Ocular symptoms and signs as presenting features of endocarditis caused by *Streptococcus bovis* II

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INTRODUCTION

Uveitis masquerade syndromes are diseases that present as uveitis secondary to infection or malignancy as opposed to being immune-mediated. Infectious endophthalmitis (IE) and lymphoma are the major causes of the uveitis masquerade syndromes and should be considered in all patients with uveitis of first onset after the age of 60 years (Zamiri et al, 1997). Although patients usually present acutely with IE, not all do and patients with lymphoma may have little in the way of systemic symptoms leading to the diagnosis of intraocular disease. Features of intraocular lymphoma include vitritis and subretinal infiltrates with little inflammation elsewhere (Whitcup et al, 1993).

This article presents a patient who had ocular features and constitutional symptoms compatible with those of lymphoma, but the onset of new clinical signs and natural history of the process proved instead to be an infective process.

CASE REPORT

A previously healthy 76-year-old man was referred to the uveitis clinic at Moorfields Eye Hospital with a 2-month history of bilateral painless blurred vision and floaters. He had undergone intraocular surgery on his left eye a long time ago after trauma to remove a cataract. He also complained of generalized arthralgia, night sweats and headache.

On examination, both eyes had a visual acuity of 6/6 and normal pupillary reactions. Slit-lamp biomicroscopy showed no evidence of anterior uveitis. Funduscopy revealed few inflammatory cells in the vitreous and multifocal yellow subretinal lesions in both eyes, with a retinal haemorrhage in the right eye but no cotton wool spots or exudates and normal retinal vasculature (*Figure 1*).

Uveitis masquerade syndrome was considered and investigations to detect lymphoma were initiated. Full blood cell count revealed normocytic anaemia with mild neutrophilia and an erythrocyte sedimentation rate of 105 mm/h. The blood film showed mild toxic granulation in some neutrophils. Renal and liver function and chest X-ray (CXR) were normal. Computed tomography (CT) scan of the brain and orbits showed no abnormality.

Shortly after, his vision decreased to 1/60 in the left eye with associated increased vitritis, retinal exudates and peripheral retinal haemorrhages. The patient was systemically well, admitting no further constitutional symptoms. On examination no lymphadenopathy or abdominal masses were detected. CXR and further blood investigations including immunoglobulin screen and tumour markers were normal. A left vitreous biopsy showed predominantly chronic inflammation with a lymphohistiocytic infiltrate but no specific features of intraocular lymphoma. Since it was not possible to completely exclude lymphoma, further systemic work up was suggested.

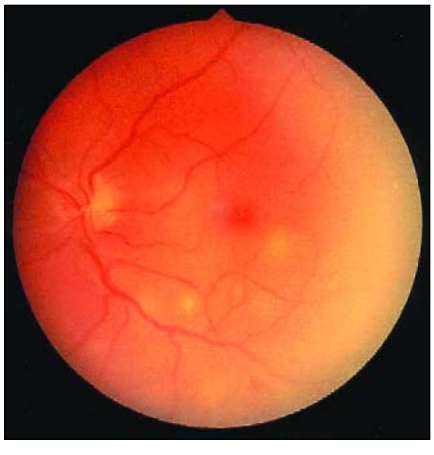
Three months after the initial presentation the patient developed lassitude, anorexia, breathlessness on exertion and progressive peripheral oedema. A repeat CXR and abdominal ultrasound showed bilateral pleural effusions and splenomegaly respectively. A new diastolic murmur was detected and infective endocarditis was considered. Echocardiography showed severe aortic regurgitation resulting from a large vegetation with depressed left ventricular function (*Figure 2*). Blood cultures isolated *Streptococcus bovis* type II sensitive to penicillin and glycopeptides. He became haemodynamically unstable despite intravenous antibiotic therapy and an urgent aortic valve replacement was undertaken. Following a 1-month course of antibiotic therapy his constitutional symptoms resolved, blood tests returned to normal and his vision improved to 6/6. Fundoscopy revealed few left vitreous debris but no signs of active inflammation or subretinal lesions. A colonoscopy to rule out associated gastrointestinal malignancy was performed and showed no abnormality.

DISCUSSION

Endogenous bacterial endophthalmitis accounts for less than 10% of all cases of intraocular infection. It has been associated with several underlying diseases and invasive medical procedures (Okada et al, 1994). The usual presenting features of IE are of an acute onset with reduced visual acuity, ciliary injection and hypopyon formation as well as vitreous clouding.

Streptococcus bovis is found in 5–22% of subacute infective endocarditis (Di Salvo et al, 2003). *S. bovis* subtype II is more often associated with bacteraemia of hepatobiliary origin rather than endocarditis or gas-

Figure 1. Colour photograph of the left fundus showing scattered yellow subretinal lesions and a retinal haemorrhage inferiorly.



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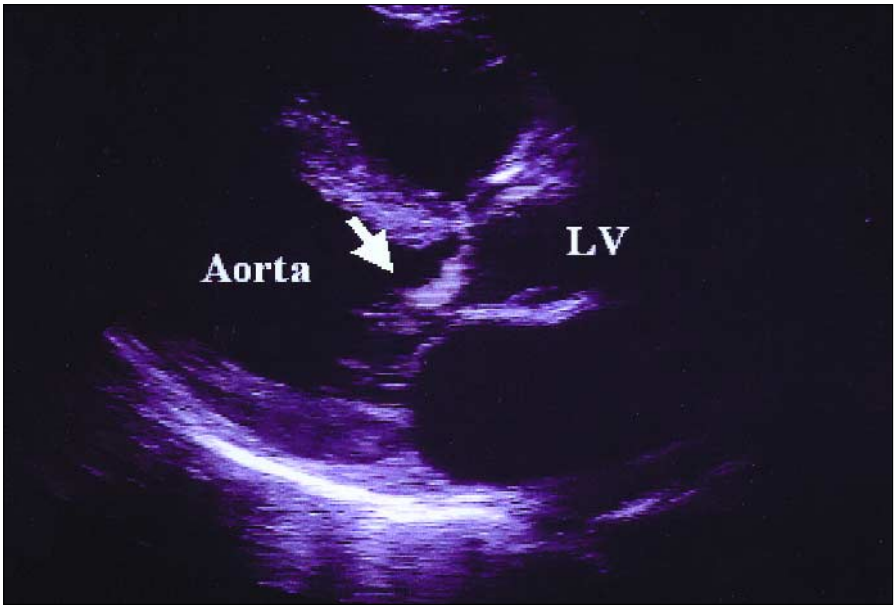

Figure 2. Two-dimensional echocardiogram shows a long axis view of the heart. The aorta and left ventricle (LV) are indicated. There is a 1 x 0.5 cm vegetation attached to the left coronary cusp of the aortic valve (arrow). During diastole the vegetation could be seen prolapsing from the aortic root into the left ventricular cavity.

trointestinal malignancy (Ruoff et al, 1989). *S. bovis* endocarditis has been associated with higher morbidity than other microorganisms because it more commonly involves multiple valves and extracardiac complications, such as anaemia, splenomegaly and associated gastrointestinal malignancy (Kupferwasser et al, 1998; Pergola et al, 2001).

To the best of the authors' knowledge, this is the first case of endogenous *S. bovis* endophthalmitis in humans. It presented with a chronic onset and signs and symptoms suggestive of malignant rather than infectious uveitis.

The diagnosis of the underlying disease can sometimes be challenging, especially in those patients with low grade uveitis and non-specific constitutional symptoms.

Although the blood–retinal barrier prevents many organisms from invading the intraocular tissues, some will colonize the choroid before spreading into the retina. Vitreous biopsy is a relatively safe method of obtaining intraocular fluid; however, in the presence of endogenous IE, blood cultures are more sensitive than vitreous cultures (Okada et al, 1994; Lobo and Lightman, 2003).

The diagnosis of endogenous IE should be considered in elderly patients with intraocular inflammation, especially in the absence of previous intraocular surgery or trauma. A thorough medical history and systemic examination are paramount in the assessment of these patients. Early diagnosis and aggressive treatment may not be associated with a better visual outcome but may improve patient morbidity. **HM**

Di Salvo G, Thuny F, Rosenberg V et al (2003) Endocarditis in the elderly: clinical, echocardiographic, and prognostic features. *Eur Heart J* **24**(17): 1576–83

Kupferwasser I, Darius H, Muller AM et al (1998) Clinical and morphological characteristics in *Streptococcus bovis* endocarditis: a comparison with other causative microorganisms in 177 cases. *Heart* **80**(3): 276–80

Lobo A, Lightman S (2003) Vitreous aspiration needle tap in the diagnosis of intraocular inflammation. *Ophthalmology* **110**(3): 595–9

Okada AA, Johnson RP, Liles WC, D'Amico DJ, Baker AS (1994) Endogenous bacterial endophthalmitis. Report of a ten-year retrospective study. *Ophthalmology* **101**(5): 832–8

Pergola V, Di Salvo G, Habib G et al (2001) Comparison of clinical and echocardiographic characteristics of *Streptococcus bovis* endocarditis with that caused by other pathogens. *Am J Cardiol* **88**(8): 871–5

Ruoff KL, Miller SI, Garner CV, Ferraro MJ, Calderwood SB (1989) Bacteremia with *Streptococcus bovis* and *Streptococcus salivarius*: clinical correlates of more accurate identification of isolates. *J Clin Microbiol* **27**(2): 305–8

Whitcup SM, de Smet MD, Rubin BI et al (1993) Intraocular lymphoma. Clinical and histopathologic diagnosis. *Ophthalmology* **100**(9): 1399–406

Zamiri P, Boyd S, Lightman S (1997) Uveitis in the elderly--is it easy to identify the masquerade? *Br J Ophthalmol* **81**(10): 827–31