International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2025: 7.089

Unilateral Torpedo Maculopathy in a 30-Year-Old Female: A Multimodal Imaging Case Report

Dr. Siri Chandra Mareddy[1], Dr. A L Ammalu[2], Dr. Sahil Goel[3]

[1]Junior Resident, Department of Ophthalmology, Rajarajeswari Medical College and Hospital, Bengaluru, India (Corresponding Author)

[2, 3]Junior Resident, Department of Ophthalmology, Rajarajeswari Medical College and Hospital, Bengaluru, India

Abstract: ***Torpedo maculopathy is a rare congenital anomaly of the retinal pigment epithelium characterized by a solitary, torpedo-shaped hypopigmented lesion typically located temporal to the fovea. It is most often detected incidentally and is generally associated with preserved visual acuity. We report a case of unilateral torpedo maculopathy in a 30-year-old asymptomatic female, highlighting structural optical coherence tomography (OCT) and optical coherence tomography angiography (OCTA) findings. Structural OCT demonstrated localized outer retinal and retinal pigment epithelium alterations and user retinal cavitation with preservation of inner retinal layers. OCTA revealed focal flow attenuation at the level of the deep capillary plexus and choriocapillaris corresponding to the lesion, without evidence of choroidal neovascularization. Recognition of characteristic multimodal imaging features is essential for accurate diagnosis and appropriate patient reassurance.***

Keywords: Torpedo maculopathy, OCT, outer retinal cavitation, OCT angiography, congenital retinal anomaly

1. Introduction

Torpedo maculopathy is an uncommon retinal condition considered to be congenital in origin. It is characterized by a solitary, well-defined, torpedo-shaped hypopigmented lesion located temporal to the fovea, with the pointed end typically directed toward the foveal center [1]. Most cases are unilateral and are identified incidentally during routine ophthalmic examination, as visual acuity is often preserved [2].

Although the clinical appearance is distinctive, the precise pathogenesis remains uncertain. Developmental abnormalities of the retinal pigment epithelium (RPE) and underlying choriocapillaris have been proposed as possible mechanisms [3]. With the advent of high-resolution OCT and OCTA, structural and vascular characterization of torpedo maculopathy has become more detailed, enhancing diagnostic confidence [4].

2. Literature Survey

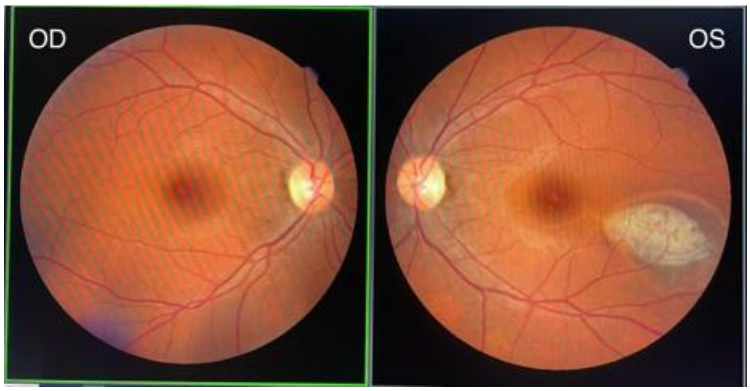
Since its original description, torpedo maculopathy has been documented mainly through isolated case reports and small series, reflecting its rarity in clinical practice [1]. The lesion is consistently described as unilateral and typically asymptomatic, with preserved central vision in most patients [2]. Longitudinal observations suggest that the condition remains morphologically stable over time.

Structural OCT studies have demonstrated selective involvement of the outer retinal layers and RPE, leading to proposed classification as Type 1 lesions show outer retinal attenuation without cavitation, whereas Type 2 lesions demonstrate outer retinal cavitation with or without inner choroidal excavation [3]. Recently, OCTA studies have described localized attenuation of flow at the level of the deep capillary plexus and choriocapillaris corresponding to the lesion, while the superficial capillary plexus is generally preserved [4]. Although torpedo maculopathy is considered benign, rare reports of secondary choroidal neovascularization highlight the importance of periodic monitoring in selected cases [5]. Overall, the literature supports conservative observation in uncomplicated presentations.

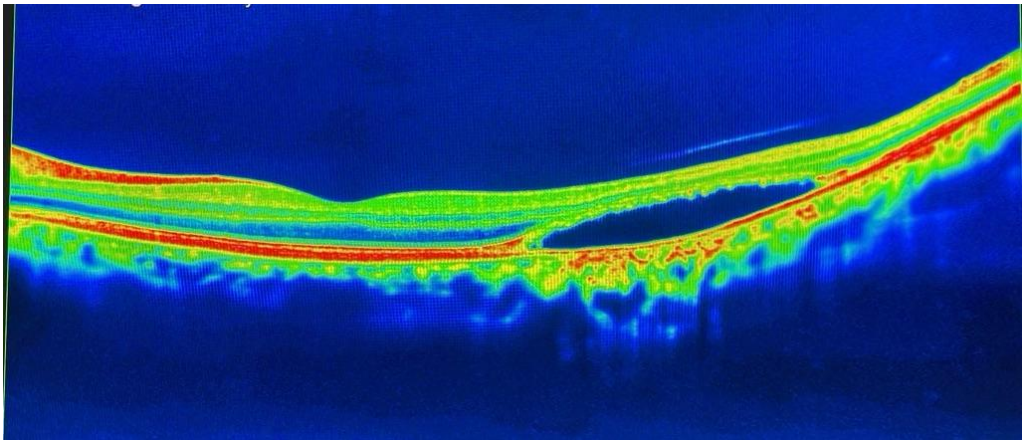
3. Case Report

A 30-year-old female presented for routine ophthalmic evaluation with no visual complaints. There was no history of ocular trauma, intraocular surgery, inflammation, or systemic illness.

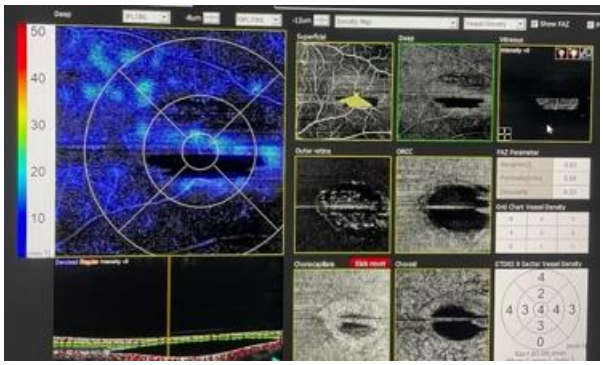
Best-corrected visual acuity was 6/6 in both eyes. Anterior segment examination was within normal limits bilaterally. Intraocular pressures was normal.



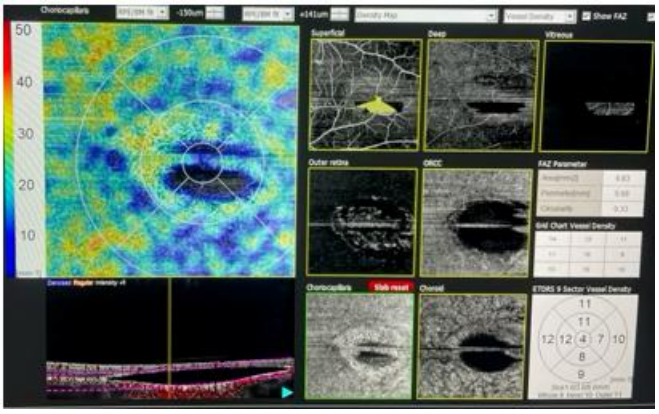
Fundus examination of the right eye was normal. The left eye showed a solitary, well-circumscribed, hypopigmented lesion located temporal to the fovea. The lesion demonstrated a characteristic torpedo configuration, with its nasal apex directed toward the foveal center (Figure 1). The surrounding retina appeared normal, and no hemorrhage, exudation, or inflammatory signs were seen.



Spectral-domain OCT of left eye through the lesion showed normal central foveal contour, localized attenuation and disruption of the outer retinal layers with associated RPE alteration and well demarcated outer retinal cavitation. The inner retinal layers were preserved. There was no evidence of subretinal fluid, intraretinal cystoid changes (Figure 2).



OCTA of left eye was performed using a 6 × 6 mm macular scan centered on the fovea. The superficial capillary plexus demonstrated preserved vascular architecture and a well-defined foveal avascular zone. At the level of the deep capillary plexus, a focal area of reduced flow signal corresponded precisely to the torpedo-shaped lesion (Figure 3).



The outer retinal slab showed no abnormal flow. The choriocapillaris slab revealed localized flow attenuation beneath the lesion, with preserved surrounding perfusion (Figure 4). No abnormal vascular network suggestive of choroidal neovascularization was identified.

Based on the characteristic fundus appearance and supportive multimodal imaging findings, a diagnosis of unilateral type 2 torpedo maculopathy was made. The patient was reassured regarding the benign nature of the condition and advised periodic follow-up.

4. Discussion

Torpedo maculopathy represents a distinctive but uncommon retinal anomaly with a characteristic clinical morphology. The lesion's configuration and temporal macular location often permit clinical diagnosis; however, multimodal imaging provides valuable confirmation.

Structural OCT findings in the present case demonstrated outer retinal and RPE alteration with outer retinal cavitation, corresponding to type 2 morphological variant[3]. OCTA findings showed localized attenuation at the deep capillary plexus and choriocapillaris, supporting the concept that the pathology primarily involves the outer retina–RPE–choriocapillaris complex rather than inner retinal vasculature [4].

Although most cases remain stable, rare instances of choroidal neovascularization have been described [5]. The absence of abnormal flow signals across OCTA slabs in this patient effectively excluded this complication. Awareness of these imaging characteristics helps differentiate torpedo maculopathy from other macular lesions such as congenital hypertrophy of the RPE, inflammatory scars, or macular dystrophies.

Conservative management with periodic observation is appropriate in asymptomatic cases without evidence of neovascularization.

5. Conclusion

Unilateral torpedo maculopathy may be detected incidentally in asymptomatic adults. Structural OCT and OCT angiography aid in confirming outer retinal and RPE involvement while excluding neovascular complications. Recognition of characteristic multimodal imaging features allows accurate diagnosis and appropriate patient reassurance.

References

[1] Roseman RL, Gass JD. Torpedo maculopathy. Arch Ophthalmol. 1992;110(8):1108–9.
[2] Shields CL, Guzman JM, Shapiro MJ, Fogel LE, Shields JA. Torpedo maculopathy at the site of the fetal "bulge." Arch Ophthalmol. 2010;128(4):499–501.
[3] Wong EN, Fraser-Bell S, Hunyor AP, Chen FK. Novel optical coherence tomography classification of torpedo maculopathy. Clin Exp Ophthalmol. 2015;43(4):342–8.
[4] Coscas F, Lupidi M, Coscas G, Cagini C, Souied EH. Optical coherence tomography angiography in torpedo maculopathy. Retina. 2017;37(10):1957–63.
[5] Giuffrè G, Distefano MG. Optical coherence tomography angiography findings in torpedo maculopathy associated with choroidal neovascularization. Retin Cases Brief Rep. 2018;12(4):318–22.