

Fitt, personal correspondence). Reassuringly, 20 ms PRP does not seem to be leading to a higher diabetic vitrectomy rate and is therefore probably equally effective, or at least effective enough to control proliferative disease.

Indeed, if 20 ms PRP causes less damage to the choroid, quite feasible if one accepts the premise of less pain, it should further enhance oxygen levels of the retina, bearing in mind that Budzynski *et al*¹ have recently proposed that damage to the choroid is probably diminishing the beneficial effects of PRP. TR's team will consider a retrospective comparison of patients before and after he switched from 100 to 20 ms PRP, about 5 years ago. This might reveal differences in numbers of laser shots before the proliferative disease was thought to be under control.

We are probably all agreed that the laser energy is mostly absorbed by the melanin granules close to the apical surface of the retinal pigment epithelium. Immediately in front of this epicentre of energy release are the rods and cones and then the inner segments of the photoreceptor cells. This is fortunate because if the 20 ms burn is shallower, it will still destroy the inner segments. The destruction of the inner segments, more than that of any other tissue, will reduce the demand for oxygen and other nutrients, leaving more for unlasered retina. This is because the voracious oxygen consumption of the inner segments at 15 ml O₂/100 g/min in the dark² is as much as cardiac muscle during exercise.³

Thirdly, could the side-effect profile of 20 ms PRP be worse than that of 100 ms PRP? TR's 5 years and WW's 3 years of experience of 20 ms PRP (perhaps over 1000 patient sessions) have not raised any suspicion of a difference in loss of visual field (or driving licenses) or complaints of loss of dark adaptation. There has been speculation that these side effects are more likely with elderly patients. Rather than burn duration, these side effects are probably related to the sharp fall of RPE melanin with age, from 80 µg/mg at the age of 40 years to half that at age 70 years.⁴ With less RPE melanin the laser energy would be more widely distributed across the whole depth of the elderly retina and choroid, rather than being confined to the apical surface of the RPE cells.

What, then, are the options for clinicians if patients cannot tolerate 100 ms burns of adequate intensity? Retrobulbar anaesthesia would sit rather awkwardly with College cataract surgery guidelines that discourage sharp needle orbital anaesthesia in the absence of an anaesthetist. Sub-Tenon's anaesthesia is possible but the laser contact lens might not be sufficiently sterile to be in contact with the open conjunctival wound, which could still be bleeding.

General anaesthesia is occasionally indicated but is altogether more complicated and inconvenient for patients and does displace others from the operating list. We would urge ophthalmologists to try 20 ms PRP as the most practical option, which in addition allows far more shots to be applied over the same time period. Doubters and sticklers for evidence-based medicine might take some reassurance from the fact that 20 ms PRP is commonly used at Moorfields Eye Hospital in London (J Dowler, personal communication).

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Sir, Septic metastatic endophthalmitis complicating *Klebsiella pneumoniae* scalp furuncle

Septic metastatic endophthalmitis is a rapidly devastating ocular infection resulting from the haematogenous spread of organisms to the eye. Several

studies have shown diabetes mellitus to be the most common association, especially in patients with liver abscess.^{1,2} Other primary foci of infection include urinary tract infection, pneumonia, peritonitis, and meningitis. This report describes a case of septic metastatic endophthalmitis resulting from the rare foci of infection — scalp furuncle.

Case report

A 74-year-old non-insulin-dependent diabetic woman was admitted to our hospital because of fever, headache, and scalp furuncle. One week before admission, she had a motorcycle accident and sustained minor abrasions to the left scalp. She was otherwise asymptomatic and povidone iodine ointment was requested four times per day. In the subsequent days, the abrasion wound became worsening and accompanied with severe tender, swelling, and pus formation. We considered the diagnosis of scalp cellulitis. The patient was then treated with empiric parenteral oxacillin and gentamycin while awaiting wound and blood cultures.

One day after admission, she complained of left eye pain and visual loss. Her ocular history was insignificant, except for senile cataract in both eyes. The initial ocular examination (2 days after admission) revealed a best-corrected visual acuity of counting fingers in the left eye. Swollen eyelid, severe chemosis, conjunctival injection, corneal oedema, and hypopyon were observed in her left eye (Figure 1). The diagnosis of septic metastatic endophthalmitis was suspected. Immediate pars plana vitrectomy (2 days after admission) was performed followed by intravitreal vancomycin (2 mg/0.1 ml) and

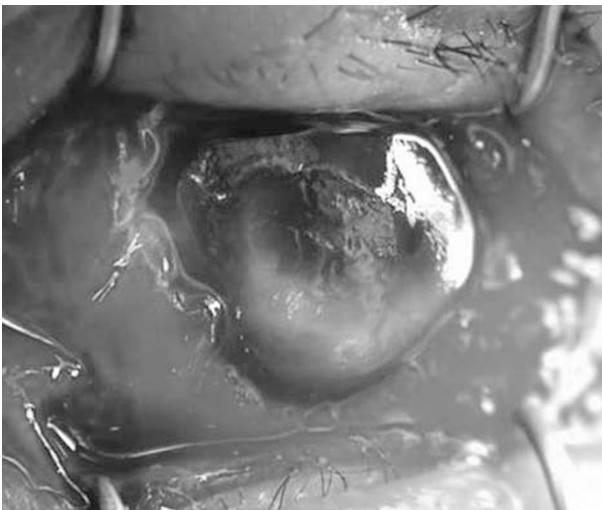


Figure 1 Photograph of her left eye 2 days after admission, showing swollen eyelid, severe chemosis, conjunctival injection, corneal oedema, and hypopyon.

ceftazidime (2 mg/0.1 ml). Topic fortified vancomycin and amikacin eye drops were also given. Cultures from blood, scalp furuncle, and vitreous all grew *Klebsiella pneumoniae*, which was sensitive to ceftriaxone, ceftazidime, gentamycin, and amikacin, and resistant to oxacillin. The parenteral oxacillin was then replaced by ceftriaxone (2 g/day) and vancomycin eye drop was also changed to ceftazidime. The debridement of the scalp furuncle was performed (Figure 2). After 3 weeks, endophthalmitis subsided without visual recovery.

Comment

Septic metastatic endophthalmitis is a rare entity that accounts for 2–15% of all endophthalmitis, which itself occurs at an average annual incidence of about five in 100 000 hospital patients.³ Several studies have shown diabetes mellitus to be the most common association. However, several patients had unrecognised diabetes or diabetic infection before endophthalmitis onset. The early diagnosis is often difficult, particularly when there is no evidence of a primary infection. In fact, the ocular



Figure 2 After debridement of scalp furuncle, a large skin defect and deeply open wound were noted. Exophthalmos with swollen eyelid were also noted in her left eye.

infection can be the initial manifestation of sepsis. In addition, the visual outcome of septic metastatic endophthalmitis caused by *K. pneumoniae* was worse than counting fingers in more than 80% of patients with affected eyes in most series.^{3–5} Therefore, more aggressive treatment may be needed. In our patient, although the primary focus of infection was obvious and urgent treatment was also given, the visual prognosis is still disappointed.

In the past, septic metastatic endophthalmitis caused by *K. pneumoniae* was considered to be rare. Before 1980, only one patient was reported in the literature.⁶ However since 1981, more than 40 cases have been described, mainly in Taiwan, with 61% diabetes mellitus, 68% of patients having suppurative liver disease, and 16% having urinary tract infection as the primary focus of infection.⁷ To date, the primary foci from skin infection was only noted in three patients. Okada *et al*² reported two cases of septic metastatic endophthalmitis from skin cellulitis. One resulted from skin burn with *Staphylococcus aureus* infection and another was skin abscess owing to intravenous drug abuse, in which the infectious organism was not identified. However they did not mention whether these patients were diabetic mellitus. Wong *et al*⁸ reported one diabetic patient of septic metastatic endophthalmitis from foot abscess with *S. aureus* infection. Therefore, to the best of our knowledge, this is the first case of septic metastatic endophthalmitis resulting from scalp furuncle with *K. pneumoniae* infection described in diabetic patient.

In conclusion, the physician must take into account that diabetic patients could have a metastatic infection to eyes when with skin infection.

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Sir,
Bilateral vitreous haemorrhage associated with dengue fever

We read with interest the report by Nainiwal *et al*¹ of a 14-year-old girl with bilateral vitreous haemorrhage associated with dengue haemorrhagic fever (DHF). The authors suggested that if a patient with DHF was to present with bilateral vitreous haemorrhage, severe headache and myalgias after the initial fever and rashes have subsided, a misdiagnosis of Terson's syndrome could be made. Terson's syndrome is vitreous haemorrhage occurring in association with subarachnoid haemorrhage. From the report, it is unclear if the authors have satisfactorily excluded subarachnoid haemorrhage in their patient. There was no mention of any detailed neurological examination or imaging of the brain performed on the patient to suggest that intracranial pathology has been excluded.

Although rare, DHF has been associated with subarachnoid haemorrhage.² A sudden increase in intracranial pressure from subarachnoid haemorrhage can rupture the epipapillary and peripapillary capillaries, resulting in Terson's syndrome. In a systematic review by McCarron *et al*,³ 24 out of 181 (13%) patients with subarachnoid haemorrhage assessed prospectively had vitreous haemorrhage. Rarely, there may be no neurological symptoms or signs in Terson's