

Posterior Fossa Dermoid Cyst in a Child with Recurrent Meningitis

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ABSTRACT

Intra cranial dermoid cysts are rare brain tumors. Cutaneous punctum extending in cranial cavity as dermal tract or intermittent seepage from the cyst in subarachnoid space can be a source of recurrent meningitis. We report a 5 years child with posterior fossa dermoid cyst presented to pediatrician with recurrent episode of meningitis. Diagnosis was made on CT / MRI images. Safe total excision was performed and patient was sent home safely on 4th postoperative days without any complication.

Key ward: *Recurrent meningitis, posterior fossa tumor, intracranial tumor, dermoid cyst.*

INTRODUCTION

Intracranial dermoids are rare benign tumors in mid-line, mostly in posterior fossa which has congenital origin.^{1,2} Infact, these tumors are dysembreogenetic cyst derived from ectodermal inclusions of primitive pluripotent cells.^{1,3} They manifest due to their mass effect gradually increasing in size till reach to larger size. Acute manifestation may be due to rupture after trauma. Repeated attacks of meningitis has been reported in children having intracranial dermoid with patent dermal sinus.^{4,5} We present a case with recurrent attacks of meningitis and having posterior fossa midline dermoid, treated successfully in our department.

CASE REPORT

A five year child from rural area of our province was referred to our department from pediatric ward of Lady Reading Hospital, Peshawar with the clinical history of repeated attacks of meningitis. He was treated twice as a case of bacterial meningitis in a district Hospital and in our teaching hospital as well. The Child was complaining of headache, vomiting irritability, fever and reluctance to feed. He was conscious having marked neck stiffness and positive

kerning sign. His fundi were blurred and child was bedridden. His cerebellar functions were not properly assessed due to irritable behavior of the child. His scalp examination revealed puncture on scalp in mid-line at occipital area near external occipital protuberance. Rest of the systemic examination was not significant. In past he had three spinal taps for CSF examination, which was showing infective picture with dominant polymorphs. His CT brain showed mid-line mixed lesion in posterior fossa with dominant cystic picture. It did not enhanced after contrast study. No midline bony defect was demonstrated. The lesion was compressing fourth ventricle leading to tri-ventricular hydrocephalus. MRI scan with FLAIR images showed features of midline dermoid cyst. It was pushing vermis anteriorly, without any visualization of 4th ventricle. A provisional diagnosis was made by radiologist as midline dermoid/ epidermoid with remote possibilities of cystic cerebellar astrocytosis. Surgery was offered to the child parents after explaining prognosis. Written informed consent about anesthesia and surgery was taken. After basic preparation for surgery, child was operated and safe surgical excision of the cyst was made with uneventful recovery.



Fig. 1: MRI with T1 WI showing hypo intense {cystic} lesion in posterior fossa.



Fig. 2 & 3: MRI with T2 WI showing the same lesion is hyperintense.

Operative technique and findings:

Under general intubation anesthesia in prone position, midline sub-occipital exposure was made. During dissection punctum was extending towards bone as a dermal sinus tract, which was dissected separately. It was penetrating bone intradural extension. About 6x4 cm craniotomy was performed and dura was opened via ‘V’ shaped incision. The dermal tract was extending towards a midline mass, was having tuft of hair coming out at its mouth. Under microscopic dissection cleavage plane was made and complete soft excision of cyst was made possible. The cyst was well capsulated with desquamated contents, hairs and fats which were opened on side trolley. Dura and wound was closed in layers, safe recovery was made from General Anesthesia and patients was sent home on 4th post operative day without any complication. His cyst was sent for histopathological examination. The results were suggestive of dermoid tumor.

Pictures of the same patient with dermoid cyst.

DISCUSSION

Dermoid cysts having dermal sinus tract extending to surface of skin with visible punctum are extremely rare disorders⁴. These lesions are well circumscribed lined by stratified squamous epithelium {0reference}. The inner contents composed of whorls of hairs, calcification and decomposed epithelial cells^{6,7}. Due to these contents the CT and MRI picture have characteristic appearances⁸.

Dermoid cysts in the posterior fossa mimic posterior fossa tumors. Cutaneous punctum with dermal track extending up to the cyst shows the communication of cyst with external environment, therefore the continuous organisms may cause bacterial meningitis while leakage from the cyst content can also cause aseptic meningitis.^{1,5,9}

Intracranial dermoids are rare lesions with posterior fossa being least common site of occurrence 0.04% and to 0.7% of all primary intracranial tumors. Epithelial deposition can occur anywhere because the neural tube and overlying skin surface, this explain the presence of dermoid sinus tract or dimple commonly associated with dermoid cyst.

Clinical features of dermoid tumors may present with raised intra cranial pressure symptoms like headache, vomiting and Papilloedema, focal neurological defect and episode of aseptic meningitis. It has two distinct portions, a lipid one and one with solid or

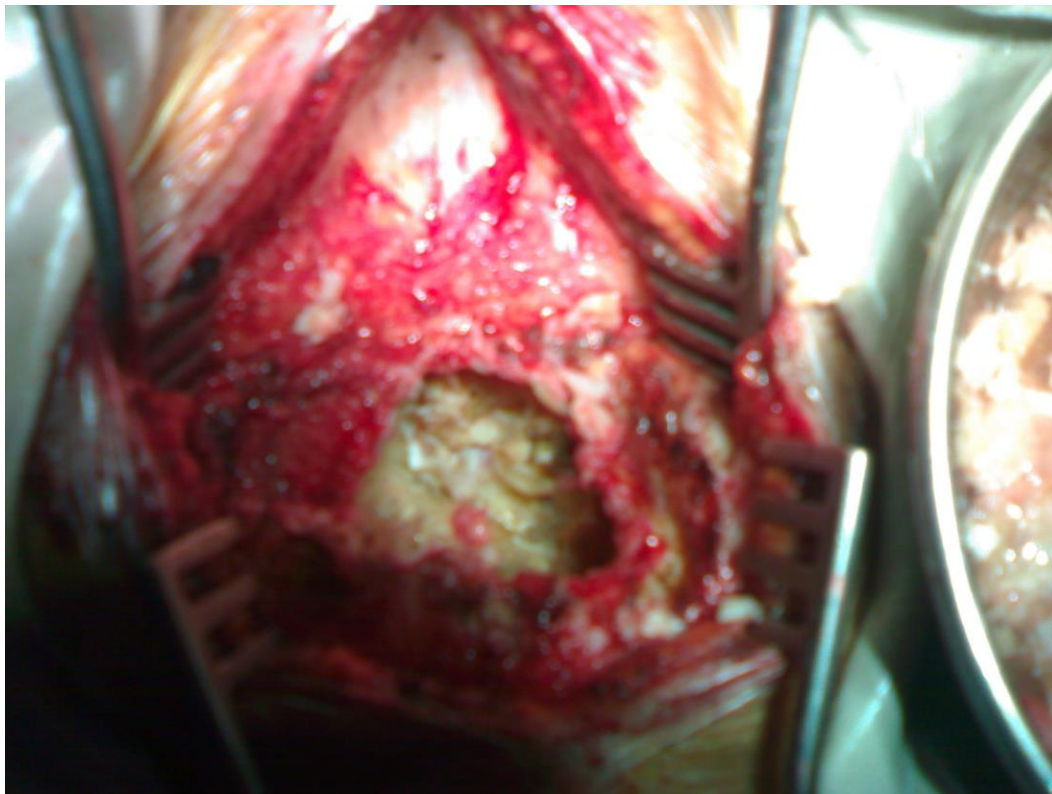


Fig. 4: *Peroperative picture of the lesion.*



Fig. 5: *Lesion collected for Histopathology.*

more fluid that is why its radiological picture may be of greater confection with other tumors of brain. Dermoid tumor located in the fourth ventricle does not often causes obstructive hydrocephalus, which is commonly caused by ependymoma, Medulloblastoma, astrogloma or hemangioblastoma. we observed hydrocephalus association in our case which resolved after surgery.

CONCLUSION

This case report gives a lesson that dimple or puncture over scalp with cystic lesion in brain indicates strong possibility of underlying dermoid tumor. Repeated attacks of meningitis in patients can be one of the rare manifestations and CSF examination with cranial images can lead to proper diagnosis. A unilocular cyst mass located at or near the cranial midline with signal intensity similar to that of fat is suggestive of dermoid tumor. The goal of treatment for dermoid tumor is complete safe surgical excision.

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