left eye with a positive forced duction test, probably secondary to partial fibrosis of the left inferior rectus muscle. Visual acuity, colour vision, and computerized visual fields were normal in both eyes. The patient was then lost to follow-up.

Comment

Progressive exophthalmos in an otherwise healthy 30-year-old adult is usually suggestive of TAO. Blood levels of T3, T4, and TSH were normal and orbital CT scan was reported as normal. The later complaint of transient vertical diplopia was still suggestive of TAO, but acromegalic features (prominent forehead, prognathism, enlarged digits) were noticeable on patient's examination. A secreting pituitary tumour was diagnosed based on elevated blood levels of prolactin and growth hormone. MRI revealed a large macroadenoma invading the left orbit (Figure 1).

Orbital invasion by a pituitary adenoma is a rare event, and only 15 such patients have been reported.[1–11] Details are summarized in Table 1. Visual function is usually markedly impaired in patients presenting with orbital invasion from pituitary adenoma.[1–8,11] Only two cases have been reported so far with no visual dysfunction[10] or slight visual field defect.[9] Despite the large adenoma invading his left orbit (Figure 1), there was no visual dysfunction in our patient.

MRI revealed that the intracranial visual pathways of our patient were neither compressed nor invaded and showed that the tumour spread intraorbitally only through the left superior orbital fissure (Figure 1). The intracanalicular left optic nerve was thus spared and visual function was preserved. Although such radiologic details are not available from the published data, we hypothesize that optic canal invasion was responsible for the severe visual dysfunction,[1–8,11] whereas a good visual outcome might result when orbital invasion occurs through the superior orbital fissure only,[9,10] as in the present case.

Our patient demonstrated minimal manifestations of an invading macroadenoma mimicking initially TAO.

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Sir,

Vitreous cyst and a cataract in a toddler
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Vitreous cysts have been reported sporadically in the literature since Tansley's[1] first description in 1899. Numerous associations have been described in conjunction with these cysts, including retinitis pigmentosa,[2] uveitis,[3] and chorioretinal atrophy.[4] We describe a case of a vitreous cyst associated with a unilateral cataract in a toddler, which is a new association. We also believe this to be the youngest reported case of a vitreous cyst.

Case report

A 15-month-old female toddler was referred with a left intermittent exotropia of 3 months duration. The child's general health was good and was a full-term-assisted delivery via ventouse with a normal antenatal history. There was a family history of amblyopia secondary to strabismus but nil else.

Clinical examination showed an intermittent left exotropia and a left central, dense lens opacity with a white red reflex. There was no relative afferent pupillary defect or nystagmus. Examination of the right eye was normal. Family photographs showed a normal red reflex prior to symptoms. Based on this and after discussion with the parents, a decision was made to proceed to a cataract extraction.

An ocular ultrasound showed a round, cystic lesion near the posterior pole with some vitreous changes anterior to it (Figure 1). A CT scan was also performed, but the lesion did not show up on the scan and there was no evidence of calcification. There was no intracranial abnormality detected. A full blood count, TORCH screen, and also toxocara titres were negative.

She underwent a lens aspiration, posterior capsulorrhexis, anterior vitrectomy, and insertion of a PMMA intraocular lens in the capsular bag. The postoperative course was uneventful. Funduscopy showed a white, avascular cystic vitreous lesion occupying the posterior pole between the vascular arcades (Figure 2). The lesion was opaque, slightly fluffy with no obvious feeder vessels. The lesion did not appear mobile with head movements. A fibrous ring-like structure was apparent anterior to the optic disc. A diagnosis of vitreous cyst was made. After further discussions with the parents, a decision was made against any further surgical intervention.

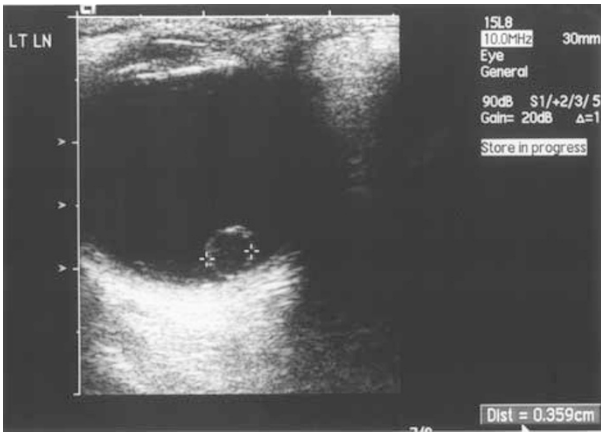

Figure 1 Ocular ultrasound of left eye showing cystic lesion at the posterior pole.

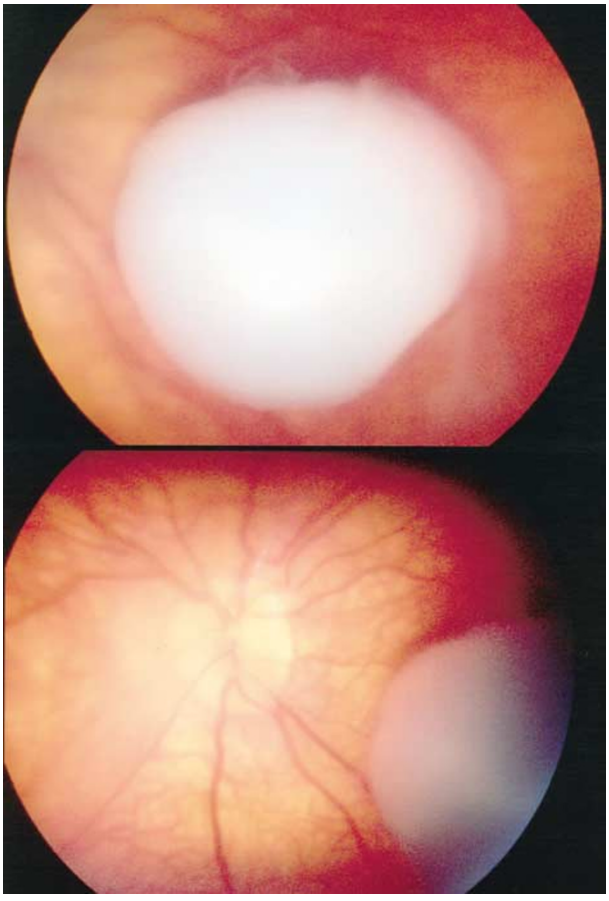

Figure 2 Fundal photographs of the left posterior pole showing a white, vitreous cyst.

Comment

Vitreous cysts may be categorized as occurring in one of three situations. They may occur in eyes with remnants of the hyaloid system, in eyes with ocular disease and in normal eyes. Cysts found in eyes with ocular disease have been associated with retinitis pigmentosa,[2] uveitis,[3] chorioretinal atrophy,[4] infectious agents like toxoplasmosis,[5] retinal detachment surgery,[6] and retinoschisis.[7] Some cases are associated with trauma.[8] Congenital cysts have been found in eyes with remnants of the hyaloid vascular system, and in otherwise normal eyes. It is thought that these cysts may have arisen from elements of the embryonic vitreous or hyaloid apparatus.[2]

These cysts have been described with varying colouring, ranging from silver white[9] to yellow-grey[2] to brown with pigmentation.[8] They may be unilateral or bilateral,[2] and multiple cysts in one eye have been reported.[10] The cyst may be spherical,[11] oval[8] or lobulated,[10] and its surface may appear smooth[2,6] or crenellated.[12] These cysts are usually described as translucent or semitransparent with an optically clear cavity.[12–14] The cyst is usually free-

floating in the midvitreous near the hyaloid system,[15] but is also found in the retrolental space[16] and more posteriorly near the optic disc.[12]

One histological examination of a vitreous cyst in a patient with previous retinal detachment surgery showed gliotically changed retinal tissue embedded in a collagen matrix.[6] The authors theorized that the cyst might have been derived from displacement of retinal tissue into the vitreous cavity secondary to the retinal detachment or the subsequent surgery. They did not rule out that the cyst occurred congenitally from a pathological retinal process.

Another report of a vitreous cyst revealed cells with positive carbonic anhydrase and actin activity.[15] This suggested that these cells are similar to pigment epithelial-type cells of the retina, ciliary body, or iris. These cells also contained melanosomes and premelanosomes. The authors suggest that the presence of premelanosomes would argue against an acquired traumatic cause, as the pigment epithelia are melanized at birth and no further pigment granules are formed after. As these cysts were associated with remnants of the hyaloid system, and sometimes were located in Cloquet's canal, they believe that vitreous cysts represent congenital remnants of the primary hyaloidal system.

Vitreous cysts are generally not symptomatic and can be followed conservatively.[11] Occasionally, patients report symptoms of floaters,[14] visual field defects,[13] or intermittent blurring of vision when the cyst crosses in and out of the visual axis.[13] Argon laser photocoagulation[13] and Nd : YAG laser[14] have been described to rupture these cysts. Two reports had symptomatic cysts removed by pars plana vitrectomies,[6,15] while one patient had his cyst aspirated via a pars plana approach.[8]

There has been no prior association with congenital or juvenile-onset cataract and our case represents the first such occurrence. We also believe our patient is the youngest reported case of a vitreous cyst. This supports the idea that these cysts are congenital in nature. A fibrous structure was also noted anterior to the optic disc in close proximity to the cyst in our patient, and this may represent a persistent hyaloid structure. As vitreous cysts may be a remnant of the hyaloid system, they may represent part of a spectrum with persistent hyperplastic primary vitreous on one end and other hyaloid remnants like Mittendorf's dot and Bergmeister's papilla on the other.

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Sir,

Autosomal dominant retinitis pigmentosa in a five-generation pedigree in People's Republic of China
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The reported prevalence of retinitis pigmentosa (RP) in China is 25 per 100 000,[1] which is similar to the rate of 19–27 per 100 000 observed in Western countries.[2] Genes causing RP have been identified by a combination of linkage mapping, cloning, and candidate testing. At present, close to 100 rhodopsin mutations have been identified in adRP patients and the existence of other