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Massive Spontaneous Suprachoroidal Hemorrhage in a Young Woman with Cystic Fibrosis and Diabetes Mellitus on Anticoagulants

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Abstract

Purpose—To report a case of massive spontaneous suprachoroidal hemorrhage in a young woman with cystic fibrosis and proliferative diabetic retinopathy on anticoagulant therapy.

Methods—Single case report.

Results—A 24-year-old woman with cystic fibrosis and diabetes mellitus developed a massive spontaneous suprachoroidal hemorrhage in the left eye after two months of warfarin therapy and recent treatment with heparin. Fundus examination and B-scan ultrasonography of the left eye revealed a hemorrhagic choroidal detachment. Elevated intraocular pressure was controlled with brimonidine, but four months later the left eye ceased to perceive light.

Conclusion—Massive spontaneous suprachoroidal hemorrhage (SSCH) is a rare event that occurs almost exclusively in patients of advanced age. To our knowledge, this is the youngest patient with SSCH described in the literature. Regardless of age or other medical conditions, anticoagulant therapy appears to be a strong risk factor. SSCH carries a poor visual prognosis with or without surgical intervention.

Keywords

anticoagulant; cystic fibrosis; suprachoroidal hemorrhage; warfarin

Introduction

Massive spontaneous suprachoroidal hemorrhage (SSCH) is rare event that typically occurs in patients with advanced age, systemic anticoagulation, hypertension, atherosclerosis, age-related macular degeneration and chronic kidney disease.^{1–3} We present what is, to our knowledge, the youngest reported patient to develop SSCH in the absence of congenital coagulopathy, ocular surgery or trauma.

Case Report

A 24-year-old woman developed massive SSCH in the left eye during a hospitalization for exacerbation of her cystic fibrosis. Her medical history was also notable for uncontrolled insulin-dependent diabetes mellitus complicated with advanced proliferative diabetic retinopathy. She was 6 ½ months status post panretinal laser photocoagulation in the

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affected eye. Two months earlier she had experienced a thrombosis in an indwelling catheter and was placed on warfarin therapy. Initially the international normalized ratio (INR) was difficult to control with two instances of supratherapeutic ratio (3.6 and 4.7—the therapeutic range being 2.0-to-3.0); however, her INR remained consistently therapeutic afterwards. She was also chronically hypercapnic with PaCO₂ measurements typically greater than 50 mmHg and she had a chronic cough. Two days before the SSCH, intravenous heparin was administered instead of warfarin in preparation for a sinus operation. On the day of the SSCH, her INR was 2.3 and activated partial thromboplastin time (aPTT) was 103.9 seconds (upper limit of therapeutic range was 60 seconds) at 8:24 AM. She complained of sudden painless vision loss that was recorded in the 10:20 AM nursing note. Anticoagulant therapy was suspended.

On examination, her visual acuity was 20/80 in the right eye and hand motions in the left eye. Intraocular pressure (IOP) was 15 mmHg in the right eye and 34 mmHg in the left eye. Fundus examination revealed a massive suprachoroidal hemorrhage in the left eye and a small subhyaloid hemorrhage in the right eye. Fundus examination one month earlier showed small bilateral subhyaloid hemorrhages consistent with her active proliferative diabetic retinopathy that did not obscure her vision. A B-scan ultrasonography confirmed hemorrhagic choroidal detachment in the left eye (Fig. 1). Elevated IOP in the left eye was controlled with brimonidine. The visual acuity four months later was no light perceptions.

Discussion

Several possible risk factors for SSCH have been proposed. They include advanced age, systemic anticoagulation or thrombolysis, hypertension, atherosclerosis, age-related macular degeneration, and chronic kidney disease.¹⁻³ Our patient had only one of these previously reported risk factors, namely, systemic anticoagulation. Diabetes mellitus, which our patient had, is associated with suprachoroidal hemorrhage during and after intraocular surgery.² However, in a case-control study of 210 patients taking warfarin for cardiovascular disorders, diabetes mellitus did not appear to add to the increased risk of ocular bleeding (SSCH was not seen in this study).⁴ Although diabetes has not previously been identified as a risk factor for SSCH, there is a report of a patient with background diabetic retinopathy on warfarin therapy who developed spontaneous massive subretinal hemorrhage⁵ and another description of a patient with pre-proliferative diabetic retinopathy on warfarin who sustained a suprachoroidal hemorrhage 3 days after panretinal laser photocoagulation.⁶ Furthermore, Hidayat and Fine⁷ described choroidal vascular changes consistent with arteriosclerosis in a histopathologic study of 7 patients with diabetes mellitus. So, it seems reasonable that the presence of diabetic eye disease could have been an added risk factor for SSCH in our patient.

Other possible precipitators of SSCH relevant to our patient with cystic fibrosis are coughing and hypercapnia. Coughing is believed to cause rupture of fragile ciliary vessels by elevating episcleral venous pressure.² Chronic hypercapnia may cause an increase in retinal blood flow precipitating ocular hemorrhages.⁸

At age 24, our patient may be the youngest to have developed SSCH in the absence of ocular surgery, trauma or congenital coagulopathy. Thirty-five cases of SSCH have been published in 29 reports since 1963. The age of these patients ranged from 27 to 90 with a mean of 72.5 years old. Only 2 patients were less than 46 years old. Saeed et al.⁹ reported SSCH after thrombolytic agent administration for hemodialysis in a 27-year-old patient with a history of rubeotic glaucoma. Tajika et al.¹⁰ reported SSCH in a 32-year-old patient with malignant hypertension and chronic kidney disease. In contrast to these individuals, our patient did not have glaucoma, hypertension or kidney disease.

In addition to advanced age, systemic anticoagulation or thrombolysis is the major risk factor for SSCH. Of the 35 patients who developed SSCH since 1963, 23 (66%) were on anticoagulant or thrombolytic therapy. Our patient had an INR in the therapeutic range, although her aPTT was markedly prolonged as measured an hour or two prior to her SSCH. Her advanced proliferative diabetic retinopathy and cystic fibrosis (coughing) may have also added to the risk of SSCH.

Pain management and visual acuity preservation are priorities in the management of SSCH.¹ We successfully treated the elevated IOP with brimonidine. However, we decided not to pursue aggressive surgical treatment because several studies have shown poor visual prognosis—especially in patients with poor initial presentation.¹

Conclusion

Although the rare occurrence of massive SSCH has been mostly described with advanced age it may also occur in young patients. Anticoagulation (above the therapeutic range), cystic fibrosis (coughing) and advanced diabetic ocular disease may have contributed to the risk of SSCH in our patient.

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References

1. Yang SS, Fu AD, McDonald HR, et al. Massive choroidal hemorrhage. *Retina*. 2003; 23:139–144. [PubMed: 12707590]
2. Chu TG, Green RL. Suprachoroidal hemorrhage. *Surv Ophthalmol*. 1999; 43:471–486. [PubMed: 10416790]
3. De Marco R, Aurilia P, Mele A. Massive spontaneous choroidal hemorrhage in a patient with chronic renal failure and coronary artery disease treated with Plavix. *Eur J Ophthalmol*. 2009; 19:883–886. [PubMed: 19787616]
4. Biyik I, Mercan I, Ergene O, Oto O. Ocular bleeding related to warfarin anticoagulation in patients with mechanical heart valve and atrial fibrillation. *J Int Med Res*. 2007; 35:143–149. [PubMed: 17408066]
5. Raj A, Sekhri R, Salam A, Priya P. Massive subretinal bleed in a patient with background diabetic retinopathy and no treatment with warfarin. *Eye*. 2003; 17:649–652. [PubMed: 12855977]
6. Mikawa A, Honda S, Sugita I, et al. Severe post-laser Suprachoroidal haemorrhaging in a diabetic patient receiving anticoagulants. *Br J Ophthalmol*. 2004; 88:1101–1102. [PubMed: 15258040]
7. Saeed MU, Wong D, Heimann H, Gibran SK. Spontaneous progressive supra-choroidal haemorrhage in a patient undergoing haemodialysis. *Graefes Arch Clin Exp Ophthalmol*. 2007; 245:1741–1742. [PubMed: 17674016]
8. Bruce GM. The eye and cystic fibrosis of pancreas: a resume. *Trans Am Ophthalmol Soc*. 1964; 62:123–39. [PubMed: 14269886]
9. Saeed MU, Wong D, Heimann H, Gibran SK. Spontaneous progressive supra-choroidal haemorrhage in a patient undergoing haemodialysis. *Graefe's Arch Clin Exp Ophthalmol*. 2007; 245:1741–1742. [PubMed: 17674016]
10. Tajika T, Yokozeki H, Ishimaru K, et al. A rare case of choroidal hemorrhage complicated with hypertension due to chronic renal failure. *J Med Invest*. 2008; 55:151–155. [PubMed: 18319559]

Summary Statement

In this report we present what is, to our knowledge, the youngest reported patient to develop spontaneous suprachoroidal hemorrhage in the absence of congenital coagulopathy, ocular surgery or trauma.

Figure 1. Horizontal B-scan ultrasonography of left eye including the optic nerve (ON). Nasal (N) and temporal (T) regions are shown. A large choroidal hemorrhage that is especially prominent under the macula (*) is present throughout the posterior pole.