Torpedo maculopathy with an anisometropic amblyopia in a 5-year-old Caucasian girl: case report

Maculopatia torpedo numa criança caucasiana de 5 anos de idade com ambliopia anisométrica: relato de caso

MARCO DUTRA-MEDEIROS1, PAULA LEITÃO1, ANA MAGRIÇO1, ALCINA TOSCANO1

INTRODUCTION

Torpedo maculopathy is a single hypopigmented congenital nevus of the retinal pigment epithelium (RPE), first described by Roseman, Gass(1), in 1992. Gass described it as a focal congenital abnormality of the RPE consisting in an asymptomatic oval lesion located along the horizontal raphe, in the temporal portion of the macular region.

Subsequently, Daily(2) described an oval albinotic lesion in the temporal macula that was asymptomatic and consistent with one of the solitary focal developmental anomalies of the RPE described by Roseman, Gass. While the lesions described by Daily were albinotic in appearance (paramacular albinotic spot syndrome), other authors have observed lesions with pigmented variations of segmentation.

It would therefore seem that torpedo maculopathy is the appropriate name for this condition, since it specifically describes the lesion shape which include variations in pigmentation.

CASE REPORT

A 5-year-old Caucasian girl was referred for routine examination. Medical history was unremarkable.

On examination, the uncorrected visual acuity was 20/200 in the right eye and 20/80 in the left eye. Pupils were equal, round, and reactive to light with no afferent pupillary defect. Slit-lamp biomicroscopy revealed no abnormalities of the anterior segment. Under cycloplegia, her best corrected visual acuity was: OD 20/80 with +2.75 +2.00 x 100 and OS 20/20 with +1.00 +0.75 x 100.

Dilated fundus examination revealed a sharply demarcated oval chorioretinal lesion OD, located <1 DD (disc diameter) temporal to the macula, with a characteristic torpedo-like shape with the tip pointing towards the macula. The lesion was whitish, atrophic and approximately 1 DD in width and 0.5 DD in height. On binocular stereoscopic fundoscopy, both retinal and choroidal vessels were unobscured except in a small pigment clump located within the temporal border of the lesion (Figure 1). The peripheral retina was normal and devoid of any chorioretinal lesions bilaterally. The retinal examination of the left eye was unremarkable (Figure 2).

The refractive error was corrected and the patient begun an occlusion therapy of the right eye.

Because the lesion had remained stable over the past 4 years and clinically was consistent with a torpedo maculopathy lesion, no fluorescein was ordered. Currently, she has a BVCA of 20/20 in both eyes for near and distance vision. Retina assessments were performed on a regular basis, every six months, by performing fundoscopy and proceeding to its documentation by retinography. The absence of symptoms and the normal findings obtained in the various investigations performed suggest the benign nature of the lesion.
DISCUSSION
Torpedo maculopathy is a congenital lesion of the RPE characterized by a very unique shape and location. There are few cases described in the literature, making it difficult to assess the prevalence. Classification with various nomenclatures may add to the scarcity of reports (Table 1), further complicating the issue of prevalence.

Roseman, Gass described a case of a 12-year-old male with normal visual acuity and no abnormalities on Amsler grid or Goldmann visual field testing(1). The authors observed a solitary oval lesion, located temporal to the macula in the left eye, with a wedge shaped tail that obscured choroidal layers. They hypothesized that this “hypopigmented nevus of the RPE” was composed of intact RPE cells containing a milky white material of abnormal melanin or its precursor. Daily(2) described a collection of oval albinotic lesions located temporal to the macula centered on the horizontal raphe with a tail pointing toward the macula. He referred to this as “paramacular albinotic spot syndrome”. Some authors(3) observed the same type of lesion and called it “torpedo maculopathy” based on its pathognomonic shape. Other authors(4) observed three cases of asymptomatic unilateral lesions in a child and two adults. A- and B-scan ultrasonography did not detect any retinochoroidal defects or calcifications in the macular area. Shields et al.(5) reported two cases of torpedo maculopathy. Based on observations from Streeten(6), they speculate that torpedo maculopathy could represent a persistent defect in the development of the RPE in the fetal temporal bulge. Accordingly, the uniform location and size of this lesion points toward a congenital defect during RPE embryogenesis as well as its fetal development. So far, the largest case series has been published by Golchet et al.(7), in 2009, and included the medical records of 13 patients sharing similar features after evaluation by fluorescein angiography, autofluorescence and optical coherence tomography (OCT).

The differential diagnosis must include choroidal lesions (melanoma and nevus), congenital anomalies of the RPE and focal retinal pigmentation due external agents (traumatic or drug-induced toxic effects)(4)(8).

Beyond torpedo maculopathy, there are several other congenital lesions of the RPE, including combined hamartoma of the retina and RPE, congenital simple hamartoma of the RPE and particularly the congenital hypertrophy of the RPE (CHRPE) linked to Gardner’s syndrome, a dominantly inherited familial cancer syndrome that includes familial adenomatous polyposis and various soft tissue tumours. Those lesions associated with Gardner’s syndrome tend to be bilateral, with multiple solitary lesions that are located away from the macula, much smaller and more irregular in shape(8).

Acquired focal retinal pigmentation (due trauma, drugs, inflammation) presents a highly irregular shape, with erratic distribution of pigment and is often accompanied by signs suggesting the nature of the lesion.

In our clinical case the characteristic shape and the location in the temporal macula suggested the diagnosis. Of note is the fact that our patient had a hyperopic astigmatism. Despite being interesting, it cannot be concluded that refractive error is related to torpedo maculopathy. To the best of our knowledge this association has already been described in the literature by Pian et al.(9). Beyond this, no studies link refractive error to this lesion.

Performing retinography is a good means of monitoring the nevus. Fluorescein angiography, ultrasonography, and macular

Table 1. Literature review of torpedo maculopathy

<table>
<thead>
<tr>
<th>Author</th>
<th>Name used in publication</th>
<th>Hypothesis of origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roseman, Gass(1)</td>
<td>Hypopigmented nevus of the RPE</td>
<td>Abnormal melanin deposition in intact RPE cells</td>
</tr>
<tr>
<td>Daily(2)</td>
<td>Paramacular albinotic spot syndrome</td>
<td>None given</td>
</tr>
<tr>
<td>Teitelbaum et al(3)</td>
<td>Torpedo maculopathy</td>
<td>Prenatal disturbance in choroidal vasculature to macular area</td>
</tr>
<tr>
<td>Rigotti et al(4)</td>
<td>Torpedo maculopathy</td>
<td>Congenital hypertrophy of the RPE</td>
</tr>
<tr>
<td>Shields et al(5)</td>
<td>Torpedo maculopathy</td>
<td>Persistent defect in the development of the RPE in the fetal temporal bulge</td>
</tr>
<tr>
<td>Golchet et al(7)</td>
<td>Torpedo maculopathy</td>
<td>Disfunction or absence of RPE</td>
</tr>
<tr>
<td>Mahieu, Mathis(10)</td>
<td>Maculopathie en tortille</td>
<td>None given</td>
</tr>
<tr>
<td>Sharma et al(11)</td>
<td>Macular coloboma</td>
<td>Maldevelopment of the retina</td>
</tr>
<tr>
<td>Townsend et al(12)</td>
<td>Paramacular coloboma</td>
<td>Embryological lesions occurring along the horizontal raphe</td>
</tr>
</tbody>
</table>

RPE= retinal pigment epithelium.

Figure 1. Fundus photo OD - Torpedo-like shape lesion, in the temporal sector of macular region.

Figure 2. Fundus photo OS - normal.
threshold perimetry should be considered if there is a change in the size or shape of the lesion or if a change in vision is documented by the patient or examiner\(^7\)\(^-\)\(^10\). Due benign nature, this pathology has a good prognosis. In the absence of ocular symptoms, annual evaluations of the nevus are sufficient.

REFERENCES