

AN INSTITUTIONAL BASED STUDY OF CEREBELLOPONTINE ANGLE EPIDERMOID CYST : A SERIES OF 21 CASES

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Abstract

Introduction: Epidermoid Cysts are uncommon lesions of central nervous system. These tumours are benign and constitute 0.2-2.0% of all the intracranial tumours, for intracranial epidermoid – CP angle is the most common site. Other common sites are Frontoparietal lobe, Posterior fossa, diploic skull, floor of the fourth ventricle and spinal cord.

Material and method: This is a retrospective study done in Department of Pathology, G.R.M.C.Gwalior (MP). The study comprises of 21 cases in a span of three years.

Result: In our study out of 21 cases we found epidermoid cyst to be slightly more common in males(85%) than in females (15%). Majority of the cases were seen in the age group of 21-40 years.

Conclusion: Epidermoid of central nervous system are quite uncommon. We have a series of 21 patients in span of three years as our hospital is a premier institute of neurosciences in Madhya Pradesh. In our setup we found the mean age was 28 years and more common in males than females.

Keywords: Epidermoid Cyst, CP Angle

INTRODUCTION:

Epidermoid Cysts are the sac like structure usually formed by epidermal and connective tissue structure. Sac is lined up by the stratified squamous epithelium and contains cellular debris in it. They have the capacity of independent growth, in order of which they expand through neighbouring bone also. Growth is progressive in nature and recur after removal also. Epidermoid cysts are congenital, rare, slow growing, benign lesion of Central Nervous System, that arise from the ectopic closure of neural tube between third and fifth week of intrauterine life^(1,2,3).

Epidermoids are the very uncommon entity in Central Nervous System (CNS)^(1,2,4). Cerebropontine angle(CP Angle) is the most common site for the occurrence of epidermoid cyst in CNS and it is the Third most common tumour of CNS accounts for 1% tumours in CP Angle only after Acoustic Neuroma and meningioma^(1,4,3). In CNS other probable sites are optic chiasma, diploe of skull, and posterior fossa Intraventricular cavity, brainstem. Epidermoid spread along pathways of least resistance such as neural cleavage planes and anatomic canal, extend into more than one cranial fossa and envelop cranial and vascular structure. Clinically these tumours are very slow growing produces an insidious and protracted symptoms and signs, involving various structures like cranial nerves, cerebellar and brainstem structures. The onset of symptoms occurs between 4th to 5th decades of life. Most common symptoms are long term tinnitus and hearing loss. Vestibular symptoms, trigeminal neuralgia, hemifacial spasm, headache. More so ever symptomatology is different depends upon location of the Cyst.

We report around 21 cases in duration of 3 years from 2019 to 2022. We also try to describe the previously unreported technique of curettage and excision using operating microscope and bipolar diathermy for cauterisation of epithelial remnants to decrease the chance of recurrence.

MATERIAL AND METHODS

This is a retrospective type of study in which we studied around 21 cases of epidermoid cyst at CP Angle came between 2019 to 2022 in Neurosurgery Department and Department of Pathology, Gajra Raja Medical College, Gwalior, (M.P).

Inclusion criteria:

1. All cases of brain tissue biopsy sent to our hospital.

Exclusion criteria:

1. Biopsy from site other than brain.
2. Patient from another complaint.
3. Biopsy sample not submitted to our department.

Out of these 21 cases 85% cases were male and 15% were female. The youngest patient in our study was 10 years and eldest around 65 years. It is not easily determined that symptoms and signs either produced by local compression or because of raised intracranial pressure. Symptoms and signs in most cases were ipsilateral and not widespread.

RESULTS

We report 21 cases in duration of 3 years from 2019 to 2022. Out of 21, 18 cases (85%) were males and 3 cases (15%) were females.

Table 1 : Distribution of patient according to age

S.No.	Age Group (Years)	No. of Cases
1.	0-20	5
2.	21-40	10
3.	41-60	5
4.	>60	1

Most common age group of occurrence is 21- 40 years and least common is >60 years.

Table 2: Distribution of patients according to site

S.No	Site	No. of Cases
1.	CP Angle	11
2.	Fronto-parietal Lobe	04
3.	Posterior Fossa	04
4.	Others	02

Most common site is CP Angle with 11 out of 21 cases (50%).

Symptoms and signs: In most cases signs and symptoms were ipsilateral and not widespread. It is noted that symptoms and signs either produced by local compression or because of raised intracranial pressure.

DISCUSSION

There are many theories regarding origin of epidermoid cyst. The first and foremost is the Embryonic Inclusions^(5,6), trauma and differentiation from multipotent cell rest⁽⁷⁾ and epithelial remnants. The cyst have either postulated to neuro ectodermal⁽⁸⁾ in origin or pial tissue in origin⁽⁹⁾. Gacek⁽¹⁰⁾ postulated that origin of epidermoid are from sebaceous pouch which encased within the fibrocartilage of foramen lacerum in order of cephalic flexure while others says that it is arachnoid matter⁽¹¹⁾ thickening and development in it as capsule formation. No patient in our study has a definitive history of Trauma. The true epidermoid is that have nidus of origin as squamous epithelium and found anywhere in temporal lobe depending on the situation of cell rests⁽¹²⁾. Epidermoids of CP Angle are mostly sterile as compare to that of Ear which are infected in most common situation, However nature of both as bone eroding and expanding condition is same. In various studies it is postulated that epidermoid lesion grows linearly as compare to other tumours which are exponentially. Epidermoid cyst in ear known as Cholestatoma and must be differentiated from Cholesterol Granuloma, which is never lined by Stratified epithelium and contain Cholesterol and haemorrhages^(13,14,15).

No patient in our study had rhinorrhea and all of them had their tympanic membrane intact. It is known that epidermoid of CP Angle had no presentation with otorrhea and their temporal bone is otherwise normal in presentation⁽¹⁶⁾. Some investigations have reported that there is involvement of 7th cranial nerve (which is facial) which produces the most common sign and followed to be occur is unilateral hearing loss^(17,18). However in some cases unilateral hearing loss is the most common symptom to be occurred^(19,20).

Facial nerve more commonly involved by epidermoids as compare to acoustic neuroma⁽²¹⁾. This is because epidermoid tends to strangle the nerve and compromise its blood supply⁽²²⁾. As compare to this in acoustic neuroma it is only stretched and one can always feel the pulsations.

In some situations Trigeminal Neuralgia is the most common symptoms^(23,24), cause of this may be either by local irritation from cholesterol seeping through the cyst wall or compression through a vascular loop against a nerve loop entry zone⁽¹³⁾. Till now we have not reported any patient involving 6th cranial nerve. Some investigators have found out that headache is the most common symptoms⁽²⁵⁾. Other have noted that changes of mental status have occurred more frequently⁽²⁶⁾.

Recurrent aseptic meningitis is the most common presentation⁽²⁷⁻³¹⁾, this occur because of leakage of cholesterol crystals into cerebrospinal fluid and causing chemical (aseptic meningitis). Steroids have been shown to cause important benefits.

Investigations to determine the site, nature, and extent of lesions CP Angles are various and Plain radiography is very informative and easiest. Plain radiography shows sharply defined erosive lesions with smooth margins suggestive of osteolytic lesion but without any inflammation⁽²¹⁾. Audiology is also very helpful measure showing retrocochlear lesion and determine the function of 7th and 8th cranial nerve. Audiometry Brainstem Response (ABR) is also differentiating various lesions of CP Angle⁽³¹⁾. Other important investigations are ventriculography, angiography and pneumoencephalograph⁽¹³⁾.

However non invasive studies like Computed Tomography(CT), Magnetic Resonance imaging(MRI) have largely replaced these invasive investigations^{(32-34)(35,13)} which are more superior because they reveal its vascularity, raised intracranial pressure, and identify satellite pathologies.

TREATMENT

There is discrepancy in treatment present to neurologist and to otologists. Small epidermoid can be easily excised via translabyrinthine approach⁽³⁶⁾. In some cases where nerve involvement is present Retrolabyrinthine approach is followed to preserve hearing and facial nerve function^(37,35). In some situation surgeons do fistulisation (exteriosation) to decrease the chance of debris accumulation, but in most of situation surgeon do craniotomy without fistulisation^(38,13).

CONCLUSION:

- Out of 21, 18 cases (85%) was males and 3 cases (15%) was females.
- Most common age group of occurrence is 21- 40 years and least common is >60 years.
- Most common site is CP Angle with 11 out of 22 cases (50%) followed by fronto-parietal and posterior fossa with 4 out of 21 cases (23%) each.
- In most cases signs and symptoms were ipsilateral and not widespread. It is noted that symptoms and signs either produced by local compression or because of raised intracranial pressure.

ACKNOWLEDGMENT

I want to put my sincere regards to all these patients who pays so much of their time, efforts and especially there health to let this study happen, and results of this are truly dedicated to them only.

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