Case Report

SYMPTOMATIC PINEAL CYST: CASE REPORT

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ABSTRACT

Although pineal cysts are incidental findings in as many as 1,4 - 4,3% of magnetic resonance imaging studies, symptomatic pineal cysts are quite rare because pineal cysts cannot be detected until they reach to a size that can cause compression symptoms. We present a case of symptomatic pineal cyst with complaints of mental dullness and headache for the last three years. His neurological examination revealed only bilateral upgaze palsy. CT and MRI scanning showed a regionally calcified cystic tumour at the pineal region with 1,5 cm in diameter which was thought to be the reason of Parinaud's syndrome. UGA, sitting position, by supratentorial suboccipital approach the cystic lesion was totally extirpated. Histological examination confirmed the diagnosis of a pineal cyst. Asymptomatic incidental cases do not require treatment but if there are neurological findings usually those that are more than 1,5-2 cm diameter then the cyst must be totally extirpated surgically.

Key Words: Computerized tomography, Magnetic resonance imaging, Pineal cyst.

INTRODUCTION

Pineal cysts, which are usually encountered incidentally at autopsy studies are pathologies rarely reaching large dimensions and presenting with clinical findings of the pineal tumours. Recently, by the routine use of computerized tomography (CT) and magnetic resonance imaging (MRI) techniques, discovery rate of the pineal cysts has increased. The incidence is reported to be between 1,4 - 4,3 % among patients examined by MR imaging for neurological symptoms (1-4).

In this report, we describe a case of symptomatic pineal cyst causing superior collicular compression with Parinaud's syndrome.

CASE REPORT

A 24 year old male patient was admitted with the complaints of mental dullness and headache which began three years ago and gradually became more disagreeable.

There were no remarkable findings in personal and family history.

Except for bilateral upgaze palsy no other pathological findings have been detected at physical and neurological examinations.

Skull X-rays were normal. CT scan showed a regionally calcified cystic tumour at the pineal region 1,5 cm in diameter, centrally hypodense with surrounding hyperdensity (Fig.1). MR findings revealed a cystic tumour of 1,5 cm in diameter at the pineal region in T1 and T2 weightings central hypointensity with peripheral hyperdensity which was more remarkable in T2 weighting (Fig.2).

At sitting position, right occipital craniotomy has been done. After opening the dura and incising tentorium by retracting occipital lobe medially, gray pinkish colored, 1,5 cm in diameter, cystic tumor filling the pineal region has been observed. Clear cystic fluid has been aspirated by needle. Then by touring around the tumoral lesion it has totally been extracted. After confirming absolute haemostasis, dura and scalp has been closed.

In histopathological observations, a cytic structure formed by outer surface glial tissue and inner surface solid medium comprising uniform cells in structure with hyperchromatic nuclei translucent and narrow in shape was noted. In stroma in which these cells were organized in alveolar fashion divided by thin vascular septates, broad calcification spots were localized. Smears prepared by cystic aspiration materials gave no remarkable cellular elements to take into consideration. Diagnosis was confirmed as pineal cyst (Fig.3).

In the postoperative period, patient immediately recovered from upgaze palsy and in the 7th postoperative day the patient was discharged.

In the follow up visit 1 year after the operation, there was no neurological deficit detected in the examination. Pineal region and the neighbouring structures were reported as normal in the cranial MRI which has been taken at the follow up (Fig.4).

DISCUSSION

Pineal cysts are benign lesions which are encountered at autopy studies at a rate of 25-40% (5-7). Hasegawa et al. have detected 34 (21.8%) macroscopic, 28 (17,9%) microscopic pineal cysts among 168 autopsy cases (6).

Pineal cysts are seen rarely, because pineal cysts cannot be detected until they reach to a size that cause compression symptoms (1-3). Recently by the routine use of CT and MRI techniques, discovery rate of pineal cysts has increased. The incidence is reported to be between 1,4 - 4,3% among patients with neurological symptoms (1-4).

Tumors arising from the pineal region commonly cause symptoms by directly compressing neighboring structure. In the symptomatic pineal cysts, we come across headache, nausea, vomiting, mental changes, upgaze palsy (Parinaud's syndrome), diplopia, visual field defects, endocrinopathies like puberte precox, DI, hypogonadism (8-17), Headache, mental changes, upgaze palsy were the findings detected in our case.

There are different approaches to the pathogenesis of the cyst (5, 7-13, 17-19): 1- The cyst takes its origin from the remnants of cavum pineale which is formed by the diverticulation and proliferation of the cells on the roof of third ventricle during early fetal development, 2- After ependymal layer degeneration and cystic development, 3- By cavitation in the gliotic region formed by ischemic degeneration.

Histologically, a pineal cyst is a nonneoplastic lesion. The cyst containts clear, slightly xanthochromic or frankly hemorrhagic fluid (1, 4, 5, 8, 11-14, 17, 18, 20). Histopathological characteristic markings: 1- the cyst wall typically has 3 layers: a) collagenous fibers, b) glial-like cells, c) normal pineal cells, 2- the cyst wall is thin, 100-300 µm in thickness, 3- almost always there is calcification in the collagenous fibers. Benign pineal cysts are considered as the glial cysts of the pineal gland because of the previously reported cases which were almost always with thick glial tissue formed by fibrillar astrocytoma in the periphery of the cyst (1, 3, 9, 13, 17, 18, 20-22).

On CT, a pineal cyst is seen as a low density region. It is not contrast enhanced and there may be calcifications around the cyst (2-4, 9, 11, 12, 16, 17, 20, 21, 23). On MRI in T1 weighting it is seen as hypointense in T2 weighting it is seen as hyperintense (1-4,9,10,12, 15-17, 19-21, 24, 25). CT and MRI findings of our case are typical for a pineal cyst.

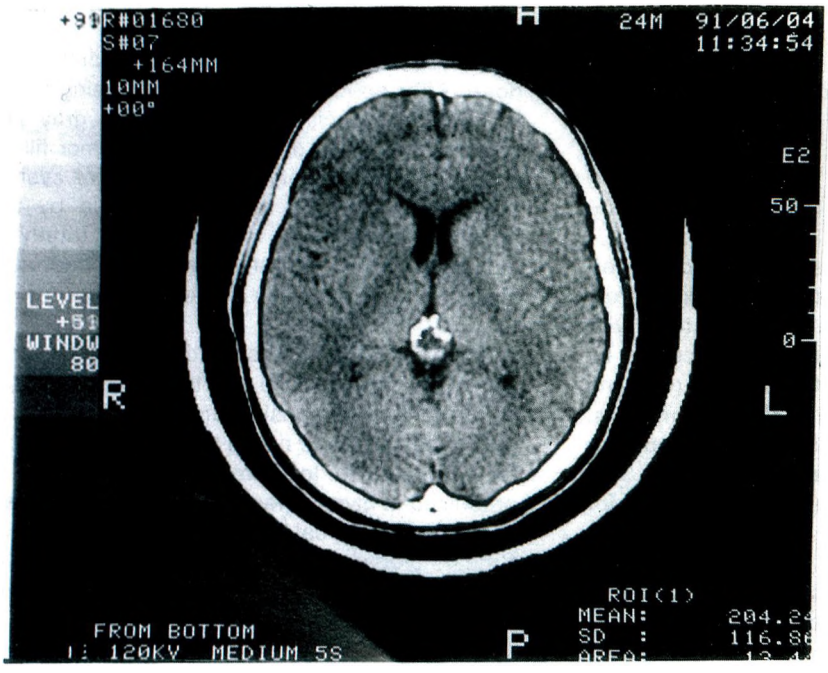
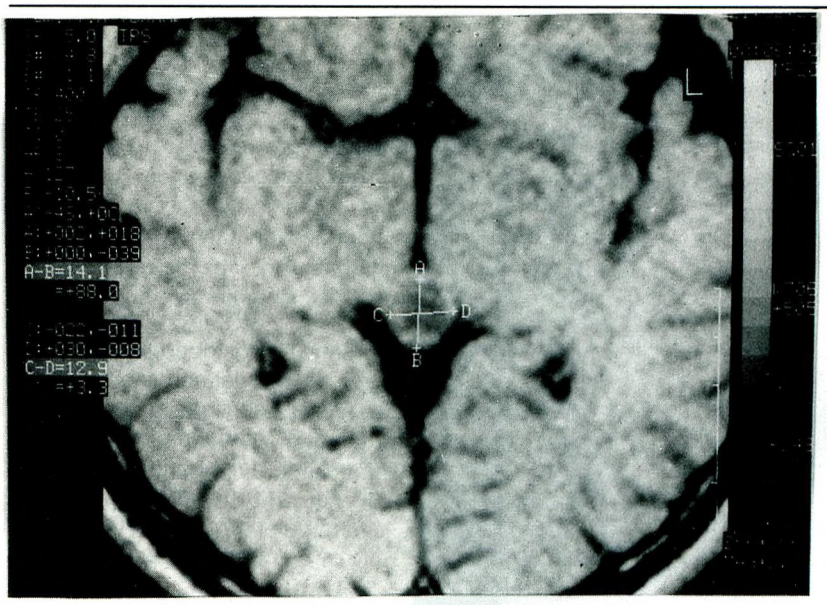


Fig. 1:

CT displays a regionally calcified cystic tumour at the pineal region centrally hypodense with surrounding hyperdensity.



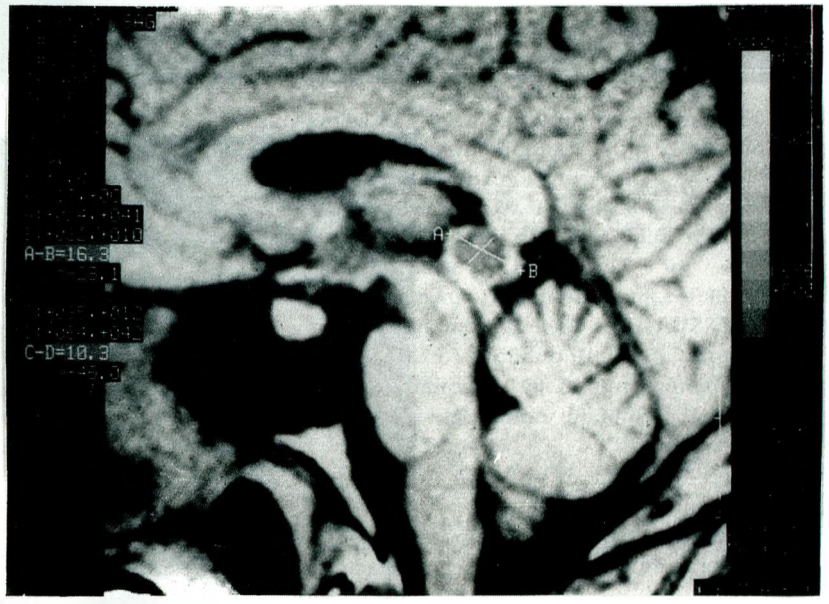


Fig. 2:

Preoperative MRI axial and sagittal sections show a cystic tumor at the pineal region with marked central hypointensity and peripheral hyperdensity in T1.

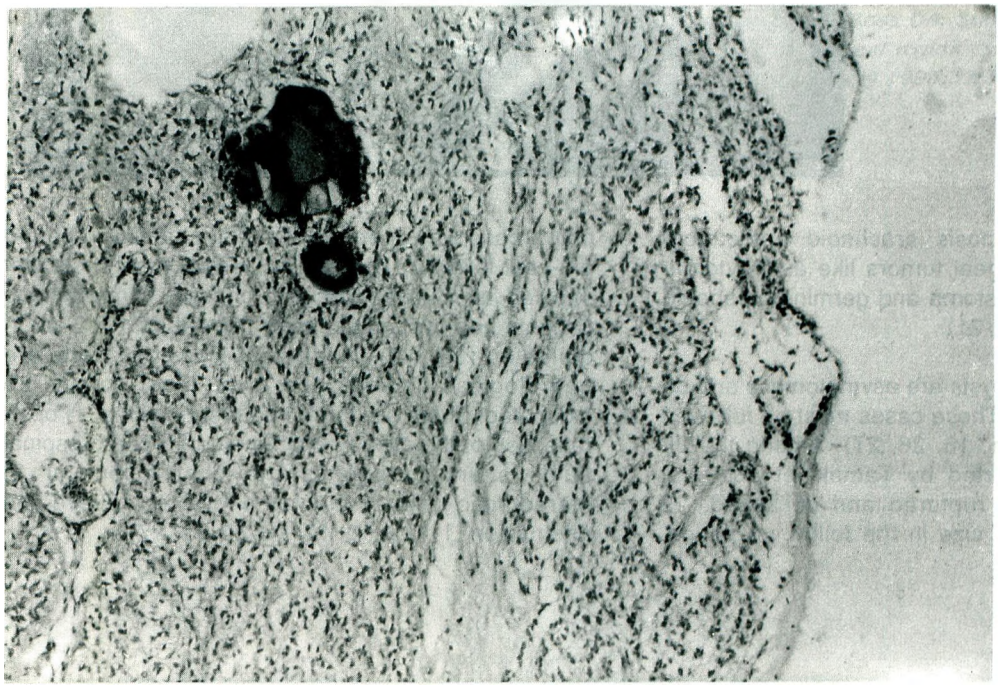


Fig. 3:

Histopathological preparation demonstrating a cystic structure formed by outer surface glial tissue and inner surface solid medium comprising uniform cells with hyperchromatic translucent narrow nuclei. (H&E x 100)

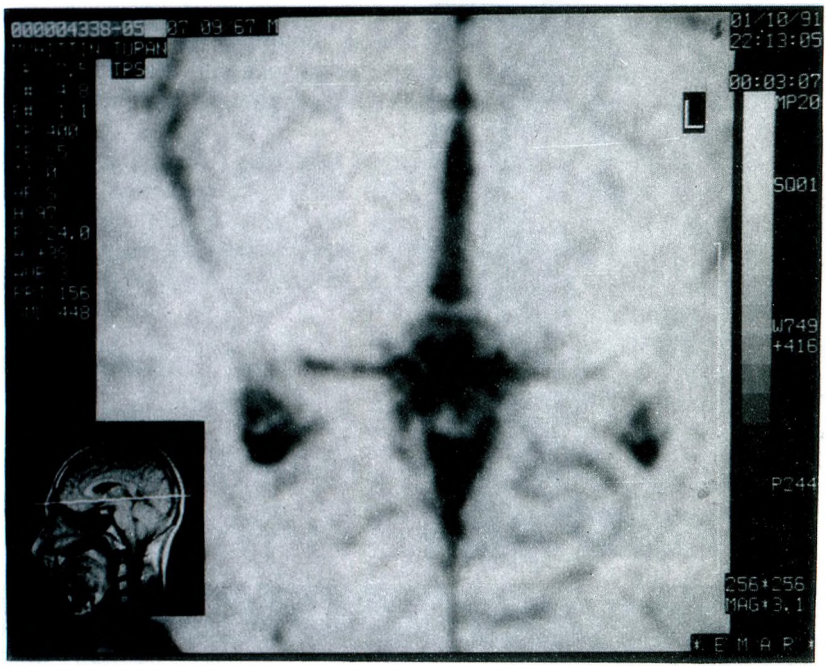
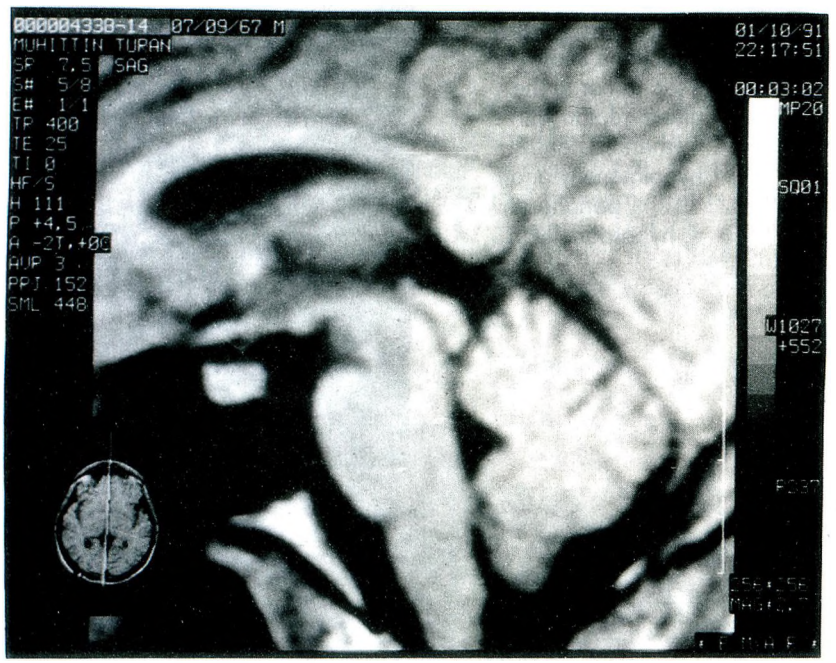


Fig. 4:

Postoperative MRI axial and sagittal sections show pineal region and neighboring structures as normal after the tumor is removed.



In the differential diagnosis, arachnoid, epidermoid and dermoid cysts, pineal tumors like astrocytoma, pineocytoma, pineoblastoma and germinoma should be considered. (10, 12, 21).

In most cases, pineal cysts are asymptomatic and do not require treatment. These cases must be followed by CT and MRI (9, 11, 16, 26, 27). Among the 32 incidental cases reported by Tamaki et al.(15) 2 cases spontaneously ruptured and collapsed, 29 cases did not grow in size in the follow up period, only 1 case was operated. Sandhu et al (25) reported a 3-year follow-up of three incidental pineal cysts that showed no clinical and MRI change. Symptomatic patients had cysts measuring more than 1,5-2 cm in diameter (16, 27). As in our case, if there are neurological findings the cyst must totally be extirpated. There are three treatment options: 1) open resection of the cyst; 2) placement of a cerebrospinal fluids shunt to bypass the obstruction; or 3) stereotactic aspiration of the cyst to relieve the obstruction (11, 12, 16, 17, 19, 20, 26, 27).

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