Retinal artery occlusion in migraine

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Summary: Retinal artery occlusion is a rare complication of migraine. The following case report highlights the importance of early diagnosis in this condition. The long term management of patients with this and other forms of complicated migraine is discussed.

Case report

The patient, a 33 year old hospital ward clerk, had suffered from attacks of classical migraine since the age of 6. These occurred on average twice each month, invariably starting with teichopsia, followed by a severe unilateral headache associated with nausea or vomiting. Her attacks normally lasted from 12 to 24 h and could sometimes be aborted by early ingestion of analgesics.

The attack in question commenced while she was eating breakfast, the first symptom being teichopsia as usual. Ten minutes later, however, she was alarmed to find that the left side of her face and left arm had become numb. She took two 'pink Migralève' tablets but after a further 5 min a 'curtain' seemed to come down over her left eye, with complete loss of vision on this side. This was followed by a severe headache, commencing behind the left eye but later encompassing the whole forehead. It persisted for the rest of the day and kept her awake for most of that night. The following morning there was still no vision in the left eye. She was visited by her general practitioner, who referred her to her local hospital. A series of delays, however, meant that she was not seen until more than 48 h after the onset of blindness. A diagnosis of retinal artery thrombosis was made at this stage, the classical appearance being seen on ophthalmoscopy.

Physical examination was otherwise normal. Her blood pressure was 130/70 mm Hg. An attempt was made to improve retinal blood flow using oral nifedipine and she was commenced on oral steroids. These measures were, however, to no avail. She was referred to our department for a neurological opinion. Investigations showed that her full blood count, erythrocyte sedimentation rate, urea and electrolytes, glucose, cholesterol and triglycerides, liver function

tests, total protein and protein electrophoresis were all within normal limits. Chest and skull radiographs, an electrocardiogram, an ultrasonogram of the carotid arteries and a computed tomographic brain scan were all normal. Visual evoked responses were normal in the right eye but were completely absent in the left eye. She had two further attacks of migraine while in the ward and was commenced on prophylactic treatment with pizotifen 0.5 mg t.d.s. Three months later, she showed no sign of recovery of the vision in her left eye, although the frequency of her migraine attacks had decreased to one every 3 weeks. She has recently started taking additional prophylaxis in the form of aspirin 300 mg, once daily.

Discussion

Although most physicians are aware of the possibility of blurring or temporary loss of vision occurring during the aura phase of a migraine attack, many are unfamiliar with the possibility that permanent retinal occlusion may occur. The first description of this in the literature was that of Galezowski (1882) who described 4 patients with migraine in whom uniocular visual loss occurred in relation to attacks of headache. Two of these had developed central retinal artery thrombosis, one had a superior branch occlusion, while the fourth showed peripheral retinal arterial thrombosis with fundal haemorrhages. Four further cases were reported by Graveson (1949). Where the circulation to the optic nerve is affected, the related condition of ischaemic papillopathy may occur, as described by McDonald & Sanders (1971). It is worth noting in our case that there was evidence of very widespread vasospasm, with symptoms referable both to the right middle cerebral artery (leading to left-sided hemianaesthesiae) and the left retinal artery.

The optimal acute treatment of retinal artery occlusion occurring in the context of migraine is

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speculative since too few cases have been described to enable trials to be performed. Rossmann (1980) has reviewed some of the many treatments available, ranging from paracentesis of the anterior chamber to lower intraocular pressure, to the use of anticoagulants and thrombolytic agents. Whichever treatment is chosen, however, must be applied as early as possible, since irreversible damage to the ganglion cells and inner nuclear layer of the retina may occur within 6 h of the occlusion.

The value of long-term treatments in preventing further attacks is less clear. Some would regard complicated migraine and transient ischaemic attacks as part of a pathological spectrum involving vessel spasm and platelet aggregation. There is substantial evidence for increased platelet aggregability in migraine patients before and during attacks as well as in headache-free periods (Hanington, 1978). Moreover, there is some evidence (O'Neill & Mann, 1978) that aspirin may be effective in the prophylaxis of migraine, as it is in some patients with transient ischaemic attacks.

It is now recognized that, on occasion, coronary

artery spasm may lead to myocardial infarction in the absence of primary thrombosis (Hellstrom, 1979). The use of calcium antagonists such as nifedipine in this context is well established; more recently nifedipine and the newer agent, nimodipine (Gelmers, 1983) have started to gain a place in the prophylaxis of migraine.

There are strong grounds (Carroll, 1971) for avoiding oral contraceptives if complicated migraine has occurred. Furthermore propranolol has been linked with complicated attacks in two case reports (Prendez, 1980; Gilbert, 1982).

In summary, in our current state of knowledge we would favour the use of daily low-dose aspirin in patients who have suffered a complicated attack of migraine, such as retinal artery thrombosis. The concurrent use of a calcium antagonist such as nifedipine may be of additional benefit. If the attacks remain frequent, more conventional agents may be employed such as pizotifen (which also has antiplatelet properties) or, in resistant cases, methysergide. There is a clear need, however, for studies to determine the optimal long term treatment in this and other varieties of complicated migraine.

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