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INTRAVENTRICULAR MENINGOMA - A CASE REPORT

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Abstract :

We report a case of intraventricular meningioma which presented with features of raised intracranial pressure.Fourty five year old female came to the hospital with chief complaints of headache for the past 3 months,she was evaluated and MRI brain showed an intraventricular tumor occupying the left ventricular trigone (atrium).Patient was operated and complete excision of the tumor done and the histopathalagical examination of the tumor was intraventricular fibrous meningioma.

Keyword :Meningioma, intraventricular, atrium, trigone

INTRODUCTION:

Tumors of the ventricular system comprise a wide variety of both benign and malignant mass lesions located within the ventricular cavity or arising from neural structures forming the ventricular system. They can be grossly classified as intraaxial and extraaxial lesions. Primary or true ventricular tumors are those originating from the ventricular wall and extending strictly into the ventricular system.Paraventricular, or secondary, tumors are those originating from structures adjacent to the ventricular system. The most common primary tumors are colloid cysts, choroid plexus papillomas, ependymomas, meningiomas, epidermoid and dermoid cysts, and craniopharyngio-Secondary tumors include gliomas. mas, pituitary adenomas, and arachnoid cysts. Intraventricular meningiomas account for 9.8-14% of all intraventricular tumors and for 20% of lateral ventricle tumors . Meningiomas of the lateral ventricle constitute 0.5-4.5% of all intracranial meningiomas. Between 60% and 94% of them arise from the choroid plexus at the trigone. A small tumor often causes no symptoms because the lateral ventricle has a relatively large compensating space, but notable symptoms, such as increased intracranial pressure and local neurological deficits, may appear when the tumor is large.

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Paraventricular, or secondary, tumors are those originating from structures adjacent to the ventricular system. The most common primary tumors are colloid cysts, choroid plexus papillomas. ependymomas. meningiomas, epidermoid and dermoid cysts, and craniopharyngiomas. Secondary tumors include gliomas, pituitary adenomas, and arachnoid cysts. Intraventricular meningiomas account for 9.8-14% of all intraventricular tumors and for 20% of lateral ventricle tumors . Meningiomas of the lateral ventricle constitute 0.5-4.5% of all intracranial meningiomas. Between 60% and 94% of them arise from the choroid plexus at the trigone. A small tumor often causes no symptoms because the lateral ventricle has a relatively large compensating space, but notable symptoms, such as increased intracranial pressure and local neurological deficits, may appear when the tumor is large.

CASE REPORT:

Fourty five year old female who was apparently normal presented with complaints headache of 3 months duration. Headache was holocranial, dull aching to throbbing and occasionally associated with vomiting. There was an increase in the duration and intensity of headache for the past one month. Patient had visual obscuration occasionally. There was no history suggestive of motor or sensory disturbances, higher mental disturbances. No history suggestive of seizures and cranial nerve deficit.Fourty five year old female who was apparently normal presented with complaints headache of 3 months duration. Headache was holocranial, dull aching to throbbing and occasionally associated with vomiting. There was an increase in the duration and intensity of headache for the past one month. Patient had visual obscuration occasionally. There was no history suggestive of motor or sensory disturbances, higher mental disturbances. No history suggestive of seizures and cranial nerve deficit.

reflexes gait was normal and there were no cerebellar signs

Patient was investigated and MRI brain with contrast was done which showed left lateral ventricular contrast enhancing lesion occupying the *trigone (atrium) region.*



Figure 1-a Figure 1a-T1sagittal imaging showing iso to hypo left atrial lesion



Figure 1b Fig 1b-T2 axial imaging it is iso to hyperintense lesion in the It atrium



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Figure 1c Figure 1c- T1 contrast showing intensely homogenous contrast enhancing lesion



Figure 1d Figure 1d - MRS showing elevated choline peak.

A diagnosis of left atrial meningioma was made and patient was operated.A left parieto occipital craniotomy made, a 5x5 cm tumour firm in consistency found in the left ventricular trigone area and complete excision of the tumour with its vascular pedicle was done.An Extraventricular drainage (EVD) was placed and removed on the third post-operative day.Patient in the initial post-operative period was drowsy and disoriented and was dysphasic. She gradually improved in the following days and she became fully conscious and oriented and she was discharged without any neurological deficit.Histopathalogical study was reported as fibrous meningioma WHO GRADE1 Fig 2a Figure 2a showing left parietooccipital craniotomy





Fig 2b Figure 2b showing complete removal of tumor with its vascular pedicie



Fig3-HPE-showing fibrous whorls suggestive of fibrous meningioma



Fig 4-Post op CT showing complete removal of tumor

DISCUSSION:

Intraventricular meningioma is a rare but well-described tumour, most often located in the trigone. It constitutes approximately 0.5% to 2% of all intracranial meningioma.

An Initiative of The Tamil Nadu Dr M.G.R. Medical University University Journal of Surgery and Surgical Specialities The majority present in the fourth to the sixth decades of life and show predominance in women of approximately 2:1. It is found only occasionally in patients under the age of 40. Neurofibromatosis should be suspected when such a tumour is found in children.. Between 60% and 94% of them arise from the choroid plexus at the trigone. The predilection for the trigone may be attributed to the abundance of choroid plexus arachnoidea. The clinical manifestations of lateral ventricular meningioma depend on the tumor size as small tumor causes no clinical symptoms because the lateral ventricle has a relatively large compensating space. The most common initial symptoms are headaches, vomiting and altered sensorium related to increased intracranial pressure. Sensorimotor deficits, clumsiness, ataxia, and cognitive impairment including dysphasia, dyslexia, dysgraphia, and dyscalculia, are sometimes observed according to the tumor location. Visual field deficits and seizures are present, especially in patients with large tumors. Other unusual symptoms, such as epilepsy, can also occur. Cushing and Eisenhardt grouped the symptoms caused by large ventricular meningiomas into the following types (a) headache caused by increased intracranial pressure; (b) contralateral homonymous hemianopsia; (c) contralateral sensory disturbance and hemiparesis (d) symptoms of cerebellar damage and (e) possible paralexia in patients with tumors located on the left side. The radiological appearance of intraventricular meningiomas is similar to those at other locations. CT and MRI demonstrate the tumors as a well-defined mass. Most tumors display homogeneous and strong enhancement with contrast medium. Perifocal edema is evident, and minimal to massive calcifications are present in 47% of cases. Hydrocephalus or a trapped occipital horn can be observed in

patients with large tumors. Angiography shows the tumors to be supplied by both the anterior and posterior choroidal arteries, or by the posterior choroidal arteries only. The cisternal and initial ventricular segment is pushed down and forward by the enlarging temporal horn. The blood supply is predominantly from the anterior choroidal artery, and large tumors receive a significant supply from posterior choroidal artery. MRS shows elevated choline peak and decreased NAA peak. Alanine peak is characteristic of meningioma.

SURGICAL APPROACHES TO ATRIAL(TRIGONAL)TUMORS

Occipital trans callosal

Lateral occipital

High parietal paramedian

Inferior parietal

Trans temporal

Lateral trans- sulcal

Occipital interhemispheric



Fig. 1. (A: segital view, B: axial view) Surgical approaches devised for trigone meningiomas /a: occipital trans-callosal, b: lateral occipital, c: high parietal paramedian, d: inferior parietal, e: temporal hom, f: lateral trans-sulcal, g: occipital interhemispheric)

An Initiative of The Tamil Nadu Dr M.G.R. Medical University University Journal of Surgery and Surgical Specialities Figure 4 – A; Sagittal view, B : Axial view Surgical approaches a-Occipital transcallosal, b-lateral occipital, c-high parietal pramedian, d-inferior parietal, etemporal horn, f-lateral transsulcal goccipital interhemispheric

1 Adequate devascularisation is the important procedure.

2 Branches from anterior and posterior choroidal arteries supply the tumor and should be devascularised completely before proceeding with tumor removal.

COMPLICATIONS:

- 1. Seizure => 25-70%
- 2 Visual field defect => 20-60%
- 3 Speech defect => 40%
- 4 Hemiparesis => 20%
- 5 Persistent hydrocephalus => 25%

Death =>5% Ventricular tumors pose a challenge to the neurosurgeon . They are difficult to approach because of their location in the depth of the brain.Choosing a correct surgical approach that aids in complete tumor removal with minimal morbidity is the goal of surgery.

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