



## Hemorrhagic choroidal melanoma

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### ABSTRACT

**Purpose:** To demonstrate the clinical pathologic correlation in a hemorrhagic choroidal melanoma.

**Observations:** A 52 year old patient presented with a large choroidal mass associated with vitreous and retinal hemorrhage. The eye was enucleated and histopathology demonstrated epithelioid-type MART1 positive tumor cells consistent with choroidal melanoma. The tumor had broken through Bruch's membrane, which led to localized vascular compression with bleeding into the subretinal space, retina and vitreous.

**Conclusions and importance:** Choroidal melanoma rarely presents with hemorrhage. Tumor rupture through Bruch's membrane may result in a tourniquet effect on the tumor vasculature leading to massive hemorrhage, as in this case. A high level of clinical suspicion is required to make the diagnosis.

### 1. Case

A 52 year-old man presented with 1 week of sudden vision loss in the left eye. Visual acuity was hand motions. Examination revealed an elevation in the posterior pole with overlying sub- and pre-retinal hemorrhages and surrounding subretinal fluid (Fig. 1A). Fluorescein angiography demonstrated late leakage (Fig. 1B–C), while B-scan ultrasonography revealed a choroidal mass with internal vascularity (Fig. 1D), concerning for melanoma. Magnetic resonance imaging confirmed the presence of an intraocular mass without optic nerve involvement (Fig. 1E–F). Chest and abdominal computed tomography revealed no metastases. Enucleation was recommended and performed.

Histopathologic examination revealed a choroidal tumor composed of epithelioid cells with a high mitotic index and prominent vascularity (Fig. 2A–C). The apical portion of the tumor had broken through Bruch's membrane, which appeared to focally compress the mass (Fig. 2B, D). The apical tumor vessels were dilated; some were broken, spilling blood into the subretinal space, the overlying fragmented retina, and the vitreous cavity (Fig. 2D). Immunostaining for MART1 confirmed the tumor's melanocytic nature and highlighted foci of intrascleral and intravascular tumor invasion (Fig. 2E).

### 2. Discussion

Choroidal melanoma uncommonly presents with acute pre-retinal and sub-retinal hemorrhage.<sup>1,2</sup> A review of 450 patients with uveal melanoma found that only 2.9% presented with intraocular hemorrhage as an initial sign.<sup>2</sup> Hemorrhage may occur when a tumor herniates through Bruch's membrane and is compressed; the focal tourniquet effect diminishes venous return, leading to venous stagnation, vascular dilatation, and eventual vessel rupture.<sup>3</sup> Other diseases present more commonly with multi-level intraocular hemorrhage, including wet macular degeneration, polypoidal choroidal vasculopathy, retinal macroaneurysms and Terson's syndrome.

### 3. Conclusion

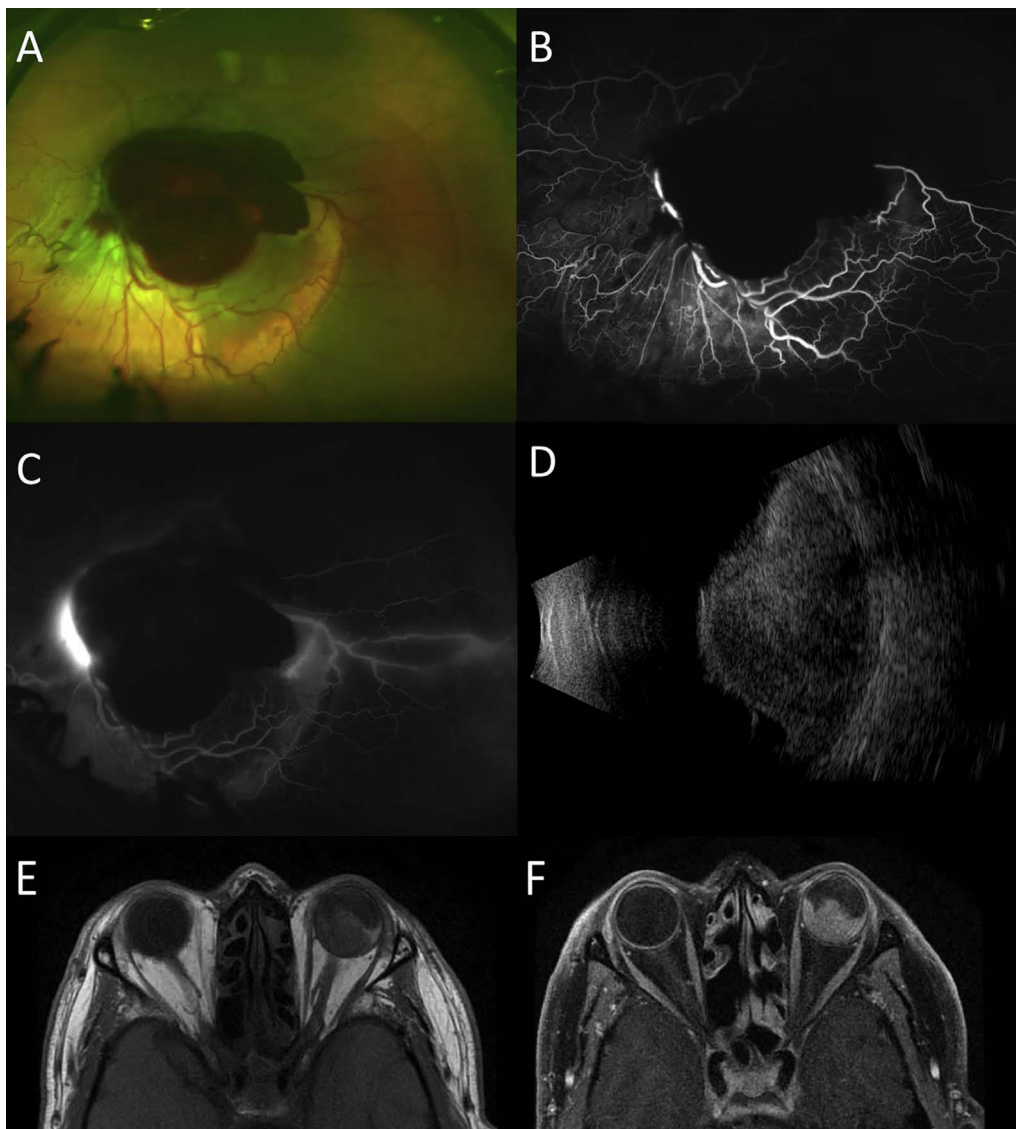
Choroidal melanoma occasionally presents with extensive hemorrhage; a high level of clinical suspicion and B-scan ultrasonography are valuable in making the diagnosis.

### Patient consent

Consent to publish the case report was not obtained. This report

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**Fig. 1. Clinical findings.** (A) A hemorrhagic mass with surrounding subretinal fluid was seen on ultra-widefield imaging. (B) Early and (C) late fluorescein angiography demonstrated leakage from the mass and vessels. (D) B-scan ultrasonography revealed vascularity within the mass, seen as pulsations on real-time imaging. (E) Pre-contrast T1-weighted magnetic resonance imaging demonstrated a hemorrhagic intraocular mass, which enhanced with gadolinium (F).

does not contain any personal information that could lead to the identification of the patient.

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**Conflicts of interest**

No conflicts of interest exist.

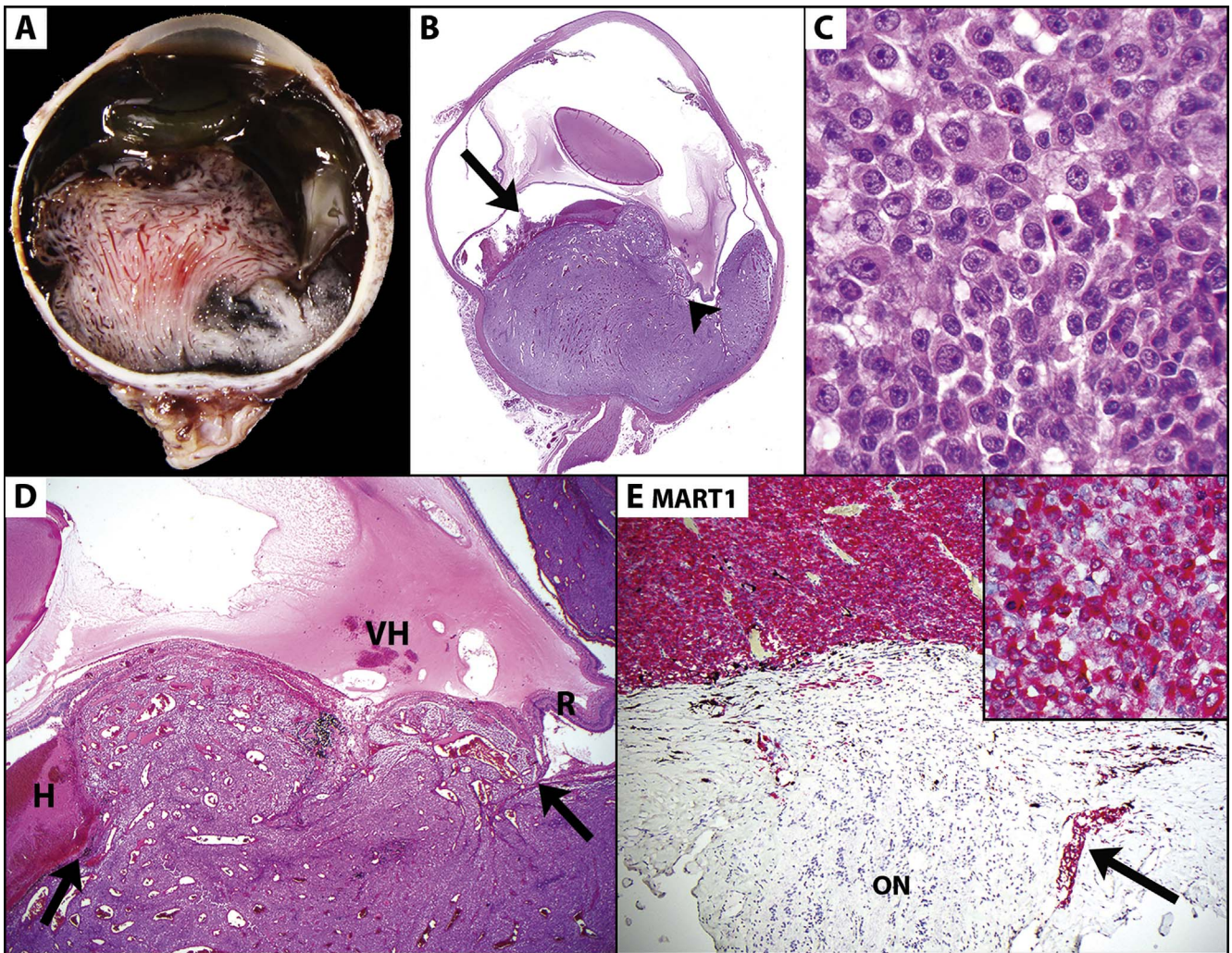
**Authorship**

All listed authors meet the ICMJE criteria. We attest that all authors contributed significantly to the creation of this manuscript, each having fulfilled criteria as established by the ICMJE.

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**Fig. 2. Histopathologic examination.** (A) Gross examination revealed a tumor with prominent vascularity. (B) Subretinal hemorrhage overlay the tumor (arrow), the apical portion of which had broken through Bruch's membrane (arrowhead), 2×. (C) The tumor cells were epithelioid-type, 600×. (D) Dilated and broken vessels were present within the herniated tumor (arrows); the overlying retina (R) was fragmented; vitreous (VH) and subretinal hemorrhage (H) were present, 20×. (E) MART1-Red immunostaining was diffusely positive, demonstrating intrascleral extension and vascular invasion by melanocytes at the dural-scleral junction (arrow), 100×, inset 400×. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

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