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Atypical Presentation of an Apoplexy in a Pineal Cyst

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Abstract

Objectives: Apoplexy in a pineal cyst is a rare condition, with always headache or signs of increased intracranial pressure due to secondary hydrocephalus.

Methods: We describe a patient with recent intra-cystal haemorrhage with vertigo, but without any headache symptoms. We also conducted a literature review.

Results: This study focusses on a case report of a patient in whom apoplexy in the pineal cyst was detected as an incidental finding. Magnetic Resonance Imaging showed a recent haemorrhage within a 15 × 10 × 8 mm cyst of the pineal gland, without changes during follow-up. Clinically, however, the patient did not have any typical symptoms of headache or deterioration in the level of consciousness.

Conclusion: Pineal apoplexy can also present as an asymptomatic incidental finding, or as the cause of transient vertigo and eye-movement disorder.

Keywords: Pineal cyst; Pineal gland; Pineal apoplexy; Haemorrhage; Headache

Introduction

Pineal cysts are often found incidentally on cranial magnetic resonance (MR) examination. The majority are asymptomatic, but neurological symptoms can occur in large cysts (>5 mm), [1,2] and after intra-cystic haemorrhage (so-called pineal apoplexy) which has only been described a few times in the literature, almost always presenting with severe headache [2]. Here we describe a pineal apoplexy in a patient who presented with vertigo and transient eye movement abnormalities, but without headache. Magnetic resonance imaging was performed at presentation and during follow-up. We also conducted a literature review.

Methods

We describe a patient with recent intra-cystal haemorrhage with vertigo, but without any headache symptoms. Magnetic resonance imaging was performed at presentation and during follow-up. We also conducted a literature review.

Case History

Case presentation

A 47 year old male patient, with no previous medical history presented with acute vertigo, nausea and vomiting, aggravating when turning around, sitting or standing up. There was no accompanying headache and he also had not suffered from any headaches in the past years. Upon examination, blood pressure was 170/112 mmHg (which normalized spontaneously to 140/82 mmHg within one day) and he had a heart rate of 72/min. The EKG was normal. Neurological examination revealed a first degree horizontal nystagmus and a limited upward gaze. The vestibulo-ocular reflex was difficult to determine, as the patient felt very sick during the examination and had to vomit on all head-movements. Cerebral CT and MR scans showed no parenchymal lesions, but the MR scan did show a 15 × 10 × 8 mm cyst of the pineal gland with a fluid-fluid interface, suggestive of a recent haemorrhage. There was no mass effect on the surrounding tissue (Figure 1).

Case follow-up

Follow-up MR scans three days and two months later did not show new lesions or any changes in cyst size or fluid-fluid interface. The pineal abnormality was interpreted as a co-incidental finding, based on the physical findings (first degree nystagmus), the fact that the patient quickly became symptom free including normalization of

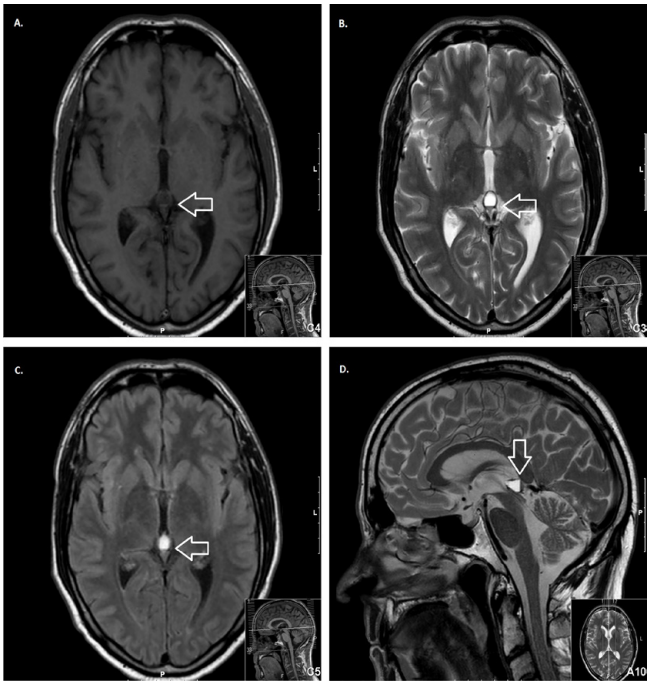

Figure 1: Apoplexy Pineal Cyst WPJvanOosterhout.

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eye movements and the lack of vascular risk factors. The diagnosis was an acute peripheral vestibular syndrome, most probably a vestibular neuritis. Neurosurgical intervention on the pineal cyst was not necessary in this case.

Discussion

Epidemiology

Pineal cysts are benign intracranial structures which can be observed at all ages but which are mostly found in women between the ages of 20 and 30 years [3,4]. In MR imaging studies, the prevalence of cysts larger than 5 mm is estimated to be approximately 4% [4]. Data from autopsy series have suggested prevalence rates of 21-41% for pineal cysts of all sizes (also including <5 mm) [5]. Most cysts remain stable in size over time, a minority regress, and seldom cyst size increases, mainly in children [6]. Due to the widespread use of MR, the prevalence of these incidentalomas is expected to increase, although cysts <5 mm in diameter are more difficult to detect on conventional 3T MR used in clinical practice [5,7].

Pathogenesis

How pineal cyst develop is unknown, and several theories have been proposed: 1) congenital dysembryogenetic origin due to lack of obliteration of the cavum pineale; 2) congenital remnant of the embryological diverticulum that develops as an outgrowth from the floor of the third ventricle and form the pineal gland; 3) degeneration of pineal cells; and 4) ischemic necrosis with cyst formation. Finally, pineal cysts could be seen as a normal variant since their prevalence is high [2].

Imaging of pineal cysts

A consistent number of pineal cysts is being diagnosed using a CT scan, as this usually is the first imaging modality of choice in patients with a head injury. Cysts are hypodense, round-shaped lesions in the pineal region, which in 30% have slight hyperdensities within the cyst or on its wall, corresponding to haemorrhage or calcifications [8,9]. MR is the preferable standard for both cyst assessment and follow-up, and usually show well-circumscribed, round-shaped lesions. The wall is thin and usually shows heterogeneous enhancement after gadolinium. Uniform enhancement during delayed gadolinium imaging can mimic a solid neoplasm. Characteristically, the intra-cystic content is iso-intense to CSF on both T1 and T2 sequences. Atypical pineal cysts, with aberrant enhancement or intra-cystic septations give rise to a differential diagnosis with cystic gliomas and pineal parenchymal tumours. These intra-cystic septations, however, sometimes are seen in pineal cysts when high-resolution MR is used [1].

Cyst size and clinical symptoms

Cyst with diameters of over 10-15 mm have been reported more likely to be linked to neurologic signs and symptoms, compared to smaller cysts [7,10,11]. However, correlation between cyst size and neurological symptoms is not considered to be rule. In 20-50% of asymptomatic individuals with a pineal cyst, diameters were found larger than 10 mm [1,12,13].

Rarely, pineal cysts increase in size and cause neurological symptoms, consisting of paroxysmal headache and vertical gaze palsy, also known as Parinaud syndrome; chronic headache, gaze paresis, papilledema and occlusive hydrocephalus, due to blockage of the aqueduct, obstruction of the vein of Galen, or compression of the collicular plate [1]. The increase in size could be due to coalescence of small colloid cysts into one larger cyst or due to hormonal effects through pregnancy or the ovulatory cycle [2].

Pineal apoplexy is another – very rare – cause for symptoms ranging from mild to sudden death. Unfortunately, o data on the risk of intra-cystic haemorrhage are available [14] in It can present with acute or chronic headache, nausea, vomiting, syncope, ataxia, visual field defects, (vertical) gaze paresis and even acute death. In a recent case-series, 28/31 (90%) cases presented with headache, making this the most commonly reported symptom in pineal apoplexy [2]. In exceptional cases, a fluid-fluid level can be observed in asymptomatic pineal cysts secondary to a clinically silent apoplexy [1].

Treatment

Consensus it that asymptomatic cysts (incidentalomas) do not require any surgical treatment or routine follow-up in adults. In children, especially during puberty, some recommend to perform clinical and imaging follow-up [1,15,16] Since symptoms of symptomatic pineal cysts are caused by secondary hydrocephalus or venous intracranial hypertension, surgical treatment is recommended. Apoplexy in a pineal cysts is almost always symptomatic and due to the expanding pineal mass. Neurosurgical interventions are aimed at relieving direct pressure on the tectal plate and secondary hydrocephalus, usually with a combination of a trans-ventricular marsupialization technique and third ventriculostomy [1].

The patient described here did not suffer from headaches at all. Thus, the pineal apoplexy could either be regarded as an asymptomatic incidental finding (which has not been described in literature so far), or as the cause of transient vertigo and eye-movement disorder, which has also never been described previously.

References

1. Berhouma M, Ni H, Delabar V (2009) Update on the management of pineal cysts: Case series and a review of the literature. Neurochirurgie 2014.
2. Sarikaya Seiwert S, Turowski B, Hanggi D, Janssen G, Steiger HJ, et al. (2009) Symptomatic intracystic hemorrhage in pineal cysts. Report of 3 cases. J Neurosurg Pediatr 4: 130-136.
3. Sawamura Y, Ikeda J, Ozawa M, Minoshima Y, Saito H, et al. (1995) Magnetic resonance images reveal a high incidence of asymptomatic pineal cysts in young women. Neurosurgery 37: 11-15.
4. Sener RN (1995) The pineal gland: a comparative MR imaging study in children and adults with respect to normal anatomical variations and pineal cysts. Pediatr Radiol 25: 245-248.
5. Hasegawa A, Ohtsubo K, Mori W (1987) Pineal gland in old age; quantitative and qualitative morphological study of 168 human autopsy cases. Brain Res 409: 343-349.
6. Cauley KA, Linnell GJ, Braff SP, Filippi CG (2009) Serial follow-up MRI of indeterminate cystic lesions of the pineal region: experience at a rural tertiary care referral center. AJR Am J Roentgenol 193: 533-537.
7. Tapp E, Huxley M (1972) The histological appearance of the human pineal gland from puberty to old age. J Pathol 108: 137-144.
8. Choy W, Kim W, Spasic M, Voth B, Yew A, et al. (2011) Pineal cyst: a review of clinical and radiological features. Neurosurg Clin N Am 22: 341-35, vii.
9. Fain JS, Tomlinson FH, Scheithauer BW, Parisi JE, Fletcher GP, et al. (1994) Symptomatic glial cysts of the pineal gland. J Neurosurg 80: 454-460.
10. Fleege MA, Miller GM, Fletcher GP, Fain JS, Scheithauer BW (1994) Benign glial cysts of the pineal gland: unusual imaging characteristics with histologic correlation. AJNR Am J Neuroradiol 15: 161-166.
11. Smith AB, Rushing EJ, Smirniotopoulos JG (2010) From the archives of the AFIP: lesions of the pineal region: radiologic-pathologic correlation. Radiographics 30: 2001-2020.
12. Barboriak DP, Lee L, Provenzale JM (2001) Serial MR imaging of pineal cysts:

implications for natural history and follow-up. AJR Am J Roentgenol 176: 737-743.

13. Golzarian J, Balériaux D, Bank WO, Matos C, Flament-Durand J (1993) Pineal cyst: normal or pathological? Neuroradiology 35: 251-253.

14. Mehrzad R, Mishra S, Feinstein A, Ho MG (2014) A new identified complication of intracystic hemorrhage in a large pineal gland cyst. Clin Imaging 38: 515-517.

15. Al-Holou WN, Garton HJ, Muraszko KM, Ibrahim M, Maher CO (2009) Prevalence of pineal cysts in children and young adults. Clinical article. J Neurosurg Pediatr 4: 230-236.

16. Mandera M, Marcol W, BierzyÅska-Macyszyn G, Kluczewska E (2003) Pineal cysts in childhood. Childs Nerv Syst 19: 750-755.

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