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Sir,

Central retinal artery occlusion: association with patent foramen ovale

Central retinal artery obstruction (CRAO) is uncommon in young adults, the mean age being 60 years. Emboli are visible in 25% of cases and embolic sources found in 40% of patients.[1] We present the case of young man with visual loss due to a central retinal artery occlusion secondary to a patent foramen ovale (PFO).

Case report

A 22-year-old male student was referred to the Southampton Eye Unit with sudden visual loss in the left eye 1 month previously. The patient smoked 10 cigarettes a day and was otherwise well. His vision was 6/6 in the right and NPL in the left. There was a left relative afferent pupillary defect, healthy anterior segments, and on fundoscopy the left disc was swollen with arterial attenuation and a central retinal embolus. A flourescein angiogram showed attenuation of arterial flow (Figure 1) with obstruction at the optic nerve, confirming the diagnosis of central retinal artery occlusion with ischaemic optic neuropathy.

Investigation with ultrasound B-scan, MRI, ECG, and Carotid Doppler scans was unremarkable as were haematological and biochemical investigations. Investigation for autoimmune conditions, prothrombotic diseases, and occult infections revealed no positive result. A mildly elevated homocysteine level of 20 μmol/l was detected (normal range 0–18 μmol/l).

Further investigation with transthoracic cardiac ultrasound with agitated saline contrast showed unprovoked right to left shunting across a patent foramen ovale. Further contrast injections with provocative manouvres (eg valsalva, sniff, and cough) increased the degree of right to left shunting (Figure 2). Aspirin (75 mg OD) with folic acid (300 mg OD) supplement was commenced and the patient listed for percutaneous device closure of the PFO.

Comment

CRAO is rare in patients below the age of 25 years and systemic diseases are usually causal. Common are; cardiac abnormalities, coagulopathies, collagen-vascular diseases, and oncological causes.[1] Ocular causes in younger patients include optic nerve head drusen and peripapillary arterial loops.[2] Long-term survival in patients with CRAO can be significantly reduced (5.5 years). The RECO study group found that 45% of CRAO patients under 45 years had cardiac abnormalities, of which 27% needed anticoagulation or cardiac surgery.[3]

PFO is the most common persistent abnormality of fetal origin, occurring in up to 29% of the normal adult population in autopsy studies.[4] It has been reported in adult patients with embolic stroke over 55 years old, there is a higher prevelance of PFO (40%) than control subjects (10%. $P<0.001$).[5] This association between PFO and systemic and cerebral embolism or 'cryptogenic stroke' has been consistently supported, particularly in young adults less than 55 years old.[6] Aneyursmal atrial septum, large PFO size, and spontaneous passage of bubble contrast without provocative manoeuvres, as seen in our patient, have been cited as particular risk factors.[7]

Transcatheter PFO closure has a low complication rate (<1%) and was first reported to reduce the risk of recurrent cryptogenic strokes in-patients with PFO in 1992. A subsequent systematic review of percutaneous closure has shown it to have a protective effect on stroke or transient ischaemic attack recurrence compared to medical treatment (annualised incidence 1.9 *vs* 5.4%, relative risk 0.346, 95% CI 0.209–0.573; $P<0.0001$).[8] Randomised control trials are currently assessing these therapeutic options more rigorously.[9,10]

In this case a PFO with spontaneous right to left shunting was found following an ocular thromboembolic event. Closure of the PFO was performed to reduce the risk of stroke and bilateral loss of sight.

This case represents the importance of carrying out thorough investigation into potential embolic sources,

Figure 1 From top-left clockwise. A colour photo and fluorescein angiogram images at 23 s, 40 s, and 2 min showing delayed arterial filling.

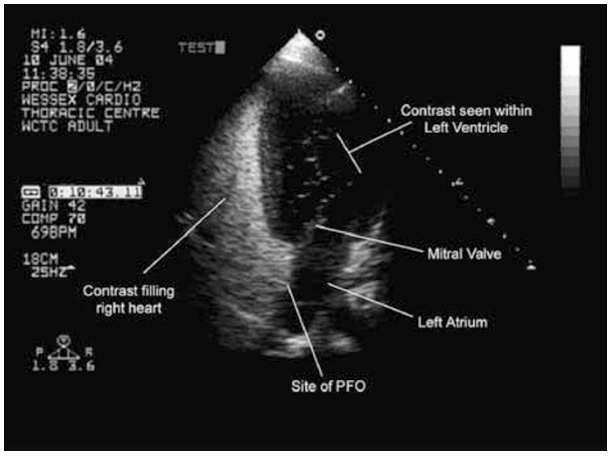

Figure 2 Four chamber transthoracic echocardiogram showing passage of contrast from right to left heart across the patent foramen ovale.

particularly in young people, to determine the potential for treatment, which aims to reduce the risk of further embolism.

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Sir,

'A Thrip to eye casualty' an unusal complication of Sub-Tenon's anaesthesia

Many of the complications of cataract surgery have been solved through the evolution of surgical and anaesthetic technique. The majority of cases today are performed as a day case under local anaesthetic, which may be administered topically, in to the Sub-Tenon's space or given as peribulbar block. The safety and efficiency of Sub-Tenon's anaesthesia is well documented.[1] We present an unusual complication of Sub-Tenon's anaesthesia following routine cataract surgery.

Case Report

A 69-year-old man presented, 18 days following uncomplicated cataract surgery under Sub-Tenon's anaesthesia, with a 2-week history of a painless red eye. He had been picking blackcurrants at the onset of symptoms. He was known to be on long-term warfarin therapy following an aortic valve replacement. On examination his best-corrected Snellen visual acuity was 6/6 and a nasal subconjunctival haemorrhage was noted (Figure 1a). Slit-lamp examination revealed an intact subconjunctival insect associated with the subconjunctival haemorrhage located above the area that the Sub-Tenon's anaesthesia had been administered (Figure 1b). The rest of the ocular examination was normal. An uncomplicated removal of the insect was performed *via* a small conjunctival incision and the subconjunctival haemorrhage resolved. The insect has been identified as a Thrips (order Thysanoptera meaning 'fringed wings'). Although tiny they may occur in large numbers, and are also know as 'thunder flies' because they often fly on warm, still (eg prethunder-storm) days. Thrips commonly inhabit flowerheads and feed on plant sap.

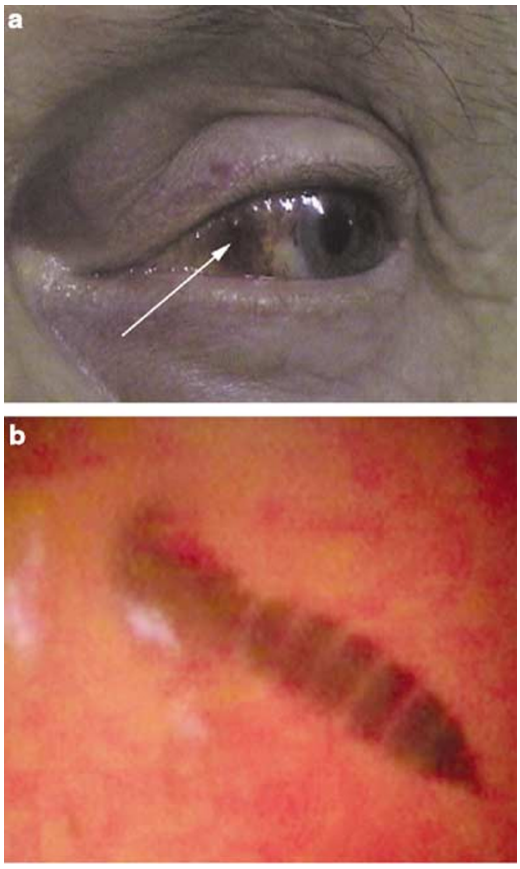

Figure 1 Subconjunctival haemorrhage adjacent to the entry site of the Sub-Tenon's anaesthetic block. When viewed with higher magnification a small subconjunctival insect could be seen, this was later identified as 'Thrips'.

Comment

Sub-Tenon's anaesthesia is an established and safe technique but involves incising the conjunctiva to access the Sub-Tenon's space, if as in this case the incision is