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A case report of recurrent Glioblastoma multiforme with orbital involvement : A rare case

Dr.SK.N.Chandini[1], Dr.P.Pravallika[2] , Dr.K.Vijayasekar M.S[3] , Dr.G.Satyavathi M.S[4] , Dr.M.Harika M.S[5] .

Post graduate , Postgraduate , Professor , Associate professor , Assistant professor , Department of Ophthalmology , Guntur Medical College, Guntur, Andhrapradesh, India.

Abstract: *Astrocytoma is the most common type of glial tumour that can develop in the brain and spinal cord. It is more common in men than women and most often after age 45. Astrocytomas are graded on a scale of I to IV based on how abnormal they look and how fast they grow. Anaplastic astrocytomas are grade III tumours that grow quickly and spread to nearby tissue. Glioblastoma, also known as glioblastoma multiforme (GBM),grade IV tumour is the most aggressive type of cancer that begins within the brain. This is a case of 62 year old female referred to ophthalmology OPD with a chief complaint of swelling of eyelid, forward protrusion, drooping ,loss of vision and pain in Right eye since 1 month. Past history of swelling over frontal region 6 years back and it was operated and removed and diagnosed as anaplastic astrocytoma grade III by histo pathological examination. Again lesion occurred in the resected region as recurrence but now spread to temporal lobe ,orbital and maxillary region. Following detailed ophthalmological and neurological examination enucleation is done for orbital involvement compressing optic nerve and removal of tumour extending to the temporal region and sent to histopathology . Now Recurrent glioblastoma grade IV was established from histopathology, and supported by radiological reports.*

Key words: *Glioblastoma , Anaplastic astrocytoma , orbit , Maxilla , Enucleation.*

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I. Introduction

Glioblastoma multiforme is a rare malignant brain tumor. Astrocytomas are tumors that develop from certain star-shaped brain cells called astrocytes. Tumors that arise from glial tissue, including astrocytomas, are collectively referred to as gliomas. The symptoms of Glioblastoma vary depending upon the specific location and size of the tumor. The specific cause of this tumor is unknown. Astrocytomas are classified according to a grading system developed by the World Health Organization (WHO). Grades I or II astrocytomas are nonmalignant and may be referred to as low-grade. Grades III and IV astrocytomas are malignant and may be referred to as high-grade astrocytomas. Anaplastic astrocytomas are grade III astrocytomas. Grade IV astrocytomas are known as glioblastoma multiforme.

II. Case Report

History: A 62 year old female patient referred to the OPD with chief complaint of right eye forward protrusion , loss of vision , drooping of eyelid , pain and swelling around eye and scalp since 1 month .The presenting complaints are insidious in onset and gradually progressive in nature since 1 month associated with weakness of left upper limb and lower limb. past history of frontal lobectomy done due to anaplastic astrocytoma grade III 6 years back.patient is not a known diabetic and hypertensive.

Ocular examination :

BCVA in Right eye is NO PL , Left eye BCVA is 6/ 24.

Right eye examination : Extraocular movements are restricted in all directions ,severe Axial proptosis , severe Ptosis ,lagophthalmos , periorbital edema, conjunctival congestion with severe chemosis and inferior keratinization , cornea is clear , pupil is mid dilated fixed not reacting to light and consensual light reflex is also absent , and early cataractous changes of lens .(figure 1 and figure 2)

Left eye examination : Direct pupillary reflex is present , consensual light reflex is absent, rest all are normal.

Exophthalmometry values are – RE – 26 mm , LE – 21 mm.

Dilated fundus examination : RE – media is clear , optic disc is pale , normal in size with blurred margins and peripapillary edema , vessels are tortuous , choroidal folds, hemorrhages are present in the background , foveal reflex is altered. LE – normal fundus study.

Neurological examination : Glasgow coma scale is E4 V5 M6 , Left side hemiparesis of score 2/5.

Radiological investigations :

CECT brain with orbits – An ill defined heterogeneously enhancing lesion noted in right frontotemporal region of size 44* 59*67 mm noted in Right fronto temporal region , extending anteriorly into the right orbit with lateral wall bony destruction , posteriorly into the right temporal lobe , inferiorly into the infratemporal fossa , laterally extending outwards possible as recurrence.(figure 3)

CEMRI brain with MRS – ill-defined T1 iso to hypo and T2 hyperintense lesion measuring 8.7*6.8 cm right frontal region extending laterally extracranially involving the right orbit , right temporal lobe extending posterior and inferiorly and then into the right maxillary region- possible recurrent lesion.

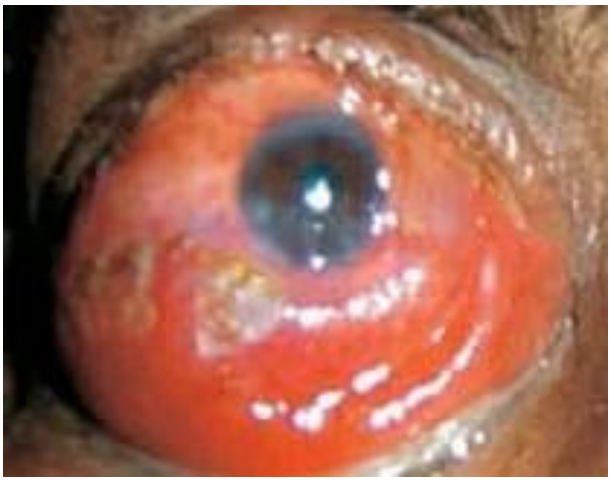

Figure 1 :

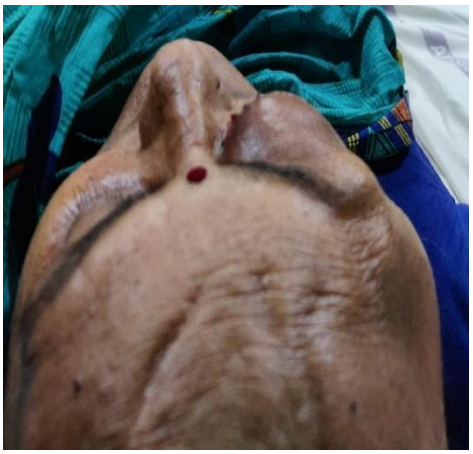

Figure 2 :

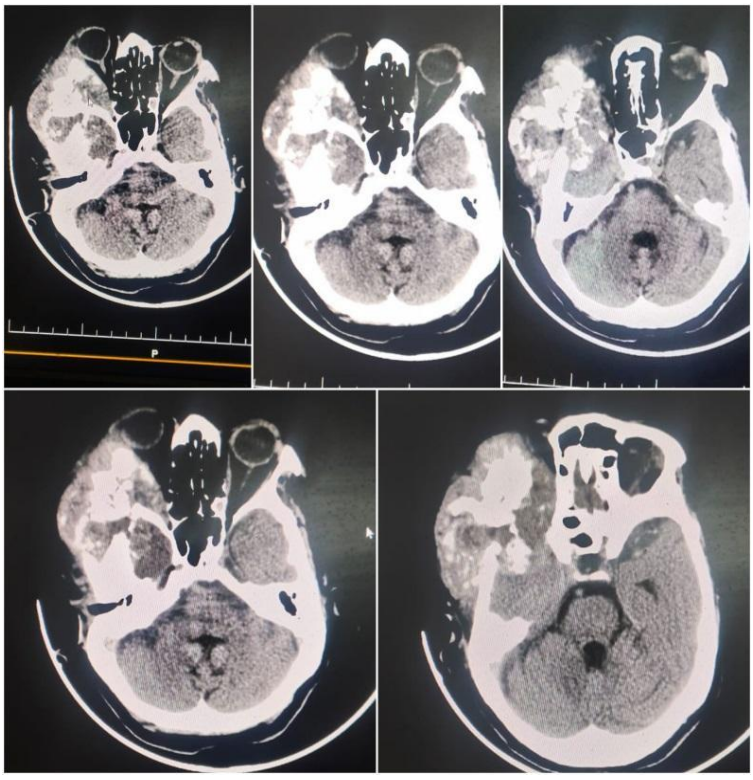

Figure 3 :

Treatment : General measures –Systemic and topical antibiotics , lubricants and vitamin supplementation given. Later enucleation of the right eye done by ophthalmic surgeon and excision of tumour done by neuro surgeon under general anesthesia . Post operative CT is showing enucleation status and excised tumour (figure 4) and treated with iv antibiotics, topical antibiotics and NSAIDS .

HPE report : multiple sections studied from the tumour shows glial tumour composed of pleomorphic hyperchromatic tumour cells with high mitotic activity along with areas of hemorrhagic necrosis infiltrating the bone are in the favour of Glioblastoma WHO – grade IV .

Diagnosis : With the Above clinical findings supported by histopathology , and radiological reports this is diagnosed to be a case of Recurrent Glioblastoma multiforme involving right eye orbit presented with proptosis.

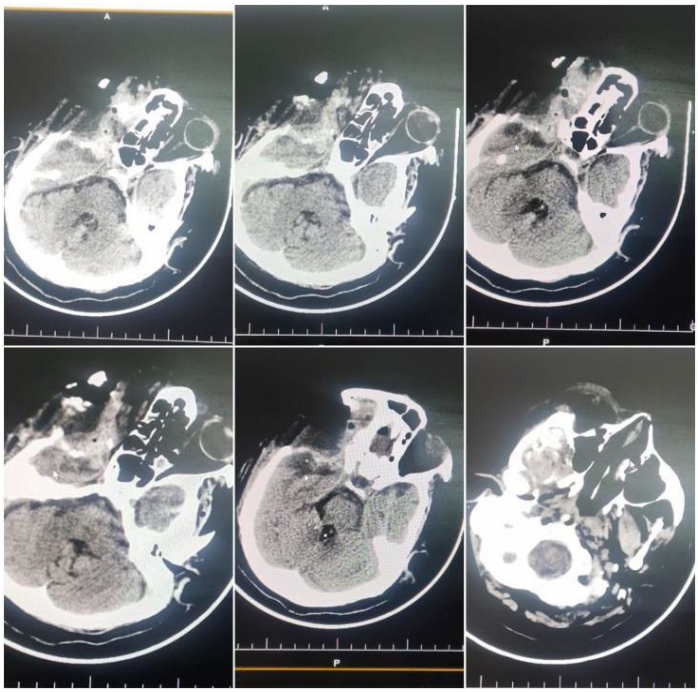

Figure 4 :

III. Discussion

Glioblastoma, also known as glioblastoma multiforme (GBM), is the most aggressive type of cancer that begins within the brain. Initially, signs and symptoms of glioblastoma are nonspecific. They may include headache, personality changes, nausea, and symptoms similar to those of a stroke. The cause of most cases of glioblastoma is not known. Uncommon risk factors include genetic disorders, such as neurofibromatosis and Li–Fraumeni syndrome, and previous radiation therapy. Glioblastomas represent 15% of all brain tumors. They can either start from normal brain cells or develop from an existing low-grade astrocytoma. The diagnosis typically is made by a combination of a CT scan, MRI scan, and tissue biopsy. There is no known method of preventing the cancer. Treatment usually involves surgery, after which chemotherapy and radiation therapy are used. High-dose steroids may be used to help reduce swelling and decrease symptoms. Greater surgical removal of the tumor is linked to longer survival. GBMs usually form in the cerebral white matter, grow quickly, and can become very large before producing symptoms. Fewer than 10% form more slowly following degeneration of low-grade astrocytoma or anaplastic astrocytoma. These are called secondary GBMs and are more common in younger patients (mean age 45 versus 62 years). The most common length of survival following diagnosis is 12 to 15 months, with fewer than 3 to 7% of people surviving longer than five years.

IV. Conclusion

Glioblastoma multiforme here developed as a recurrent form from low grade astrocytoma that is anaplastic astrocytoma grade III and hence it is called secondary glioblastoma. Generally it doesn't metastasis to different parts but here it spreads to temporal region and orbital region and it compresses the optic nerve and made it to protrude the eye in the centre as axial proptosis, and patient has no vision and fundus picture also suggests the compression of optic nerve and so it makes the patient having painful blind eye one of the indication of enucleation. Early diagnosis and treatment with radiological and histopathological investigations is usually required to save the patient's life ,to prevent the spread of tumour to optic nerve and meninges and recurrence ..

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