTRACT

Paediatric gliomas represent the most common brain tumour in children. Early diagnosis and treatment greatly improve survival. Paediatric gliomas depend on pathways and genes responsible for mitotic activity and cell proliferation as well as angiogenesis (mitogen-activated protein kinases, vascular endothelial growth factor, epidermal growth factor pathways). Symptoms seen as persistent headaches, behavior changes, early morning nausea, emesis, diplopia, and papilledema. Patients may also present with more specific localizing symptoms such as focal motor deficits, hemiplegia, pyramidal tract findings, dysmetria, and chorea; depending upon the tumor's location can facilitate diagnosis, but they are not always present and therefore diagnosis is occasionally delayed. Here we report a case of a boy hailing from lower socioeconomic status with history of abdominal pain, irritability, fever and cough initially mimicking clinical features and symptoms of dengue encephalitis but subsequent deterioration of patient though on medication and review with MRI suggestive of a glioma.

Keywords: Glioma, Paediatric, Brain tumour

INTRODUCTION

Most of primary brain tumours are located in supratentorial region, among which glioma is a diffuse infiltrative tumour which grows along the white matter tract. Location is dependent upon which white matter is involved i.e., supratentorial (75%), temporal (31%), parietal (24%), frontal (23%), occipital (16%), <20% are multifocal and 10% present with positive CSF cytology. Tumour present in these areas of brain may present with attention capacity impairment, depressive symptoms. A dormant phase during tumour progression is highly prevalent. Cancer dormancy is a stage in which tumour are occult and asymptomatic for a prolonged period of time. Initial symptoms of brain tumour with psychiatric symptoms, memory disturbance, developmental regression, weakness, headache and seizure should be kept in mind. Incidence is<0.8/1 lakh of high-grade tumour such as glioma in children less than 19 years of age and peak age is 55 to 60 years.[1]

CASE REPORT

A 3 years old male child presented with chief complain-abdominal pain, irritability for 8-10 days, fever for 5 days, cough for 1 day. There was no history of headache, vomiting, rash, constipation, diarrhoea, burning micturition, seizures, insomnia, abnormal smell, blurring of vision, squint, drooling of saliva, change in voice, hematemesis or melaena.

At time of presentation on day 1 of admission patient's vitals were normal in general examination pallor was present, systemic examination was also normal and in CNS examination no localising signs there were. After 7 hours of admission patient was hypovolemic and blood pressure was below fifth percentile hence fluid resuscitation was carried out suspecting dengue, dengue IgG was positive but patient continued to be irritable even after treatment, hence CSF examination was done on day 2 of admission which was suggestive of viral meningitis. Treatment was started accordingly but patient

developed signs and symptoms of raised intracranial pressure i.e., severe weakness, headache, altered sensorium and seizure on day 5 of admission. Patient was put on mechanical ventilation (GCS<8) and MRI brain done was suggestive of neoplastic lesion possibility of glioma.

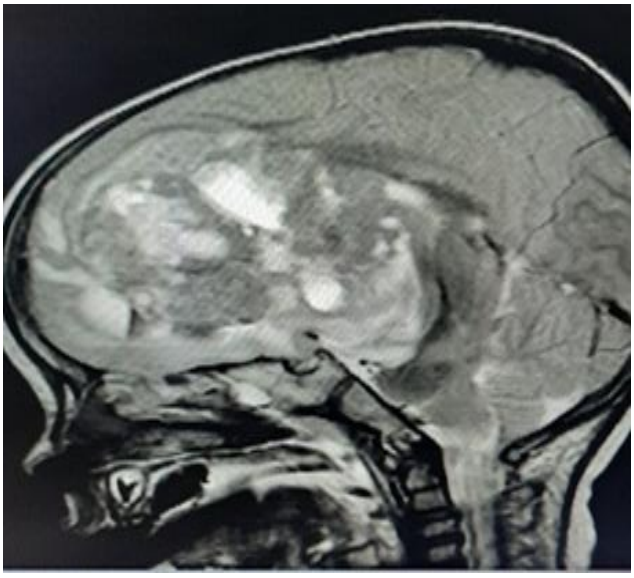

Figure 1: MRI brain of left frontal, temporal and parietal area mass.

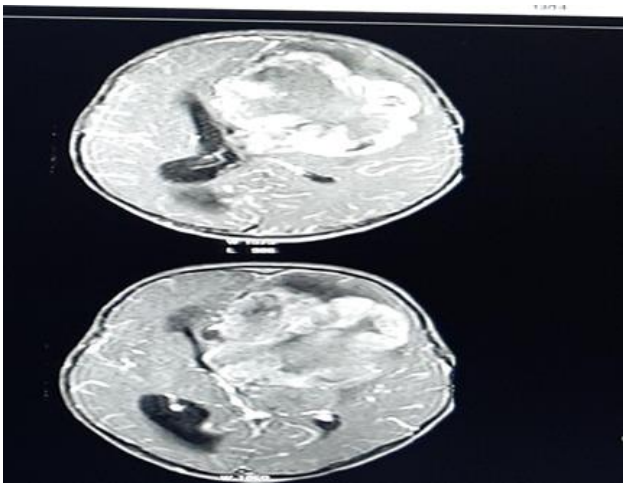

Figure 2: Mass effect in form of midline shift towards right side.

On day 6 of admission patient had irregularly irregular pulse, hypotonia developed and quadriparesis. Treatment of raised ICT was started and early surgical resection was advised by the neurosurgeon. Duration of hospital stay was 14 days.

DISCUSSION

Author presents a case of glioma in a 3 years old male, with no risk factors. There were no signs of raised intracranial tension, no developmental abnormalities and no neurological deficits at presentation. Patient was only irritable so findings were unlikely suggestive of tumor of central nervous system. Other systemic symptoms were abdominal pain, fever, cough which were non-specific in nature. Depending upon location glioma presents as cognitive deficits, seizure, headache, dizziness, motor deficits.

By WHO grading glioma is classified as a grade 4 tumour among CNS tumors. Diffuse glioma is graded by WHO according to necrosis, mitosis and neovascularisation of astrocytes and this patient had grade 4 with mid line shift, necrosis, and bleed within (neovascularisation).[2]

Inflammation induces tumor derived secretory proteins which triggers tumors activation, migration, invasion.[3,4] Inflammation due to infection dengue might have aggravated the dormant glioma in our case.

Initial treatment to high grade glioma involves surgical resection. Radiotherapy, chemotherapy with temozolomide (TMZ) post-surgery to cut down residual tissue is the preferred approach.[5,6]

Limitation

Due to economical constraints of patient's relative, we were not able to do further treatment in the form of neurosurgery and histocytological study was not done.

CONCLUSION

Glioma have poorest prognoses, it can be managed by surgical resection and followed by neo-adjuvant chemotherapy with temozolomide and radiotherapy but over-all long-term survival is 14-16 months post diagnosis.

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