Author's response to reviews

Title: Idiopathic pigmented vitreous cyst without autofluorescence: a case report

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Author’s response to reviews:

Dear Reviewers,

Thank you for your insightful comments. We have revised our manuscript very carefully according to your suggestions and responded to your comments point-by-point as follows:

Victor Menezo, FRCOphth, FEOphth, MD (Reviewer 1):

The paper is well written and provides new information to a rare condition which pathophysiology still remains poorly understood.

The authors suggest the lack of autofluorescence of the pigment clumps may be due to the presence of pigmented cells from a different embryological origin the RPE cells.

However, this may not necessarily correspond to the absence of RPE cells in such lesions, since it has been well documented the lack of autofluorescence in other retinal disorders where RPE cells are the main cellular components, such as CHRPE, and therefore the lack of autofluorescence only indicates the absence of lipofuscin, a byproduct of outer segment photoreceptors, as the authors correctly mention in the discussion section, and not a different cellular origin.

R: Thank you for your insightful comments! According to your suggestion, the abstract, discussion and conclusion sections have been rectified in the revised manuscript as follows:

Abstract section, lines 47-49, page 2: “The intact retina, the absence of lipofuscin of the cyst and its location in the anterior vitreous led to the hypothesis that the cyst may originate from the ciliary pigment epithelium rather than the retinal pigment epithelium.”

Discussion section, lines 105-109, page 4: “A previous electron microscopic study on an idiopathic pigmented vitreous cyst has shown melanosomes in the pigmented cells, suggesting its
pigment epithelial origin [6]. It was hard to tell whether the cyst originated from retinal or ciliary pigment epithelium, since that patient had a patch of lattice degeneration where the retinal pigment epithelial (RPE) cells could gain their access to the vitreous [6].”

Discussion section, lines 111-120, page 4: “A new clinical feature of the pigmented cyst reported in this case was its absence of autofluorescence, indicating the lack of lipofuscin, a byproduct of the phagocytosis of shed photoreceptor outer segments [16]. Normally, the vitreous doesn’t have RPE cells, but only holds a few hyalocytes, astrocytes, and glial cells [17]. Given that no preexisting ocular diseases (neither inflammatory, degenerative, nor traumatic) were found and the retina was intact without any degeneration, it was highly unlikely that such RPE cells might migrate from the retina to the vitreous. Thus, the pigmented cells on the cyst wall were more likely to originate from the ciliary pigment epithelium. The cyst might be initially formed on the ciliary body and then dislodged into the vitreous, giving rise to the abrupt symptom of a huge floater. And its location in the anterior vitreous also strengthened our hypothesis.”

Conclusion section, lines 128-130, page 5: “The intact retina, the absence of lipofuscin of the cyst and its location in the anterior vitreous led to the hypothesis that the cyst may originate from the ciliary pigment epithelium rather than the retinal pigment epithelium.”

Aman Kirmani (Reviewer 2):

The case report highlights an uncommon finding in the eye. It should serve as a reminder to all clinicians to be aware of this interesting vitreoretinal pathology.

R: Thank you for your positive comment and approval!