A Pigmented Cyst in the Anterior Vitreous of a 4-Year-Old Child: Case Report

Quisto Pigmentado do Vítreo Anterior: Relato de um Caso

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ABSTRACT

Vitreous cysts are a rare and mostly accidental finding. We report a case of a 4-year-old male without a relevant medical history who resorted to a routine ophthalmology consultation. On ophthalmological examination, he had a 6/10 (Snellen decimal scale) best corrected visual acuity in both eyes. Biomicroscopy showed a pigmented and rounded lesion (3 mm of larger diameter), located in the anterior vitreous of the left eye, that moved with eye movements. Besides this lesion and the shadow-effect it produced in the retina, there were no other changes in fundus examination. Associated inflammatory/infectious pathologies were excluded. At 6-month and 1-year follow-up, no new symptoms or morphological changes of the lesion were found. The etiology of vitreous cysts is diverse, requiring a thorough study and close follow-up in order to decide the most appropriate approach.

KEYWORDS: Child; Cysts; Eye Diseases; Vitreous Body.

RESUMO

Os quistos vítreos são um achado raro e maioritariamente acidental. O objetivo deste trabalho é reportar o caso de um quisto vítreo. Apresentamos o caso de uma criança do sexo masculino, 4 anos, sem antecedentes de relevo, que recorreu à consulta de oftalmologia para rastreio ocular. Ao exame oftalmológico apresentava uma melhor acuidade visual corrigida de 6/10 (escala decimal) em ambos os olhos e, à biomicroscopia, visualizava-se uma lesão pigmentada e arredondada no vítreo anterior com cerca de 3 mm de maior diâmetro, que se deslocava com os movimentos oculares. Além da lesão e da sombra que produzia na retina, não se observaram alterações na fundoscopia. Excluíram-se patologias sistémicas inflamatórias/infeciosas associadas. Aos 6 meses e 1 ano de seguimento, não se constataram novos sintomas ou alterações morfológicas da lesão. A etiologia dos quistos vítreos é diversa, exigindo um estudo completo e seguimento apertado de forma a decidir a abordagem mais adequada.

PALAVRAS-CHAVE: Corpo Vítreo; Criança; Doenças dos Olhos; Quistos.

INTRODUCTION

Vitreous cysts are extremely rare findings ("curiosities", according to Duke Elder[1]) described for the first time in 1899 by Tansley.[2] The diagnosis is in most cases accidental, in routine ophthalmology consultation, with an incidence age ranging between 5 and 68-year-old.[3,4]

It can be classified as congenital or acquired, pigmented or non-pigmented.[5] Congenital vitreous cysts are usually stable and asymptomatic, with no need for treatment, while acquired cysts may be associated with decreased visual acuity and evidence of concomitant vitreoretinal disease.[6] Therefore, differentiating between congenital or acquired causes is important in the diagnostic approach, which should include: history of trauma, inflammatory/infectious systemic or ocular diseases, amongst others.[7]

Treatment is rarely necessary, but when justified, laser photocystotomy and/or pars plana vitrectomy (PPV) can be performed.[8]

CASE REPORT

A 4-year-old male, referred to a routine ophthalmology evaluation. He had no medical or familial history except for prematurity (32 weeks and 5 days) with normal screening for retinopathy of prematurity.

Best corrected visual acuity was 6/10 in both eyes (Snellen decimal scale), with central, steady and maintained fixation. There were no changes in the anterior segment bilaterally at biomicroscopy, and a rounded and pigmented lesion with a larger diameter of 3 mm was seen posterior to the lens in the left eye (Fig. 1A). This lesion was mobile with eye movements.

Posterior segment was unremarkable in the right eye. In the left eye fundus examination confirmed the location of the aforementioned lesion in the anterior vitreous, causing a shadow-effect when visualizing the underlying retina (Fig. 1B). No other changes were seen in the posterior segment, with no evidence of a connection between the lesion and other intraocular structures, namely the Mittendorf dot and the Bergmeister papilla.

Acquired causes were excluded – namely trauma and inflammatory/infectious diseases – with the support of a complete hemogram with erythrocyte sedimentation rate (ESR), and serologies and stool examination directed towards parasites. Imaging exams (ocular ultrasound, optic coherence tomography of the anterior segment (AS-OCT) and ultrasound biomicroscopy (UBM)) were not reliable due to poor patient collaboration.

The diagnosis of vitreous cyst was assumed, and a watch-and-wait approach was initiated. At 6-month and 1-year follow-up, the patient was still asymptomatic and the ophthalmological examination was identical to the baseline, with emphasis on the absence of morphological changes of the cyst. The fellow eye remained unremarkable.

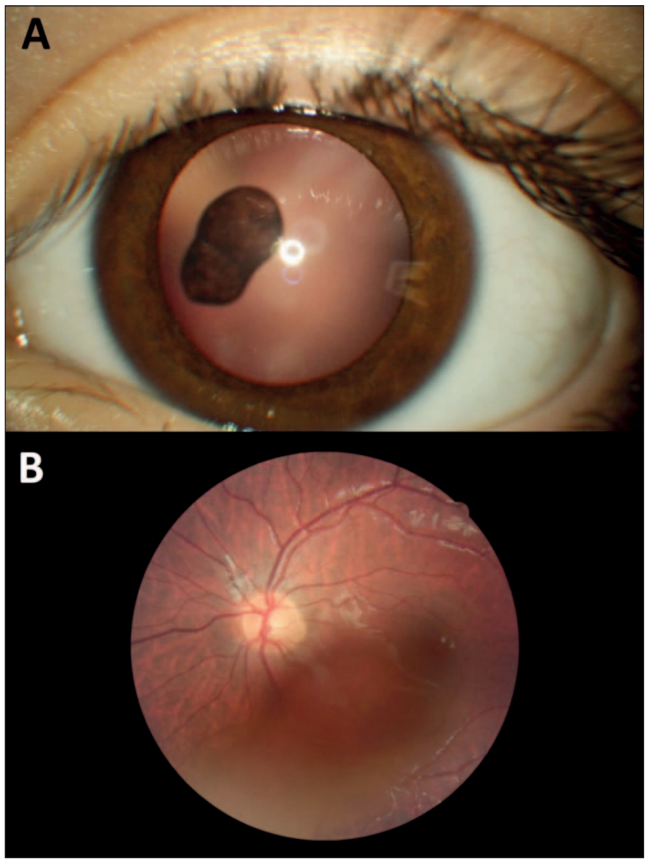

Figure 1. A – Pigmented vitreous cyst seen in the slit lamp biomicroscopy; B – Shadow effect produced by the vitreous cyst (A) seen on fundus examination.

DISCUSSION AND CONCLUSION

Vitreous cysts are rare and mostly accidental findings that can be divided in congenital or acquired, according to the etiology. They can also be pigmented or non-pigmented, with the congenital pigmented cysts being usually originated from the pigment epithelium of the ciliary body or vascular hyaloid system choristomas, while congenital non-pigmented cysts are mostly associated with remnants of the vascular hyaloid system.[8-10] Most cases are asymptomatic, except when the cyst is located on the visual axis, which may cause blurred vision or floater.[3] In the absence of vascular hyaloid system remnants – namely conections of the cyst to intraocular structures (Mittendorf dot and Bergmeister papilla) – a histopathological study be Orellana *et al* suggests that the cyst may originate from the pigment epithelium (iris, ciliary body or retina), by demonstrating the presence of melanosomes in pigmented cells of the cyst.[11]

On the other hand, acquired cysts are mostly pigmented and are more associated with concomitant ocular diseases – intraocular infection, uveitis, uveal coloboma, retinoschisis, retinitis pigmentosa, chorioretinal atrophy, and retinal detachment – conferring a greater probability of decreased visual acuity.[4,5] Vitreous cysts can also origi-

nate from trauma – Awan reported trauma as responsible for 2.7% of cases.[12]

When a vitreous cyst is suspected, the ophthalmologist should conduct a thorough study in order to determine the etiology and to exclude differential diagnoses that carry a worse prognosis and must be treated promptly, such as melanoma.[3] Therefore, in addition to the documentation of the morphological characteristics of the lesion, the physician may order: complete hemogram with ESR; serologies (*cysticercosis*, *Echinococcus*, *Toxoplasma gondii*, and *Toxocara canis*), stool ova and parasites test, radiography, abdominal ultrasound and brain computed tomography (for parasitic cause research).[13] Regarding ophthalmological complementary exams, ocular ultrasound, AS-OCT and UBM are innocuous and useful methods for studying the morphology of the lesion and the presence of cystic pathology of the ciliary body or posterior iris, as well as to detect echographycally, in some cases, the scolex inside the cyst (if caused by a parasitic infection).[3,4,14] Fluorescein angiography can be performed to describe intra and extracystic vascularization. Doppler ultrasound is a less invasive method that can be used to evaluate the blood flow in the context of incomplete regression of hyaloid vascularization.[4,15]

Most vitreous cysts are managed conservatively with surveillance of symptoms, cyst morphology, and the rest of the eye examination. However, when symptomatic, current treatment for cyst removal includes laser photocystotomy (argon or Nd:YAG) and/or PPV.[10,16] Management decision should be guided by the severity of symptoms, the etiology, the characteristics of the cyst, and the patient or caregiver decision.[17]

Regarding treatment alternatives for cyst removal, laser photocystotomy is a safe procedure, but carries the risk of inflammation and epiretinal membrane formation due to pigmented cells dispersion. Aspiration through PPV leads to collapse of the cyst, avoiding pigmented cells dispersion and its consequences.[18] Therefore, the combination of laser disruption with PPV can be a good option for severely disabled patients with pigmented cysts.[10] Laser photocystotomy for cysts located near the lens may lead to iatrogenic cataract formation, and it should be avoided, especially in non-disabling cases.[19]

In the case presented, the patient was asymptomatic, had no history of trauma, and the ophthalmological examination was normal except for the presence of the lesion in the anterior vitreous – we highlight the absence of persistent hyaloid vasculature signs and the completely normal retina. Inflammatory or infectious causes were excluded. Hereupon, a diagnosis of congenital pigmented vitreous cyst was assumed, probably originated from the pigment epithelium of the ciliary body, since there was no altered or injured retinal site through which the pigmented cells could have accessed the vitreous. The anterior location of the cyst in the vitreous also favors the hypothesis that it originates in the pigment epithelium of the ciliary body. The search for cystic pathology of the ciliary body or posterior iris through imaging methods (ocular ultrasound, AS-OCT, and UBM) would have been useful, however the images were not reliable due to poor patient collaboration.

Due to the asymptomatic presentation, we decided to manage the cyst conservatively with a watch-and-wait approach. At 6-month and 1-year follow-up evaluation, the patient was still asymptomatic and the ophthalmological examination was identical, with no morphological change of the cyst, and the watch-and-wait approach was maintained.

Vitreous cysts are rare and mostly accidental findings, the diagnostic approach of which must be detailed and the etiology well established. The etiology and the cyst characteristics, in addition to the symptomatology and the patient decision, must be carefully evaluated in order to avoid unnecessary invasive procedures – most cases benefit from a conservative strategy with periodic surveillance.

RESPONSABILIDADES ÉTICAS

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