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Available online at: http://www.iajps.com *A Case Study*

CASE STUDY ON BRAIN STEM GLIOMAS

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Abstract:

Brain stem gliomas are very rare cases. The incidence of this case is not known. In this case study we are going to discuss a 8 years old male child who was diagnosed with pontine glioma which is very aggressive and can cause death. Brain stem gliomas are present in 20% all in neoplasm. MRI and all diagnostic reports show the diffuse intrinsic pontine gliomas. APN administers intravenously daily. Radiotherapy advised which was refused by the attendants. Surgical treatment reveals with no outcomes. Patient is on conservative management. Patient is improving health but the treatment is in under process.

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INTRODUCTION:

Brain stem gliuomas are the tumours that are oresent in the region of the brain stem, which is the area of aquaduct sylvius and the fourth ventricle. although various systems also use to classify these tumours thse are divided in three anatomical locations. Diffuse instrinsic pontine, tectal and cervicomedullary. Pontine gliomas have no outcomes and lead to death. Longer survival are I tectal and cervicomedullary gliomas.

Brain stem gliomas are uncommon tumours of recurrant pediatric diffuse intrinsic pontine gliomas comprise a group . brain stem gliomas are the tumours which constitute 1.6%of primary brain and CNS tumours by site . in children with high grade gliomas are anaplasticastrocytomasglioblastomas multiform(GBM), and pontine gliomas are very aggressive neoplasm and leading cause of cancer related mortality (Stanislaw et *al.* 2014).

Gliomas of the ventral pons (basis pontis), refers to the diffuse instrinsic pontine gliomas ,and are diffuse infiltrative, high grade extremely aggressive cancers can lead to death in less than a year. Diffuse intrinsic pontine gliomas of the ventral pons are in high level in children with ages of 6 to 7 years. Diffuse instrinsic pontine gliomas are heterogenous disease, and represent a histological spectrum. These are the very diffuse tumours and also involve the adjacent brain structures beyond the pons. Several studies report leptomeningeal dissemination and subventrical spread as common occurrence seen in many as one third of diffuse instrinsic pontine gliomas , with tumor cells found rostrally as the frontal lobe (Buczkowicz & Hawkins, 2015).

Approximately 60% of brain stem gliomas are found in the pons and it is originates in the medulla or midbrain and may extend beyond the brain stem. Brain stem gliomas are very aggressive tumors. Anatomical location suggest the pathophysiological manifestations f the tumors. In tectal lesions, hydrocephalus occurs due to the ventricular compression. Histopathologically , brain stem gliomas can range from 1 to 4 grades. Grade 1 is classified as juvenile pilocystic astrocystoma , grade 2 is astrocytoma , grade 3 is anaplastic astrocytoma and grade 4 is glioblastoma. Grading is depending upon the presence of nuclear atypia, vascular proliferation, mitosis and necrosis. Which was seen in grade 4 (glioblastoma mulifrme).

Tumor cells of diffuse intrinsic pontine gliomas are generally compress crucial nuclei and tracts within the pons. As the tumour enlarges it causes signs and symptoms of impaired functions of neurons arising in or running from the ponms which carry the information to and from the cerebellum, cortex, spinal cord and cranial nerves. The most common symptoms are triad of 1) cerebellar deficits such as impaired balance and coordination, 2) long tract impairment causing weakness and sensory loss in of extremities and trunk, 3) prices of cranial nerves of VI and VII which facilitate the outward movements of the eye and face. Headaches, altered level of consciousness and other cranial nerves deficits due to obstruction of cerebrospinal fluid flow due to tumour impairement on the ventricular system of the brain. The radiological study of choice is magnetic resonance imaging (MRI). Diffuse intrinsic pontine gliomas has a peak incidence of a 6-9 years and typically exhibits rapid clinical onset and 90% progression in 18 months of presentation (Ashelford, Taylor & Rayensford, 2016)

Treatment of brain stem gliomas are depend upon different options like radiotherapy and chemo therapy and surgery. it is depend upon the family members what they preferred .treatment recommendation depend upon the the signs and symptoms of the disease that the tumor is worsening. Treatment begin if the tumor is started begin to grow and spread.

CASE PRESENTATION:

A 8 years old male child was admitted in public hospital in unconscious condition. He was unable to speech and has memory problem. He was presented with the history of headache from 7 months and bilateral hearing loss. VP shunting was already done from private hospital. Finding of VP shunting was high in pressure and clear Cerebro Spinal Fluid.

Physical examination reveals normal vital signs. Neurological examination reveals left cranial VI nerve palsy without involvement of the other nerves such as the ocular motor (cranial III or IV).trigeminal facial and acoustic nerves .Right cerebellar signs were present.

The blood test reports showed WBC was 6.39/mm and platelets count over 337×10e3/Ul , no evidence of hepatic and renal insufficiency, and the total bilirubin and serum cretinin was 0.08 and serum urea was 32mm , serum elctrolytes were normal. HB was 13.3g/dl. SGPT was 33U/L and SGOT was 44U/L . CT scan brain done which shows the infarction or tumour present in the brain. For further management and diagnosis MRI brain done which shows two well defined, ring – enhanced lesion at the left side of the CPA (2.0cm×2.6cm),and upper left side of the pons(0.6cm×0.5cm). the pons were enlarged and

swollen . a larger atopsy based study of diffuse intrinsic pontine gliomas histology reported 42 GBM, 18 anaplastic astrocytoma, 8 low grade astrocytomaand 2 with features of primitive neuro-ectodermal tumour (PNET, WHO grade IV),history shows the previous observation is rare PNET histology in the brain stem. Patients pharmacological treatment was injection peads solution 500 ml three times a day , injection Augmentin 625mg two times a day , injection ceftriaxone 500mg intravenously in process. Patient managent is conservatively in under process.

DISCUSSION:

Children with pontine gliomas are difficult to treat and their survival rates are very poor. Treatment of these type of tumours are constantly under investigations. MRI techniques are used to determine the tumour and decision are made to treat the tumors. These tumors are investigated through MRI, SVS and DSC. Although, these studies were demonstrate a significant prognosis value of certain MRI sequences. The absence of pathology is in the most of patients with low grade histology, like a polycystic astrocytoma. This study demonstrates the prognosis value of specific MR sequences for patients with diffuse intrinsic pontine gliomas (Sean, 2011).

Several cases with typical MRI and symptoms at presentation had histologies on autopsy. patients which are found at autopsy to have PNET were diagnosed as diffuse intrinsic pontine gliomas based on standard criteria including MRI and clinical presentation. Although there is a wide distribution of tumor grade and histology among diffuse intrinsic pontine gliomas, these alone are not a predictor of survival.

These tumors of diffuse invasion of brain stem was common among all of the diffuse intrinsic pontine gliomas involve the upper cervical and thalamus (Tessa, 2017).

High grade gliomas are those gliomas of grades III-IV, also known as malignant gliomas , that have extremely aggressive lesions. The most common incidences of malignant tumours are 5.26/100,000/year. Temozolomide (TMZ) is indicated for anaplastic astrocytomas (AA)and glioblastoma multiforme (GBM) as a standard chemotherapy drug (Yang, ,Guo, & Chen, 2015).

CONCLUSION:

In this summary, case presented about pontine gliomas which is un common case of exophytic, multifocal pontine blastoglioma in a 8 years of male child. In recent years, an increased availability of biopsy and rapid autopsy tissue samples for preclinical has combined with the advent of new genomic and epigenomic profiling tools to yield remarkable advancements in our understanding of diffuse intrinsic pontine gliomas disease mechanisms. As well, a deeper understanding of diffuse pontine gliomas is shedding light on therapeutic targets in the micro environment 0f the children brain. MRI reports reveals about the diagnosis. surgical treatment has no outcomes. Radiotherapy advised but refused by the family. Patient's treatment is under process.

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