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PROSPECTIVE OBSERVATIONAL STUDY OF OPHTHALMIC MANIFESTATIONS AND FIELD DEFECTS IN INTRACRANIAL TUMOURS

Ophthalmology

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ABSTRACT

AIM OF THE STUDY: To study the various ophthalmologic manifestations in patients with intracranial space occupying lesions.
To study the visual field defects caused by intracranial space occupying lesions.
MATERIAL AND METHOD: The study was done on patients who underwent detailed ocular, neurological and systemic examination which also included CT/MRI proven cases of intracranial tumours.
RESULTS: Patients in the age group of 30 to 40 years were affected. Headache was the most usual symptom followed by defective vision. Papilledema was appreciated in the most of the fundus examination . 6th cranial nerve was frequently affected. Peri chiasmal tumours was found to be the to be most regular site of tumour . Visual field defect corresponded with the site of tumour.

KEYWORDS

ocular manifestation , intracranial tumours , visual field defects

INTRODUCTION:

Ocular manifestations occur very frequently in intracranial space occupying lesions . Ophthalmic signs and symptoms form a major part of presentation in patients with intracranial tumours. The increased ICP gives rise to symptoms and signs which may be systemic or ocular. Patient presented with ocular symptoms such as , diplopia and diminution of vision (DOV)depending upon the area of brain involved .Ocular signs such as papilloedema, abducent nerve, facial nerve and other cranial nerve palsies, nystagmus, scotomas and optic atrophy. Most of the patients visited ophthalmologist with headache and defective vision as major complaints. Therefore ophthalmologists play a vital role in early diagnosis and referral of patients. Computerized tomography (CT) scanning and magnetic resonance imaging (MRI) approach help in early diagnosis and planned management .The purpose of this investigation was to assess the types and the site of the intracranial tumour that caused neuro ophthalmic manifestations. Visual fields were tested to assess the type of field defects and to correlate it with the site of the tumour.

AIM OF THE STUDY:

- To study the various ophthalmologic manifestations in patients with intracranial space occupying lesions.
- To study the visual field defects caused by intrcranial space occupying lesions.

METHODOLOGY:

A prospective study was conducted on 78 patients in Chettinad Academy and Research Institute , Kelambakkam during one year period(2015 to 2016). The patients were admitted under Neurosurgery department and in each case clinical evaluation was done after obtaining a detailed history . Ophthalmic assessment which included visual acuity ,colour vision, Hirschberg's test, extraocular movements, corneal sensation, pupillary abnormalities, nystagmus , dilated fundus examination and visual fields were documented in all cases.

A complete examination of the central nervous system which included examination of the higher functions, cranial nerves, motor system, sensory system and cerebellar signs were made.

INCLUSION CRITERIA:

Patients with radiologically proven intracranial tumours and gave consent

EXCLUSION CRITERIA :

Uncooperative patients with deteriorating general conditions or marked behavioural disorders

RESULTS:

Age Distribution: The age of patients ranged from 11- 65 years. The maximum incidence in the present age group between 30 to 40 years .

Sex Distribution: The present study showed a female preponderance of 46%.

SITE OF BRAIN TUMORS:

According to the present study the most common site of tumour were cerebellopontine angle tumours [20 %] and peri chiasmal tumour [24%].

Table Showing The Distribution Of Site Of Lesion:

AREA OF LESIONS	PERCENTAGE
Frontal	17%
Parietal	10%
Occipital	12%
Temporal	5%
CP angle	20%
Peri chiasmal	24%

PRESENTING COMPLAINTS :

42% of the patients presented with headache as a common symptom. 28% of the patients presented with blurred vision and 9% with diplopia. 21% with other symptoms like vertigo, paresis, dysphasia, dementia, deafness, tinnitus ataxia, behavioural and psychiatric changes etc. Visual acquity was checked using Snellen's chart.

Distribution Of Visual Acquity In Patients With ICSOL:

PERCENTAGE	VISUAL ACQUITY
20%	6/60
34%	6/36 to 6/12
30%	6/6
16%	<6/6

ANTERIOR SEGMENT FINDING:

Out of 78 patients 2 patients presented with ptosis , 3 patients had proptosis and 3 of them had internuclear ophthalmoplegia. Nystagmus was seen in 6 patients

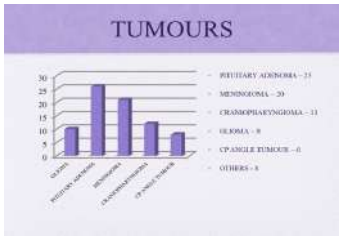
PUPILLARY ABNORMALITIES :

22 patients(28%) had pupillary abnormalities mainly relative afferent pupillary defect.

FUNDUS FINDING :

38% of patients with posterior fossa tumor presented with papilledema earlier where as 20% of patients with pituitary tumors presented late

Bar chart showing distribution of intracranial tumours:



CRANIAL NERVES:
27 % of the patients had 6th nerve palsy and 20% had facial nerve palsy. Expanding supratentorial mass lesions displaces cerebral tissues compress the brainstem structures. Therefore nerves innervating the extraocular muscles are stretched resulting in false localizing sign.

PITUITARY MACROADENOMA:
Patient had painless progressive loss of vision. Disc pallor was seen in 6 patients, optic atrophy in 2 patients. 8 patients had Bitemporal hemianopia

Fig 1.MRI brain showing pituitary macroadenoma:

GLIOMA:
- Most common frontal lobe tumour are glioma and present with peripheral constriction of fields.

Fig.2 MRI brain showing glioma:

MENINGIOMA:
Parasellar meningiomas occur most often in middle-aged females arise most frequently from the tuberculum sella or cinoids and often produce asymmetric bitemporal vision loss

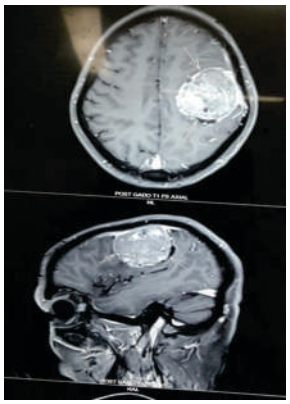


Fig.3 MRI brain showing meningioma:

CP ANGLE TUMOR:
All of them had deafness, ataxia, impaired corneal sensation, papilledema and 7th and 8th nerve palsies.

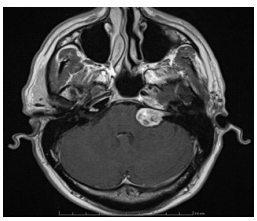
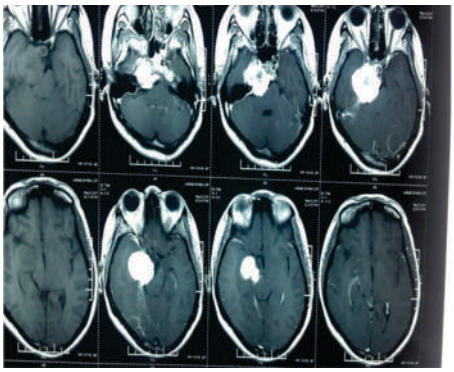


Fig4. MRI brain showing CP angle tumour:

TRIGEMINAL SCHWANOMA:
patients had diplopia and cranial nerve palsies due to compression of the nerve and proptosis if tumour extended to cavernous sinus



FIELD DEFECTS:
35patients had field defects 0ut of which 20% had bitemporal hemianopia ,15% had enlargement of blind spot and 6% had peripheral constriction of visual fields. 10 patients had poor vision therefore not able to do field defects.

DISCUSSION:
Patients mostly in the age group of 30 to 40 years were affected regularly. This is in accordance with other studies by Rao et al (4), which showed a 52 % incidence in the 3rd & 4th decade. 42% of the patients presented with Headache and it was the most common symptom. S. Sood et (5)al also made similar observation. Papilledema was a usual fundus finding. 6th cranial nerve was most involved. Out of 78 patients 25% of the patients had pituitary adenoma. Visual field defect was seen in most of the cases out of which bitemporal hemianopia was frequently documented. Trautman et al (6)noted visual fields were affected more frequently than visual acuity . Peri chiasmal tumours was found to be the to be most regular site of tumour.

CONCLUSION:
Ophthalmic signs and symptoms are significant in diagnosing a patient presenting with intracranial tumors. And these simple signs should not be missed out as we may be missing out a big diagnosis. Health education and complete ophthalmic evaluation is essential in patients with brain tumors as it may lead to permanent blindness.

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