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Case Report

Retinal Pigment Epithelium Tear Following Intravitreal Bevacizumab Injection in Exudative AMD: A Case Report

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Abstract

Background: Retinal pigment epithelium (RPE) tear is a rare but vision-threatening complication of anti-VEGF therapy in exudative age-related macular degeneration (AMD). Case presentation: We report the case of a 92-year-old woman with exudative AMD who developed an RPE tear three weeks after a first intravitreal bevacizumab injection. Multimodal imaging, including fundus photography and optical coherence tomography (OCT), confirmed a complete RPE disruption with collapse of the pre-existing pigment epithelial detachment. Despite anatomical stabilization, visual prognosis remained poor. Conclusion: Patients with large fibrovascular pigment epithelial detachments are at increased risk for RPE tear after anti-VEGF therapy. Baseline OCT evaluation and close follow-up are essential for early detection and management of this serious adverse event.

Keywords: Age-related macular degeneration; RPE tear; Anti-VEGF; bevacizumab, OCT

Introduction

Anti-VEGF therapy has revolutionized the management of neovascular AMD by improving anatomical and functional outcomes. However, a few serious complications have been described, among which RPE tear remains uncommon but visually devastating. The tear is thought to result from mechanical stress secondary to rapid contraction of the choroidal neovascular membrane and sudden decompression of the pigment epithelial detachment (PED). We present a case illustrating this complication shortly after intravitreal bevacizumab injection.

Case Presentation

A 92-year-old woman presented with sudden visual loss in her right eye. Baseline best-corrected visual acuity (BCVA) was 1/10 (Snellen equivalent: 20/200). Fundus examination revealed a serous pigment epithelial detachment with drusenoid changes, consistent with exudative AMD (Figure 1).

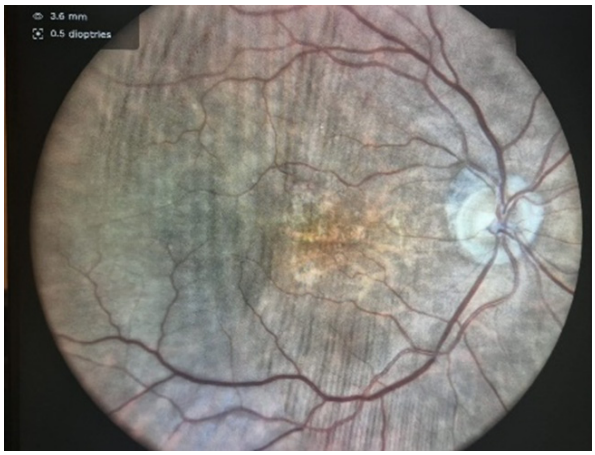

Figure 1: Fundus photograph showing a serous pigment epithelial detachment with central drusenoid changes before treatment.

The patient received a single intravitreal injection of bevacizumab (Avastin®). Three weeks later, she reported further visual decline. Fundus imaging showed a well-defined macular whitish lesion with localized hemorrhage, suggestive of an RPE tear (Figure 2).

OCT imaging demonstrated a complete discontinuity of the RPE line, collapse of the previous PED, and a subretinal hyporeflective cavity corresponding to the area of the tear (Figures 3 and 4). Given the absence of active leakage, a conservative approach with close monitoring was adopted. At one-month follow-up, BCVA remained stable at 1/20, and the lesion appeared fibrotic without recurrence of subretinal fluid.

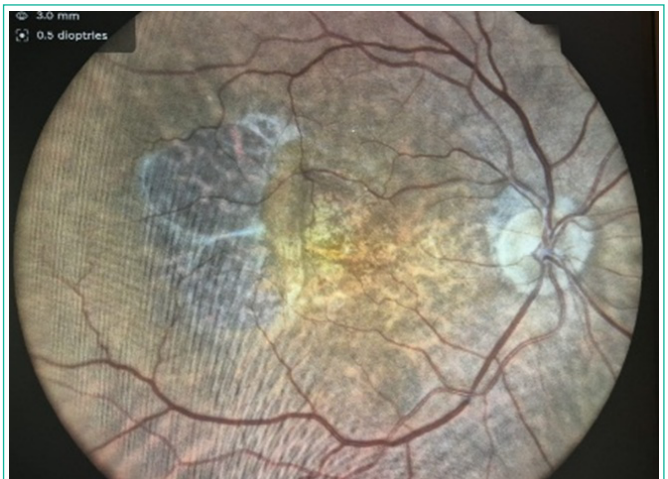

Figure 2: Fundus image three weeks after bevacizumab injection, showing a macular whitish area with localized hemorrhage consistent with an RPE tear.

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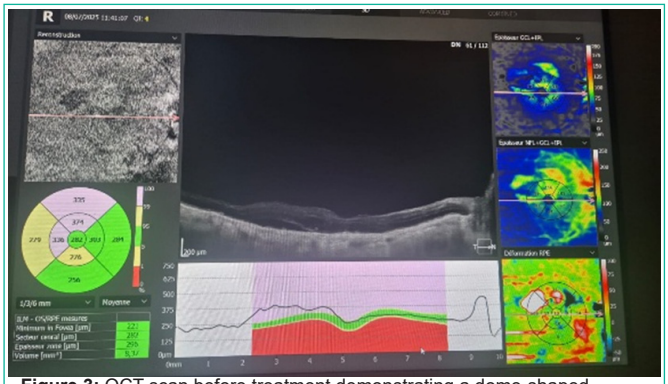

Figure 3: OCT scan before treatment demonstrating a dome-shaped serous PED with moderate subretinal fluid.

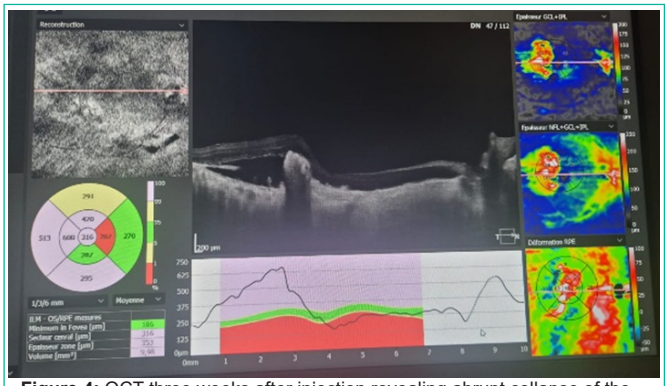

Figure 4: OCT three weeks after injection revealing abrupt collapse of the PED and RPE discontinuity corresponding to the tear.

Discussion

RPE tear represents a mechanical dehiscence of the RPE–Bruch's membrane complex, often within a fibrovascular PED. The pathophysiology involves tractional forces from the contracting neovascular complex and a sudden reduction of sub-RPE hydrostatic pressure after anti-VEGF therapy. High-risk features include large PED height (>400 μm), irregular or fibrovascular PED, and marked anatomical response after the first injection.

RPE tear has been reported with all anti-VEGF agents—ranibizumab, aflibercept, bevacizumab, and brolucizumab—without clear differences in incidence. Most tears occur within the first month after initiation of therapy, as in the present case. Although continuation of anti-VEGF therapy may stabilize the fellow eye or peripheral activity, the visual prognosis is generally poor when the fovea is involved. Therefore, a detailed pre-treatment OCT assessment is crucial to identify fragile PEDs, and patients should be informed of this risk before the first injection.

Conclusion

RPE tear following intravitreal anti-VEGF injection is an uncommon but severe complication in exudative AMD. Awareness of risk factors, appropriate patient counseling, and close post-injection OCT follow-up are essential to optimize management and minimize irreversible visual loss.

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