Avicenna Anatolian Journal of Medicine

Case

Approach to Retinal Vasoproliferative Tumor: A Case Report

Authors & Affiliations

[1]Veysel Doğru, [2]Gizem Gürbostan Soysal, [1]Sevim Ayca Seyyar

[1]Gaziantep University Hospital Ophthalmology Department, Gaziantep, Türkiye
[2]Gaziantep City Hospital Ophthalmology Department, University of Health Sciences, Gaziantep, Türkiye

Corresponding Author: Gizem Gürbostan Soysal, M.D., Gaziantep City Hospital, University of Health Sciences, İbn-i Sina Mahallesi Şahinbey/Gaziantep, 27479, Türkiye. GSM: +905464841145. **E-mail:** gizem.gurbostan99@gmail.com

Submitted at: 11.09.2025 - Accepted at: 01.12.2025 - Published at: 19.12.2025

Avicenna Anatol J Med. Year; 2025, Volume: 2, Issue: 3
doi 10.5281/zenodo.17948650

Abstract

Retinal vasoproliferative tumor (RVPT) is a rare benign retinal lesion that may be overlooked or misdiagnosed because of its variable clinical presentation and resemblance to other vascularized retinal tumors. We report the clinical features, diagnostic evaluation, and treatment outcome of a 46-year-old female patient who presented with decreased vision and floaters in the left eye for 3–4 months. Ophthalmoscopic examination revealed a red-orange peripheral retinal mass in the temporal region associated with overlying hemorrhage and shallow exudative retinal detachment. Ultrasonography demonstrated a hyperreflective retinal lesion measuring approximately 2–2.5 mm in thickness with surrounding exudative detachment, while fundus fluorescein angiography showed intralesional leakage, persistent perilesional exudation, and associated vascular proliferation. Optical coherence tomography confirmed exudative changes. After exclusion of secondary causes through systemic evaluation, a diagnosis of RVPT was established. The patient was treated with a combination of intravitreal anti–vascular endothelial growth factor injection, cryotherapy, and laser photocoagulation. At the one-month follow-up, marked regression of the tumor and resolution of the exudative retinal detachment were observed, with improvement in best-corrected visual acuity from 0.7 to 0.9. No recurrence was noted during an 8-month follow-up period. This case highlights the importance of multimodal imaging for accurate diagnosis and demonstrates that combined treatment modalities can be effective in managing RVPT with exudative complications.

Keywords: Retinal Vasoproliferative Tumor, Retinal Neoplasms, Cryotherapy

INTRODUCTION

Vasoproliferative tumors of the retina (RVPT) are rare, benign, acquired vascular nodular glial tumors originating from the neurosensory retina and usually appear as a single retinal mass in the peripheral retina (1–3). Histopathologically, the tumor often consists of glial cells interwoven with a fine capillary network and dilated, hyalinized blood vessels, some of which may be occluded. Exudates may also contain macrophages and foreign body giant cells. Approximately 75% of cases are idiopathic, while the remainder occur secondary to other ocular diseases such as retinitis pigmentosa, uveitis, retinal detachment, toxoplasmosis, and Coats disease (4).

Patients usually present with symptoms of vision loss, eye floaters, and/or photopsia. On ophthalmoscopic examination, the tumor typically appears yellow or pink in color, often accompanied by adjacent hard exudates, and may be associated with retinal or vitreous hemorrhage. In advanced stages, complications such as macular edema, exudative retinal detachment, epiretinal membrane formation, and neovascular glaucoma may develop (1,2,4). Currently, the management of RVPT is generally divided into two approaches: conservative treatment and surgical resection. Conservative treatments are the most commonly used strategies for RVPT and include cryotherapy, plaque radiotherapy, laser photocoagulation, photodynamic therapy, and vascular endothelial growth factor inhibition (anti-VEGF) (1,2,4).

CASE

A 46-year-old female patient who had complaints of decreased vision in her left eye and eye floaters for 3–4 months was referred to our clinic with a preliminary diagnosis of retinal detachment. The patient had no history of trauma. Her systemic history revealed a diagnosis of hypertension. On examination, the best-corrected visual acuity was 1.0 in the right eye and 0.7 in the left eye. Anterior segment examination was

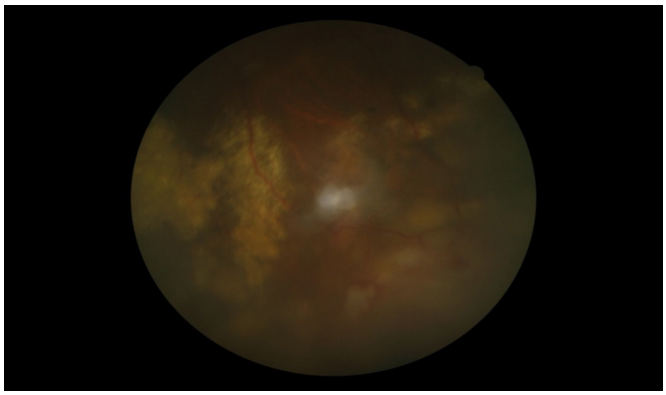

Figure 1. Fundus examination of the patient at the time of admission; In the left eye, an orange-red hemorrhagic mass was found in the temporal region of the optic disc and shallow exudative detachment with abundant exudate in the periphery.

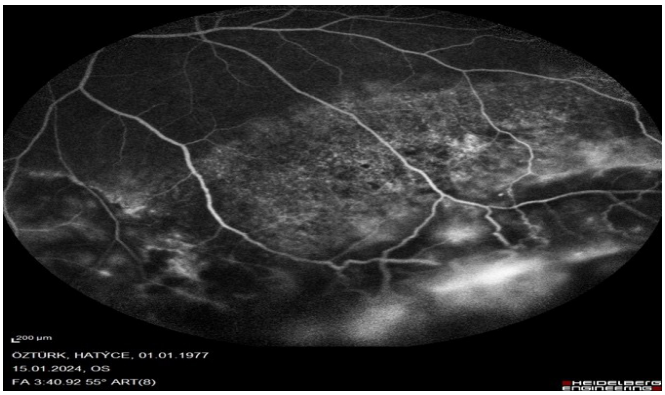

Figure 2. In fundus fluorescein angiography (FFA), tortuous and enlarged blood vessels (feeding and excretory vessels) around the tumor, subretinal effusion or exudation, bleeding, or membranous proliferation around the tumor are observed.

unremarkable in both eyes.

On fundus examination, the right eye showed no abnormal findings, whereas a red-orange–colored retinal mass with overlying hemorrhage was detected in the temporal region of the left eye. In addition, a shallow exudative retinal detachment with abundant peripheral exudation was observed (**Figure 1**). A retinal mass with high internal reflectivity, measuring approximately 2–2.5 mm in thickness, was detected on A-scan ultrasonography, while B-scan ultrasonography demonstrated an exudative retinal detachment surrounding the lesion.

Fundus fluorescein angiography (FFA) revealed fluorescein leakage within the tumor, persistent subretinal effusion or exudation around the lesion that did not decrease during the follow-up period, hemorrhage or membranous proliferation adjacent to the tumor, and the presence of surrounding blood vessels (**Figure 2**). Optical coherence tomography was also performed (**Figure 3**).

After completion of the necessary systemic evaluations, the patient was diagnosed with RVPT. Treatment consisted of an intravitreal anti–vascular endothelial growth factor (anti-VEGF) injection, laser photocoagulation, and cryotherapy. At the first month of follow-up, regression of the retinal mass and resolution of the exudative retinal detachment were observed. Best-corrected visual acuity improved to 0.9. No recurrence was detected during a total follow-up period of 8 months.

DISCUSSION

RVPT is a rare but clinically important benign retinal lesion that is often misdiagnosed or overlooked (1,2). Because it may resemble malignant choroidal melanoma and other vascularized retinal tumors, it should be included in the differential diagnosis (5). Although variations in appearance exist, as in our case, the tumor is most commonly yellowish-red in color and located in the inferotemporal peripheral retina (6–8). What remains incompletely elucidated is whether the initiating component of the disease is primarily glial or vascular proliferation.

Although our patient's age at presentation was 46 years, RVPT has been reported across a wide age range, with most cases occurring between the fourth and sixth decades of life (1–5). In the case presented, no underlying retinal or choroidal pathology was identified. Uveitis is a commonly reported cause of secondary RVPT; however, the causal relationship between the two remains unclear and controversial (2). Accordingly, a detailed evaluation in our patient revealed no evidence or history suggestive of prior uveitis.

Our patient exhibited common clinical symptoms of RVPT (2,7). Most frequently, tumors become symptomatic due to secondary macular edema, vitreous hemorrhage, or tractional or exudative retinal detachment, as observed in our case. Nevertheless, differentiation from other vascular tumors of the peripheral retina, such as capillary hemangiomas associated with von Hippel–Lindau disease or amelanotic melanoma, can be challenging (2,4,5,7,8). In our case, a tumoral lesion was considered in the preliminary diagnosis due to the absence of markedly dilated, tortuous feeding vessels or prominent telangiectasia. Fundus fluorescein angiography and ultrasonography further supported this diagnosis.

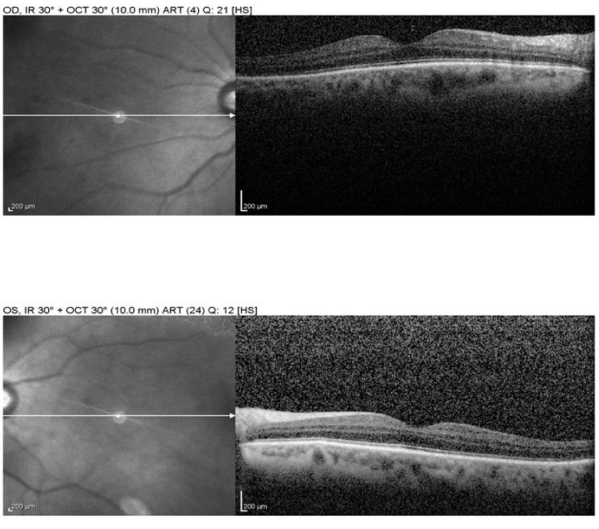

Figure 3. The optical coherence tomography of both eyes of the patient is normal.

The relative rarity of RVPT has resulted in a lack of evidence-based consensus regarding optimal management strategies (7). In accordance with current literature, observation is recommended for small, peripheral lesions that do not produce significant exudation or threaten visual function. Treatment is generally indicated in the presence of substantial exudation or retinal detachment. Multiple studies have demonstrated that many lesions can be effectively managed using triple freeze–thaw transconjunctival cryotherapy (1–8). More recently, photodynamic therapy has also been reported as an effective treatment option, and intravitreal agents such as triamcinolone and anti-angiogenic therapies have been explored (4). However, despite encouraging short-term outcomes with intravitreal treatments, long-term efficacy data remain limited (5,7).

Based on these considerations, we initiated treatment with cryotherapy combined with a single dose of intravitreal anti-VEGF injection to address the exudation and shallow retinal detachment associated with the tumor. Subsequently, laser photocoagulation was applied to further manage the shallow retinal detachment and to reduce the risk of cryotherapy-induced retinal tears leading to retinal detachment. A similar treatment strategy has previously been reported with favorable outcomes (9).

CONCLUSION

Due to its low incidence, RVPT may be underrecognized or inadequately diagnosed by some ophthalmologists. As a result, complications frequently develop in affected patients. The clinical course is typically insidious and slowly progressive. Therefore, it is essential for clinicians to perform a comprehensive ophthalmic examination and obtain a focused clinical history. Because complications may occur in a subset of patients, RVPT should be considered in the differential diagnosis of peripheral retinal lesions.

DECLARATIONS

Funding: None

Author Contributions: All authors contributed the preparetion of thsi manuscript, read and approved the final manuscript.

Competing Interests: The authors declare no conflict of interest.

Consent Statement: Patient consent was obtained.

REFERENCES

1. Zhang W, Qiang Z, Song H, Li X, Dan H, Ge K, et al. Management of vasoproliferative tumors of the retina with macular complications by pars plana vitrectomy combined with episcleral cryotherapy. J Ophthalmol. 2021;2021:6667755. doi:10.1155/2021/6667755.
2. Zheng B, Chen Y, Chen L, Chen H, Zheng J, Chen F, et al. Comparative study on the efficacy and safety of tumor resection in vitrectomy for retinal vasoproliferative tumors. J Ophthalmol. 2019;2019:7464123. doi:10.1155/2019/7464123.
3. Temblador-Barba I, Delgado-Alonso EM, Toribio-García M, Martínez-Campillo L, Molina Leyva I, Martínez-Jiménez M. Update on the management of vasoproliferative tumour. Arch Soc Esp Oftalmol (Engl Ed). 2018;93(7):350–353.
4. Damato B. Vasoproliferative retinal tumour. Br J Ophthalmol. 2006;90(4):399–400.
5. Stoffelns BM, Laspas P, Arad T. Klinik, Bildgebung und Therapie eines symptomatischen vasoproliferativen Tumors der Netzhaut (VPTR) [Clinical features, imaging and treatment of a symptomatic vasoproliferative tumour of the retina (VPTR)]. Klin Monbl Augenheilkd. 2019;236(4):571–574.
6. Huang YM, Chen SJ. Clinical characteristics and treatments of retinal vasoproliferative tumors. Taiwan J Ophthalmol. 2016;6(2):85–88.
7. Rennie IG. Retinal vasoproliferative tumours. Eye (Lond). 2010;24(3):468–471.
8. Kaan G, Filiz A, Cezmi A. Vasoproliferative tumor of the retina: report of two cases. Turk J Ophthalmol. 2010;40(1):42–45.
9. Marback EF, Guerra RL, Maia Junior Ode O, Marback RL. Retinal vasoproliferative tumor. Arq Bras Oftalmol. 2013;76(3):200–203. doi:10.1590/s0004-27492013000300016.