An Unusual Case of Solitary Idiopathic Pigmented Vitreous Cyst

Aditya Sethi, Parul Lokwani, Valbhav Sethi, Sahebaan Sethi, Arun Sethi, Reena Sethi

Abstract:
Vitreous cysts are a rare finding and rarely cause any visual disturbances. They are often classified as idiopathic when their etiology cannot be determined. They may be congenital or acquired and pigmented or nonpigmented. In previous reports, it has been suggested on the basis of electron microscopy that these pigmented vitreous cysts may have originated from the pigment epithelium. We present the case of a 46-year-old female, with complaints of an oval-shaped floater, causing some visual disturbance in her right eye. On examination, it was found to be a pigmented, round, and nonlobulated cyst floating freely in the vitreous cavity with no attachments to the retina. This was documented and confirmed by the fundus images and optical coherence tomography findings. Laboratory tests in the patient were found to be negative for any Toxoplasma, cysticercoids, Echinococcus, and Toxocara, among others. She was on follow-up for the past 6 months with no change or disturbance in the cyst or the retinal findings. We describe a rare case of idiopathic pigmented vitreous cyst with no persistent hyaloid artery or connection between the cyst and the ocular structures.

Keywords:
Idiopathic cyst, pigmented cyst, rare cyst, vitreous cyst

Introduction
Idiopathic vitreous cysts are a very rare form of ocular malformation, and have been classified as congenital or acquired, pigmented or nonpigmented, and are commonly asymptomatic.[1] Vitreous cysts have been documented to be present in an otherwise normal eye, sometimes in association with remnants of hyaloid system or in some cases in diseased eye as well.[2] They rarely require any intervention and often are found in individuals between the ages of 5 and 68 years.[3] Morphologically, they may be oval, spherical, or lobulated and may be fixed or free floating.[3] The origin of these vitreous cysts still remains uncertain though some studies show their possible origin from pigment epithelium.[4]

Case Report
A 46-year-old female patient came to us with complaints of a shadow looming over her peripheral to central vision on and off for the last 5 years. Her medical and systemic history was unremarkable; she had no history suggestive of any trauma, or any history suggestive of any inflammatory or infective ocular history. On examination, her visual acuity was 6/6 (20/20), N6 OU, and her intraocular pressure was 14 mmHg OU by applanation tonometry. Slit-lamp examination showed a normal,
quiet anterior segment with a round, reacting pupil and clear lens in both eyes. There were no iris deformities; gonioscopy revealed open angles with no abnormalities.

On examination of the right eye fundus, we noted a grayish brown translucent oval-shaped structure in the vitreous, which was freely floating mobile and not attached to the retina [Figures 1a, b]. The remaining examination revealed no abnormality in the macula or the peripheral retina. On further examination of the cyst, it was found to be nonlobulated, pigmented, and mobile with a smooth surface, with an attached small stalk-like tapered vitreous strand [Figures 2a, b and 3b, d]. On investigating with a B scan ultrasonography, it was found to be a small, oval hypoechochogenic mass with hyperreflective borders, which was not attached to any posterior surface [Figure 3c]. On spectral domain-optical coherence tomography, it was found that the posterior vitreous was intact, and the macular scan showed no abnormality [Figure 3a].

The patient was suggested blood and stool examinations to rule out any infective origin. She was screened for complete blood count, erythrocyte sedimentation rate, peripheral smear, and serology for Echinococcus, cysticercoids, Toxoplasma, and Toxocara species. Stool examination was done for the detection of any ova. Results of all blood and stool examinations came out to be normal, that is, negative for any ova, cyst, or infection.

Further, the patient was given the option of Nd-YAG or argon laser photocystotomy or even pars plana vitrectomy for cyst removal, but the patient declined any intervention. Hence, she was suggested to wait and watch and now has had three follow-ups in 6 months with no change in the cyst size, shape, or associated complaints or signs. She is kept on close monitoring and observation.

**Discussion**

Free floating vitreous cysts are a rare finding and were first described in 1899 by Tansley. Vitreous cysts can be congenital, acquired, or idiopathic; when congenital, they are often associated with remnants of the hyaloidal system such as Bergmeister’s papilla and Mittendorf’s dot. Acquired vitreous cysts often are associated with intraocular pathologies such as infections, uveitis, uveal coloboma, retinoschisis, and retinitis pigmentosa. They are also often secondary to retinal detachments and ocular malignancies. In other cases, when the etiology could not be determined, they were termed idiopathic.

The dimensions of these free floating cysts have known to vary from 0.15 mm to as large as 12 mm. The origin of such cysts is still debatable, although a previous electron microscopic study has suggested its pigment epithelium origin. In our case, its origin or cause was not established, and because the patient had a normal peripheral fundus examination and no previous history of any inflammation, a diagnosis of idiopathic vitreous cyst was made.

Although mostly asymptomatic, in symptomatic patients, the treatment options include laser photocystotomy or pars plana vitrectomy with excision of the cyst as described in literature. The therapeutic approach depends on the severity of symptoms, which may be
due to its size, location, and characteristics, and patients desire to get treated. Most cysts can be observed and followed up without any intervention. In our case, the patient was under observation and followed up without any increase in the size of cyst or any complications for the last 9 months.

**Conclusion**

We present a rare ocular finding in a rare case of idiopathic free floating vitreous cyst with absence of any findings suggestive of congenital variety, any trauma, any inflammation, or any infection. As discussed, the treatment may vary depending on severity and patient expectations, and a period of observation for such cysts may be recommended before performing any invasive procedure.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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