

# Case report: Sudden painful blindness

## *Complication of anticoagulant and antiplatelet therapy in patients with disciform macular degeneration*

Yair Hod, MD   Miriam Zalish, MD   Meira Neudorfer, MD   Jacob Peer, MD   Orna Geyer, MD

**T**he oral anticoagulant and acetylsalicylic acid therapies extensively used for long-term prevention and treatment of thromboembolic diseases are associated with systemic bleeding.<sup>1</sup> Ocular bleeding is an unusual complication of these therapies. Subconjunctival hemorrhage, the most common type (2% of patients) never affects vision,<sup>2</sup> but intraocular hemorrhages (eg, spontaneous hyphema and subretinal, subchoroidal, and vitreous types) result in loss of vision.<sup>3,8</sup>

We describe three cases of sudden, painful blindness caused by acute angle-closure glaucoma secondary to hemorrhagic retinal pigment epithelial detachment. Detachment was due to bleeding of a choroidal vessel in patients with disciform macular degeneration (DMD) undergoing antiplatelet and anticoagulant therapy. We wish to alert physicians to the possibility of this unusual complication.

### Case 1

An 83-year-old man whose left eye was blind and painful was receiving ASA (100 mg/d) for cardiovascular disease. Ophthalmic examination of his right eye was normal except for macular scarring. Examination of his left eye showed he had no perception of light, intraocular pressure (IOP) at 60 mm Hg, conjunctival injection, an edematous cornea, a shallow anterior chamber with diffuse blood, and no view of the fundus. Ultrasonography disclosed an

**Drs Hod and Geyer** teach in the Department of Ophthalmology at the Carmel Medical Center in Haifa, Israel. **Drs Neudorfer and Geyer** practise at the Tel-Aviv Sourasky Medical Center, which is affiliated with the Sackler Faculty of Medicine at Tel-Aviv University. **Dr Zalish** practises at the Kaplan Medical Center in Rehovot, and **Dr Peer** practises at the Hadassah Medical Center; both centers are affiliated with the Hebrew University-Hadassah Medical School in Jerusalem.

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irregular reflective mass in the posterior pole beneath the detached retina, consistent with vitreous hemorrhage, and forward displacement of the iris-lens diaphragm. His eye was enucleated because medical antiglaucoma treatment did not reduce IOP nor did retrobulbar alcohol injection relieve pain. Histopathology disclosed a scar composed of fibrous and vascular tissue in the macula, a funnel-shaped detached retina, a very shallow anterior chamber, and a closed anterior chamber angle.

### Case 2

An 82-year-old man with severe pain in his right eye used warfarin (2 mg/d) for atrial fibrillation. Ophthalmic examination revealed heterochromia (darker right eye), left eye vision of 20/120 due to macular scarring, right eye vision limited to light perception, IOP at 55 mm Hg, an edematous cornea, a shallow anterior chamber, a fixed mid-dilated pupil, and an invisible fundus. Ultrasonography disclosed macular scarring, a mass in the posterior pole beneath the detached retina consistent with hemorrhagic choroidal detachment, vitreous hemorrhage, and forward displacement of the iris-lens diaphragm. Treatment with oral glycerol and intravenous acetazolamide and application of topical timolol and cyclopentolate reduced the pressure and relieved the pain.

### Case 3

A 72-year-old woman with severe pain in her left eye used ASA for retinal vein occlusion in her right eye. Ophthalmic examination showed disciform macular scarring in both eyes, branch retinal vein occlusion in her right eye, and vision limited to finger counting at 1 m due to macular scarring; in her left eye, vision was limited to light perception, IOP was 60 mm Hg, and conjunctival hyperemia, corneal edema, a shallow anterior chamber, a fixed mid-dilated pupil, and appositional (kissing) choroids in the fundus were observed. Because medical treatment did not reduce IOP, the choroids were surgically drained to relieve pain.

## Discussion

Age-related macular degeneration is the leading cause of blindness in Western countries among people 50 and older. Incidence ranges between 6% for those aged 65 to 74 to 20% for those older than 75.<sup>9</sup> One form of this disease, DMD, appears as a disciform, irregular thickening of the macular retina caused by thickening of the Bruch membrane and new vessel formation from the choriocapillaris.<sup>10</sup> Acute angle-closure glaucoma is an uncommon complication of this disease.

A MEDLINE search back to 1970, using the key words age-related macular degeneration, ocular bleeding, anticoagulants, antiplatelets, and acute angle-closure glaucoma, disclosed evidence that massive bleeding caused by rupture of the disciform vessels can induce angle-closure glaucoma. The huge hemorrhage dissects under the retinal pigment epithelium and erupts through it into the subretinal space, presses the lens-iris diaphragm forward to cause pupillary block, and precipitates angle-closure glaucoma accompanied by severe pain in the eye.<sup>4,8</sup> Diagnosis is often difficult because the intraocular hemorrhage prevents physicians from seeing the fundus. Ultrasonography depicts the subretinal hemorrhage originating from the macula.<sup>6,7</sup>

Anticoagulant and antiplatelet therapies or clotting disorders are considered predisposing factors for bleeding. The exact level of risk for sudden blindness due to complications of therapy is unknown. About 19% of patients with DMD who developed ocular bleeding were taking warfarin or ASA.<sup>6</sup> They developed angle-closure glaucoma due to either spontaneous suprachoroidal or subretinal hemorrhage.<sup>5,8</sup>

Painful blindness due to acute glaucoma was the presenting symptom of the patients with DMD bleeding in our cases; ultrasonography was helpful in diagnosing cases 1 and 2. Because patients were treated with either ASA (cases 1 and 3) or warfarin (case 2), we presume that these drugs caused the massive bleeding.

## Conclusion

The number of patients, especially elderly patients, using anticoagulation medication is growing, and the incidence of severe visual loss caused by ocular hemorrhages in patients with DMD is expected to increase. The complication we describe is yet another issue to weigh in the balance when deciding whether to place patients on long-term anticoagulation or antiplatelet treatment. Further studies are needed to assess the relationship between anticoagulant and antiplatelet drugs and ocular bleeding. ★

## Editor's key points

- This case report concerns intraocular hemorrhage in three patients with disciform macular degeneration who are receiving anticoagulant or antiplatelet therapy for other health problems.
- Clinically, these patients presented with sudden blindness and pain associated with acute angle-closure glaucoma secondary to the hemorrhage.
- Further studies are necessary to establish a causal relationship and to quantify risk of intraocular hemorrhage subsequent to anticoagulant or antiplatelet therapy.

## Points de repère du rédacteur

- Cette étude de cas rapporte des hémorragies intra-oculaires chez trois patients atteints de dégénérescence maculaire disciforme et recevant des anticoagulants ou des antiplaquettaires pour d'autres problèmes de santé.
- Cliniquement, ces patients ont présenté une cécité subite et de la douleur associée à un glaucome à angle fermé secondaire à l'hémorragie.
- D'autres études sont nécessaires pour établir une relation causale et quantifier le risque d'hémorragie intra-oculaire suite à la prise d'anticoagulants ou d'antiplaquettaires.

**Correspondence to:** Dr Orna Geyer, Department of Ophthalmology, Carmel Medical Center, 7 Michal St, Haifa, Israel; telephone 011 972-4-8250419; fax 011 972-4-8250492; e-mail drgo@netvision.net.il

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