

Varix of the vortex vein ampulla: a small case series

J. LEVY¹, R. YAGEV¹, I. SHELEF², T. LIFSHITZ¹

¹Department of Ophthalmology

²Radiological Institute, Soroka University Medical Center and Ben-Gurion University of the Negev, Beer-Sheva - Israel

PURPOSE. *To report three cases of varix of the vortex vein ampulla.*

METHODS. *Observational small case series. During 2002, three patients were examined for suspected choroidal melanoma. In all cases, the lesions were located at the equator or the periphery.*

RESULTS. *The lesions became more prominent when the eyes were positioned in the direction of the lesion, and disappeared when firm pressure by ultrasound probe was applied on the globe, while the eye was in primary position, or fundus was examined with a three-mirror Goldmann contact lens. These dynamic characteristics were also demonstrated by color Doppler imaging.*

CONCLUSIONS. *Varix of the vortex vein ampulla is an extremely rare condition. This diagnosis should be considered when an elevated choroidal lesion disappears when the fundus is examined with contact lens. (Eur J Ophthalmol 2005; 15: 424-7)*

KEY WORDS. *Choroidal tumor, Varix, Vortex vein ampulla*

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INTRODUCTION

Varix of the vortex vein ampulla is considered to be a very rare benign asymptomatic condition. When large enough, it can simulate a choroidal melanoma (1). Herein, we report three patients who were referred to us for suspected choroidal melanoma and were eventually diagnosed with varix of the vortex vein ampulla.

Case reports

Case 1

A 79-year-old man was referred to our outpatient clinic for a suspected choroidal melanoma in his left eye. Visual acuity was 20/60 bilaterally with hyperopic correction of +2.25 diopters bilaterally. A mild nuclear sclerosis cataract was present bilaterally. Fundus examination dis-

closed a few small drusen at the posterior pole in both eyes. In the left eye, a pigmented elevated lesion of 2.5 x 3.5 mm was observed at the lower nasal quadrant when the eye was positioned in downgaze. The lesion disappeared after refixation to the primary position and during examination with a three-mirror Goldmann contact lens. Ultrasound examination disclosed a dome-shaped elevated mass that progressively appeared during downgaze and disappeared when firm pressure with the ultrasound probe was applied. The maximum height of the lesion was 2.27 mm.

Case 2

A 53-year-old man with presbyopia was examined. Visual acuity was 20/20 bilaterally with a refraction of +1.25 bilaterally. Anterior segment examination was normal bilaterally. In the right eye, two choroidal elevated lesions of



Fig. 1 - Patient 2. Fundus photograph showing the gaze-evoked prominence of the varix of the vortex vein (arrow).

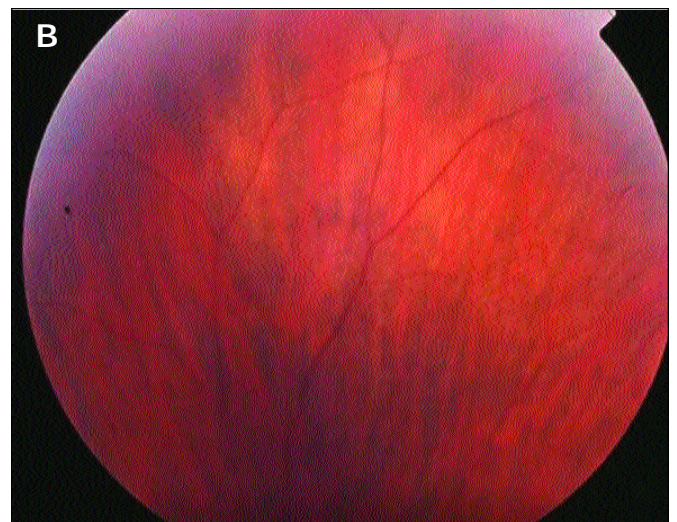
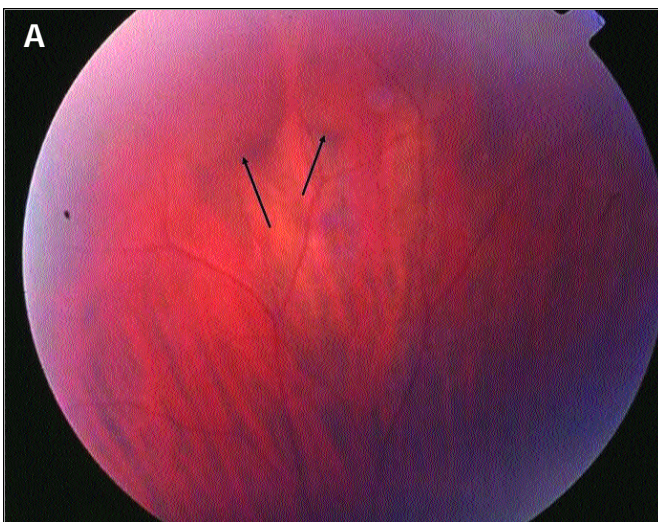


Fig. 2 - Patient 3. (A) Fundus photograph showing the enlargement of the vortex vein ampulla when eye positioned in the direction of the lesion (arrows). (B) Fundus photograph showing the disappearance of the lesion in primary position.

7.5 x 4 mm and 1.5 x 1.5 mm were observed in upgaze (Fig. 1), which disappeared with the eye in primary position. In the left eye, no choroidal lesions were observed. Ultrasound examination demonstrated two dome-shaped elevated masses enlarging during upgaze and disappearing after firm pressure with the ultrasound probe. The maximum height of the lesions was 2.3 mm and 1.2 mm. Color Doppler imaging also demonstrated the dynamic characteristics of the lesions.

Case 3

A 38-year-old woman requesting refractive surgery was referred to our outpatient clinic for suspected choroidal

melanoma in her left eye. Visual acuity was 20/20 bilaterally with a correction of +4 diopters bilaterally. Posterior segment examination was normal in the right eye. In the left eye, two choroidal elevated lesions measuring 4 x 4.5 mm and 2.5 x 3.5 mm were observed in the upper nasal quadrant, enlarging in upgaze (Fig. 2A) and disappearing in primary position (Fig. 2B). Ultrasound disclosed two dome-shaped lesions of 2.22 mm and 1.5 mm maximum thickness, expanding in upgaze (Fig. 3A) and disappearing in primary position (Fig. 3B). Color Doppler imaging showed the gaze-evoked prominence of the lesion to be of venous origin (Fig. 4A) and its disappearance when the eye was in primary position (Fig. 4B). The clinical findings of the patients are presented in Table I.

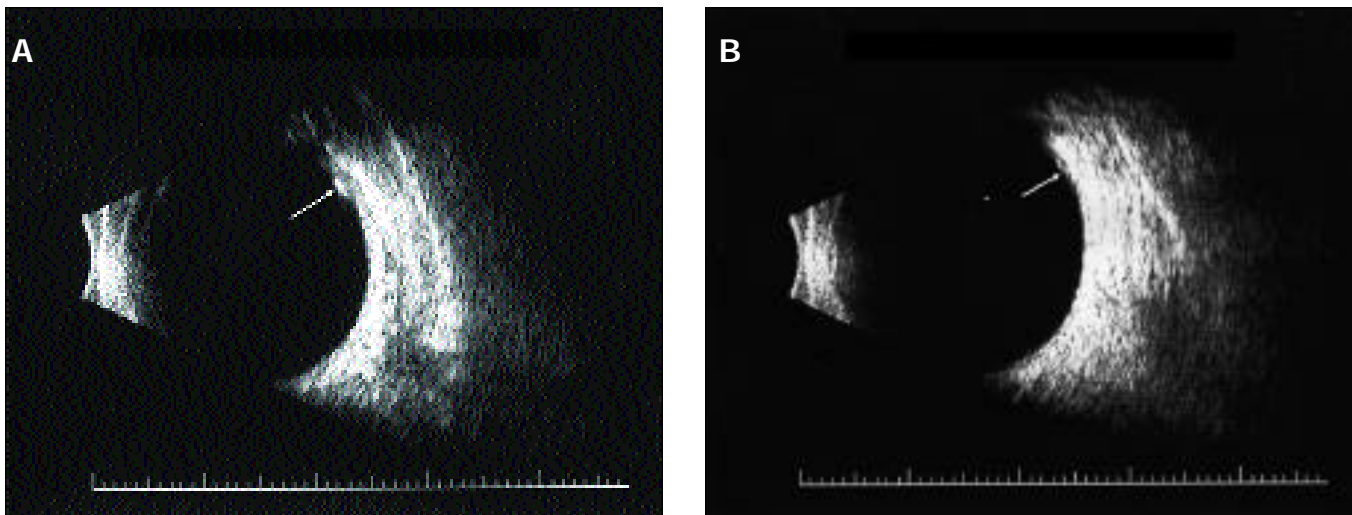


Fig. 3 - Patient 3. (A) B-scan ultrasonogram demonstrates the dome-shaped lesions expanding in upgaze.(B) Disappearance of the lesions in primary position.

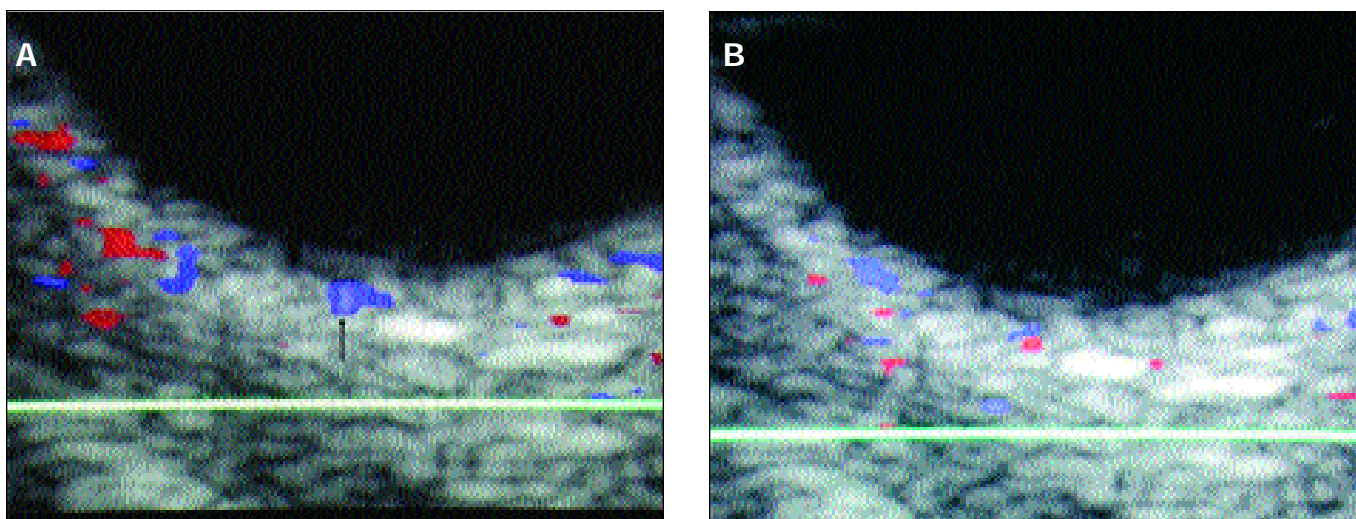


Fig. 4 - Patient 3. (A) Color Doppler imaging showed the gaze-evoked prominence of the lesions of venous origin (arrow).(B) Disappearance of the lesions in primary gaze.

TABLE I - CLINICAL FEATURES OF THREE PATIENTS WITH VARIX OF THE VORTEX VEIN AMPULLA

Patient no.	Age, yr	Sex	Eye	Laterality	Number of lesions	Quadrant	Diameter, mm	Thickness mm
1	79	Male	OS	Unilateral	1	Lower nasal	2.5 x 3.5	2.27
2	53	Male	OD	Unilateral	2	Upper nasal	7.5 x 4 1.5 x 1.5	2.3 1.2
3	38	Female	OS	Unilateral	2	Upper nasal	4 x 4.5 2.5 x 3.5	2.22 1.5

DISCUSSION

Varix of the vortex vein ampulla is a large dilation of the vortex vein ampulla, usually in the nasal fundus, near the equator. It probably develops secondary to gaze-evoked kinking of the extrascleral portion of the vortex vein (2, 3). Additional factors implicated in the pathogenesis are gaze-evoked narrowing of the scleral emissary canal and increase in intravenous pressure. The lesions can be unilateral or bilateral. Eyes can be hyperopic with a thicker sclera (4). Characteristically, varix becomes more prominent with positioning of the eyes in the direction of the lesion, and collapses or even disappears when eyes are in primary position or digital pressure is applied on the globe.

The most common lesions that should be considered in the differential diagnosis of choroidal melanoma include choroidal nevus, disciform macular and extramacular lesions, congenital hypertrophy of the retinal pigment epithelium (RPE), choroidal hemangioma, hemorrhagic detachment of the choroid or RPE, metastatic carcinoma, and choroidal osteoma (5). Indirect ophthalmoscopic viewing of the tumor remains the gold standard for testing and, in experienced hands, it is the most reliable method (6).

Because fundus examination of an eye with suspected tumor by indirect ophthalmoscopy is performed in extreme positions of gaze, thus causing enlargement of varix of the vortex vein, a number of lesions can erroneously be diagnosed as choroidal melanoma. Fundus examination by three-mirror Goldmann contact lens, which is per-

formed in primary gaze, collapses the varix of the vortex vein. The dynamic characteristics of the lesion with indirect ophthalmoscopy followed by contact lens examination can confirm the diagnosis of varix of the vortex vein. In addition, firm pressure on the globe by the ultrasound probe can demonstrate the collapse of the varix.

Only 15 cases of varix of the vortex vein ampulla have been reported in the literature (1-4, 7-9). Despite its rarity, and because of its benign significance, the clinical importance of varix resides in its being part of the differential diagnosis of choroidal melanoma.

Examination with contact lens in all cases of choroidal pigmented lesions, especially if they are located at the equator or at the periphery, and application of firm pressure during ultrasound examination of those lesions, help in distinguishing these varix of the vortex vein ampulla from choroidal melanoma.

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Reprint requests to:
Jaime Levy, MD
Ophthalmology Department
Soroka University Medical Center
P.O. Box 151
84101 Beer-Sheva, Israel
lj Jaime@bgu.ac.il

REFERENCES

1. Gunduz K, Shields CL, Shields JA. Varix of the vortex vein ampulla simulating choroidal melanoma. *Retina* 1998; 18: 343-7.
2. Buetner H. Varix of the vortex vein ampulla simulating a choroidal melanoma. *Am J Ophthalmol* 1990; 109: 607-8.
3. Singh AD, De Potter P, Shields CL, Shields JA. Indocyanine green angiography and ultrasonography of a varix of the vortex vein. *Arch Ophthalmol* 1993; 111: 1283-4.
4. Osher RH, Abrams GW, Yarian D, Armao D. Varix of the vortex ampulla. *Am J Ophthalmol* 1981; 92: 653-60.
5. Shields JA, Shields CL, eds. Diagnostic approaches to posterior uveal melanoma: clinical and pathologic features. In: *Intraocular Tumors: A Text and Atlas*. Philadelphia: WB Saunders; 1992: 155-69.
6. Mukai S, Gragoudas ES. Diagnosis of choroidal melanoma. In: Albert DM, Jakobiec FA, eds. *Principles and Practice of Ophthalmology*. Philadelphia: Saunders; 1994: 3209-17.
7. Hunter JE. Vortex vein varix. *Am J Optom Physiol Optics* 1983; 60: 995-6.
8. Kang HK, Beaumont PE, Chang AA. Indocyanine green angiographic features of varix of the vortex vein ampulla. *Clin Exp Ophthalmol* 2000; 28: 321-3.
9. Wolfensberger TJ. Varix of the vortex ampulla: an unusual differential choroids tumor diagnosis. *Klin Monatsbl Augenheilkd* 1997; 210: 334-6.