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Sir,

Para-lenticular metallic foreign body missed by high-resolution computed tomography

Retained ferric intraocular foreign body (IOFB) is well known to cause ocular siderosis with resultant toxicity to almost all ocular structures.[1] The mainstay of treatment is appropriate, timely and complete surgical removal.[2] Accurate localisation of the IOFB is important for pre-operative planning of the best means of surgical removal. We report here a case of para-lenticular metallic foreign body missed by high-resolution computed tomography (CT).

Case report

A 32-year-old phakic man was referred for assessment of blurred vision in his right eye for a month. On detailed questioning it was found that he had suffered a suspicious penetrating injury while hammering a nail 10 months previously. The visual acuity in his right eye was 20/50. The most striking slit-lamp findings were a 1 mm full-thickness limbal scar over the 10 o'clock position and a siderotic cataract (Fig. 1). A small iris defect located right at the iris root over the 10 o'clock position could be seen on gonioscopic examination. However, the iris colour was normal. Detailed fundal examination with scleral indentation failed to identify any IOFB. There was little anterior chamber inflammation and intraocular pressure was normal. Both standard radiographs and high-resolution CT of the orbits (3 mm axial cut and coronal scan with 1 mm reconstruction) failed to demonstrate the presence of any foreign body (Fig. 2). Ultrasound biomicroscopy (UBM), however, identified a small highly echogenic foreign body, about 2.2 mm posterior to the iris (Fig. 3).

The patient underwent phacoemulsification and IOFB removal with intraocular lens implantation under general anaesthesia 4 days after the diagnosis. The metallic foreign body was visible at the 8 o'clock position on scleral indentation after removal of the lens. It appeared to be in the para-lenticular space in close proximity to the zonules and the ciliary processes (Fig. 4). The IOFB was retrieved with intraocular forceps through a sclerotomy site at 2 o'clock under direct visualisation.

Fig. 2. *High-resolution CT scan of the orbits failed to demonstrate the presence of any foreign body.*

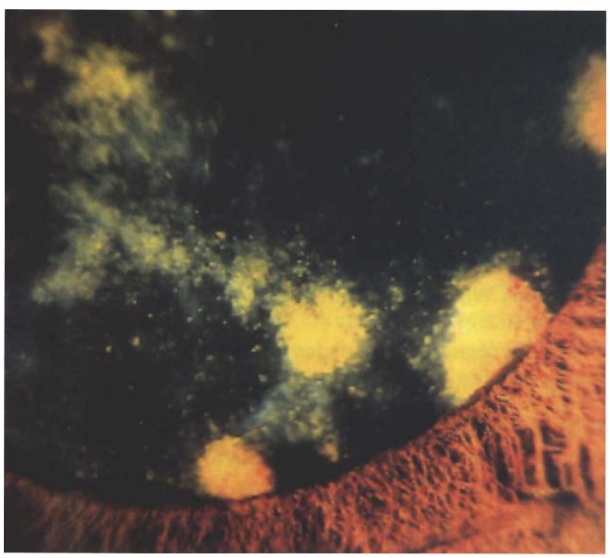

Fig. 1. *Slit-lamp photograph showing a siderotic cataract.*

Fig. 3. *Ultrasound biomicroscopy photograph localising the iris defect and a small highly echogenic foreign body.*

Fig. 4. *Metallic intraocular foreign body (arrows) partially embedded in the ciliary processes (arrowheads).*

Comment

Conventional methods of detecting and localising metallic IOFBs include radiographs, CT, low-frequency ultrasonography and electronic foreign-body detectors. Real-time ultrasonography appears to be a considerably more sensitive investigative tool than plain radiography for the imaging of IOFBs.[3] However, it will be problematic particularly for anteriorly located foreign bodies. CT, in most cases, is effective enough in detecting IOFBs and reconstruction into 1 mm cuts might enhance the chance of detecting small foreign bodies. However, owing to the partial volume effect, tiny foreign bodies smaller than 1 mm might still be missed.[4] UBM has been demonstrated as a safe, non-invasive method and is a useful adjunct to CT and ultrasonography in the detection and localisation of small and anteriorly located IOFBs.[5] In our case, UBM demonstrated beautifully the location of the foreign body, which was not identified by full ocular examination, radiography and CT of the orbits. UBM may be a valuable investigative tool when there is a high suspicion of IOFB in the anterior segment of the eye despite thorough examination, especially in the absence of other unfavourable factors such as hazy optical media, distorted anterior segment anatomy or poor patient cooperation.

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