CASE REPORT

Isolated extraocular muscle abscess presenting 40 years after squint surgery

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SUMMARY

A 57-year-old man presented with an abscess localised to the lateral rectus region. He was treated as a case of orbital cellulitis because of the presence of soft tissue swelling with a localised abscess discharging through the conjunctiva with associated reduction of visual acuity and restriction of ocular movements laterally. No specific risk factors were identified but an ultrasound scan picked up a hyperechoic signal suggestive of a foreign body within the abscess. Surgical exploration did not identify a foreign body but fibrotic changes between the globe and the lateral rectus muscle were found which was suggestive of previous squint surgery. This was confirmed by the patient later on specific questioning. Periorbital infection is a rare occurrence after squint surgery and reported cases are mainly within a week after surgery. Orbital abscess probably related to an old suture granuloma 40 years after surgery has not been documented before.

BACKGROUND

Orbital cellulitis is an infection involving soft tissues behind the orbital septum. It can potentially lead to blindness if not treated appropriately. It also runs the risk of other serious complications like cavernous sinus thrombosis or frontal lobe brain abscess. It is less common than preseptal cellulitis. The three main sources of infection of orbital cellulitis are extension from periorbital structures commonly from sinuses, direct inoculation from trauma or surgery and haematogenous spread.^{1 2}

Our case report highlighted orbital cellulitis/abscess can be a long-term consequence of strabismus surgery.

CASE PRESENTATION

A 57-year-old man presented to accident and emergency with a 2 day history of swollen, red and painful left eye which allegedly started after a gush of wind in a dusty environment hit the eye. No foreign body sensation was noted at the time. There was no history of trauma, insect bite nor sinusitis.

His visual acuity was reduced to 6/18 in the left eye but colour vision was normal. Vision in the right eye was normal at 6/6. On examination, the conjunctiva was inflamed and chemosed close to the insertion of the lateral rectus on the left eye with a localised collection of pus discharging through the conjunctiva. The left eye was also mildly proptosed with restriction of lateral gaze. Examination of the anterior chamber and fundus of the left eye was normal. His right eye was normal.

He denied any previous medical or ocular problems. He had no recollection of previous ocular trauma.

INVESTIGATIONS

A CT scan of the orbits was performed which showed a left orbital collection extending from the outer canthus to the lateral aspect of the globe, tracking about 1 cm into the extraconal space along the surface of the lateral rectus muscle. The appearance of the globe and remainder of the extraocular muscles were within normal limits and the intracranial appearances and sinuses were unremarkable (figures 1 and 2).

An ultrasound scan of the eye (B-scan) showed a hyperechoic signal on the superotemporal aspect which was suggestive of a foreign body (figure 3). Following this, the CT scan was reviewed and a possible foreign body was identified.

DIFFERENTIAL DIAGNOSIS

- ▶ Orbital abscess surrounding foreign body
- ▶ Orbital cellulitis
- ▶ Granuloma

TREATMENT

Our patient was treated as orbital cellulitis and was given intravenous ceftriaxone along with topical chloramphenicol. Intravenous metronidazole was added later when the foreign body was suspected.

Figure 1 CT scan of abscess, transverse view.

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Figure 2 CT scan of abscess, coronal view.

Owing to a high suspicion of a foreign body from the ultrasound scan findings, surgical exploration was undertaken of the left eye under general anaesthesia 4 days after initial presentation. A small amount of pus was drained from a site superior to the lateral rectus but no foreign body was found. Incidentally the left lateral rectus was found to be previously recessed and fibrosed with adhesions to the sclera which indicated that the patient had undergone previous surgery on that muscle. This was confirmed with the patient later on, who had forgotten to mention this on presentation as it had been performed many years ago when he was a child.

It was unclear what the hyperechoic body picked up on the ultrasound scan was. It could well have shown a disintegrating suture which got extruded with the pus and debris. Alternatively, it could have been an artefact seen at the interface of change in echogenicity between the abscess and surrounding soft tissues.

His antibiotic regime was later changed to oral coamoxiclav and topical Maxitrol (combination of antibiotic and steroid) eye drops.

Figure 3 Suspected foreign body within abscess on B-scan ultrasonography.

Figure 4 Localised abscess overlying lateral rectus muscle 2 days after intravenous antibiotics.

OUTCOME AND FOLLOW-UP

His left eye vision and inflammation started improving a day after intravenous antibiotics were started with normalisation of visual acuity to 6/6 2 days later (figures 4 and 5). Despite this, the exploratory procedure was carried out on the basis of the suspected foreign body seen on B-scan ultrasonography. Drainage of the pus did hasten the recovery from his symptoms.

Neither a conjunctival swab on admission nor another pus swab from the exploratory procedure grew any organisms.

On a follow-up visit 3 weeks later, there was no recurrence of the abscess although a mild inflammation of the left eye conjunctiva remained.

DISCUSSION

The patient's previous squint surgery might be a coincidental finding but considering the location and localised nature of the abscess it is, on balance of probabilities, likely to be the underlying aetiology.

Infective orbital complications after squint surgery are rare. They could include orbital cellulitis, subconjunctival and

Figure 5 Appearance 4 days after intravenous antibiotics.

sub-Tenon's abscesses, and endophthalmitis. Previous studies have shown the incidence of periocular infection at one case per 1,100 surgeries. They commonly occur within 5 days after surgery, mainly affecting preschool children but could also affect adults.^{3–5}

The abscess is mostly due to an infected suture granuloma. Suture granulomas was a common problem when catgut and collagen suture material was used in strabismus surgery before vicryl was popularised in the 1970s.⁶ After such an acute infection it is not surprising to have found pus and 'debris' and not be able to identify an obvious suture.

Alternatively, the abscess could also have occurred in an old conjunctival epithelial inclusion cyst. These are caused by an ingrowth of epithelium due to inappropriate approximation of conjunctival edges. Epithelial inclusion cysts on conjunctiva or

extraocular muscles can be a late complication from squint surgery.^{7,8}

CT scan is considered the gold standard for detection of metallic as well as non-metallic foreign body. B-scan ultrasound of the eye can also be used to pick up foreign bodies in clinic but its sensitivity is dependent on the operator's skill and it is contraindicated in ruptured globe. Plain X-ray is not useful for glass, stone and vegetative foreign bodies. MRI is contraindicated if a metallic foreign body is suspected. Ultrasound biomicroscopy has been found to be useful in detecting small non-metallic foreign bodies located in or near the anterior chamber.⁹

Contributors WSL, WA, EP and BS contributed to the conception and design of this report. All of them also contributed to the drafting, critical revision and final approval of the report.

Competing interests None.

Patient consent Obtained.

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Learning points

- ▶ Strabismus surgery may have long-term risks of infections similar to trabeculectomy and retinal detachment repair.
- ▶ Importance of good history taking to identify potential source of infection in orbital infections, particularly asking about previous ocular surgery.
- ▶ Investigate for possible foreign body in unexplained orbital cellulitis/abscess despite lack of suggestive history.
- ▶ Surgical drainage of abscess if present and intravenous antibiotics are the mainstay treatment for orbital infections.
- ▶ Patients who had squint surgery more than 40 years ago would have had catgut or collagen suture material used which was associated with considerably higher risk of granulomas compared to vicryl.

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