

## BACTERIAL ENDOCARDITIS PRESENTING WITH DECREASED VISION

Mohammed Almasswary, MBBS, FRCSC

This is a report of a 31-year-old male with bacterial endocarditis diagnosed in the Ophthalmology Clinic at the University of Western Ontario, London, Ontario, Canada. The presenting symptom was decreased vision in the right eye. Ocular examination revealed macular white-centered retinal hemorrhage associated with premacular hemorrhage. It is very rare for decreased visual acuity to be the primary symptom in infective endocarditis. In this case we noticed the association of pre-macular hemorrhage and white-centered retinal hemorrhage.

### Case Report

A 31-year-old healthy male presented with a history of decreased vision in the right eye of five days' duration. There were no other associated ocular symptoms. On systemic review, the patient stated that he had had a flu-like illness with cough and fever a month previously, but did not seek medical help. Examination disclosed a visual acuity of 20/200 in the right eye and 20/20 in the left eye. The pupils were reactive without afferent defect. Anterior segment examination was unremarkable. Fundus examination of the right eye revealed a dense pre-retinal hemorrhage predominantly in front of the lower half of the macula. There was intraretinal hemorrhage with a white spot superotemporal to the center of the macula (Figure 1). The left fundus was normal.

Medical examination disclosed a systolic murmur. Echocardiogram revealed mitral valve prolapse and dilated left ventricle. Blood cultures grew gram-positive cocci, which turned out to be *Streptococcus viridans*. The diagnosis of bacterial endocarditis was confirmed, and the patient began a one-month course of intravenous penicillin G (3 million units every 4 hours) and gentamicin (70 mg every 12 hours). Two months after the treatment, the patient recovered and the pre-retinal hemorrhage in the right eye resolved (Figure 2). His visual acuity improved to 20/40.

From the Department of Ophthalmology, University of Western Ontario, London, Ontario, Canada.

Address reprint requests and correspondence to Dr. Almasswary at e-mail: [almasswary@hotmail.com](mailto:almasswary@hotmail.com).

Accepted for publication 7 June 1999. Received 21 November 1998.

### Discussion

White-centered retinal hemorrhages in patients with septicemia were described by Roth in 1872, and since then several reports have described the same finding in patients with bacterial endocarditis.<sup>1-3</sup> These lesions are focal retinal inflammation and blood extravasation<sup>4</sup> caused by septic embolizations consisting of white blood cells and bacteria.<sup>5</sup>

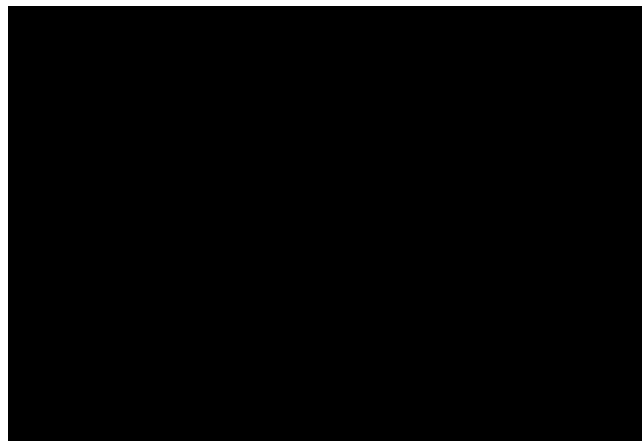


FIGURE 1. Fundus photograph of the right eye showing the pre-macular hemorrhage and a Roth spot superior to the left edge of the hemorrhage.

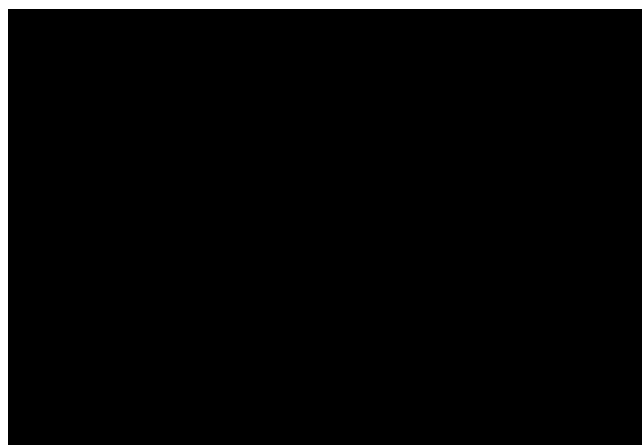


FIGURE 2. Fundus photograph of the right eye two months after the treatment.

TABLE 1. *Conditions that can present with retinal hemorrhages and white spots.*

Infectious	Non-infectious
Infective endocarditis	Leukemia
Septicemia, bacterial or fungal	Anemia
HIV retinitis	Diabetic retinopathy
Cytomegalovirus retinitis	Hypertensive retinopathy
Toxoplasmosis retinochoroiditis	Central or branch retinal vein occlusion
TB retinal vasculitis	Sarcoidosis vasculitis
Syphilitic retinitis	Vasculitis
	Radiation retinopathy
	Shaken baby syndrome
	Purtscher's retinopathy
	Lupus retinopathy

Histopathological examination of the white-centered retinal hemorrhage lesion usually discloses white cell accumulation surrounded by hemorrhage in the nerve fiber and outer plexiform layers of the retina.<sup>4</sup> These white-centered retinal hemorrhages are classically asymptomatic and usually located in the peripheral retina,<sup>1,6,7</sup> however, the macular area can be involved, causing significant decrease in vision.<sup>3,8,9</sup>

Decreased vision has been described in the literature as a primary presentation for bacterial endocarditis secondary to pre-macular hemorrhage<sup>4</sup> or endogenous endophthalmitis.<sup>10</sup> In our case, the presenting symptom of bacterial endocarditis was decreased vision, however, ocular examination revealed a combination of pre-macular hemorrhage and a macular white-centered retinal hemorrhage.

It is our opinion that whenever a white-centered retinal hemorrhage is detected on fundoscopic examination, subacute infective endocarditis should be suspected, and

other possible underlying etiology of retinal hemorrhage and white spots should be ruled out (Table 1). Based on our findings and the previous reports, infective endocarditis should be included in the differential diagnosis of pre-retinal hemorrhage, and fundoscopic examination is recommended for patients with this condition.

### Acknowledgement

I would like to thank Dr. C. Canny for allowing me to report this case.

### References

1. Meyers SM. The incidence of fundus lesions in septicemia. *Am J Ophthalmol* 1979;88:661-7.
2. Weissgold DJ, Decker PJ. Retinal hemorrhages from septic emboli in a patient with a ventricular false chorda. *Am J Ophthalmol* 1996;122:117-9.
3. Kim JE, Han DP. Pre-macular hemorrhage as a sign of bacterial endocarditis. *Am J Ophthalmol* 1995;120:250-1.
4. Kennedy JE, Wise GN. Clinicopathological correlation of retinal lesions in subacute bacterial endocarditis. *Arch Ophthalmol* 1965;74:658.
5. Duane TD, Osher RH, Green WR. White centered hemorrhages: their significance. *Ophthalmology* 1980;87:66.
6. Neudorfer M, Barnea Y, Geyer O, Siegman-Igra Y. Retinal lesions in septicemia. *Am J Ophthalmol* 1993;116:728-34.
7. Silverberg HH. Roth's spots. *Mt Sinai J Med* 1970;37:77-9.
8. Beatty S, Harrison RJ, Roche P. Bilateral macular holes resulting from septic embolization. *Am J Ophthalmol* 1997;123:557-9.
9. Schneider G. Roth's septic retinitis. *Klin Monatsbl Augenheilkd* 1984;184:225-6.
10. Verweij PE, Rademakers AJ, Koopmans PP, Meis JF. Endophthalmitis as a presenting symptom of group G streptococcal endocarditis. *Infection* 1994;22:56-7.