CASE REPORT

An epibulbar chocolate cyst: a rare complication of silicone-based scleral buckle

Pradeep Venkatesh, Varun Gogia, Shikha Gupta, Bhagabat Nayak

Dr RP Centre, AIIMS,
New Delhi, India

Correspondence to
Dr Bhagabat Nayak,
bhagabat80@gmail.com

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SUMMARY

A patient with a history of vitreoretinal surgery presented with nasal dystopia, diplopia and epibulbar bluish black mass simulating a chocolate cyst in the right eye. After a non-conclusive ocular examination, he underwent CT of the orbit along with volume rendition and three-dimensional reconstruction, which demonstrated intact globe with laterally displaced band-buckle assembly along with peri-scleral buckle element (SBE) soft tissue proliferation. Imaging-assisted exploration of the lesion was performed and retained scleral buckle element (SBE) was removed in toto; thus relieving the patient long-standing dystopia.

BACKGROUND

Exogenous silicone elements, including buckles and encircling bands, are important tools, helping the retinal surgeon to provide an external support for retinal attachment. Most surgeons prefer scleral buckling first, in cases of simple rhegmatogenous fresh retinal detachment, superior hemiretinal breaks and in early or no evidence of proliferative vitreoretinopathy. Different case series report incidence of buckle infection and extrusion to range from 1.3% to 24.4%.^{1 2} The downside of scleral buckle explant in these situations is the risk of retinal detachment. The estimated rate of redetachment after SB removal varies from none to up to 33% in cases with persistent vitreous traction and less duration of retinopexy by SBE.

Although Miragel elements have often been reported to simulate orbital tumours because of high incidence of late-onset swelling,³ a tumour-like swelling associated with retained silicone element is not known. A diagnostic dilemma arises because of difficulty in eliciting history of implantation and location of these materials.

We describe a unique complication of retained silicone-based scleral buckle element (SBE) where a retained silicone element masqueraded as an epibulbar mass and its appearance simulated a chocolate cyst.

CASE PRESENTATION

A 23-year-old man presented to our vitreoretinal services with a blue-black superolateral orbital mass with symptoms of diplopia for the past 6 months. He had a history of vitreoretinal surgery for retinal detachment that was performed 4 years ago at a private ophthalmic centre, the detailed records of which were unavailable. His best-corrected visual acuity was 20/60 on Snellen's chart, Hess charting elicited diplopia in right temporal and superior

gazes, there was marked inferonasal dystopia of the eye, movements of superior and lateral rectus muscles were restricted and on indirect ophthalmoscopy, the retina was found to be attached. However, the buckle indent could not be appreciated. The external examination to palpate the buckle elements proved to be inadequate owing to the marked epibulbar swelling and discolouration ([figure 1A](#)). Histopathology of the cyst wall revealed hyperplastic stratified squamous epithelium with loosely arranged subepithelial collagen, lymphocytes and red blood cells ([figure 1E](#)). Cytopathology of the aspirated brown fluid showed numerous pigmented laden macrophages along with inflammatory cells ([figure 1F](#)) and was sterile on culture.

INVESTIGATIONS

In view of inability to find the cause of the mass lesion, an orbital CT scan was ordered, which showed an anterolaterally migrated buckle-band complex along with adjacent soft tissue proliferation ([figure 1B](#)) with no scleral indentation. On three-dimensional volume rendered (VR) images, malposition of the buckle-band in relation to lateral orbital rim could be discerned ([figure 1C](#)). Further, the band was observed to be loose and retracted ([figure 1D](#)).

Histopathology of the excised cyst wall revealed hyperplastic stratified squamous epithelium with loosely arranged subepithelial collagen, lymphocytes and red blood cells ([figure 1E](#)). Cytopathology of the brown fluid aspirated showed numerous pigmented laden macrophages along with inflammatory cells ([figure 1F](#)) and was sterile on culture.

DIFFERENTIAL DIAGNOSIS

Lymphangioma, haemangioma and post-traumatic haemorrhagic cyst were the primary differential diagnosis. CT imaging was helpful in excluding these above first three conditions and helped in diagnosing the cyst to be an extraocular collection, in relation to retained SBE and very well-documented scleral integrity without any uveal tissue inside it. There was no history of trauma, so post-traumatic haemorrhagic cyst was excluded.

TREATMENT

Imaging-assisted exploration of the lesion was performed. Intraoperatively, a conjunctival incision drew a straw coloured fluid from the encapsulated mass. The fluid was drained following which the SBE could be better seen. It was cut at one end and removed in toto. It was a solid silicone band along with a scleral buckle.

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Figure 1 (A) Blue-black coloured epibulbar mass acquiring the entire temporal aspect of the globe causing nasal dystopia of the eye ball; (B) multiplanar reconstruction axial CT image temporal displacement of the band and buckle, with altered band-buckle and buckle-scleral relationship, and surrounding soft tissue swelling; (C and D) volume rendered three-dimensional CT images showing anterior displacement (arrow) of the buckle to lateral orbital rim, and loosened and retracted band (asterisk); (E) histopathology of the cyst wall showing hyperplastic stratified squamous epithelium and loosely arranged subepithelial collagen, lymphocytes and red blood cells; (F) cytopathology of aspirated chocolate coloured fluid showing numerous pigment laden macrophages with some inflammatory cells.

The underlying sclera was found to be intact. The excised cyst and aspirated fluid was sent for histopathology and cytopathology examination.

OUTCOME AND FOLLOW-UP

Postoperatively, the patient was relieved of his diplopia and his dystopia was corrected with full gain of extraocular movements (figure 2).

DISCUSSION

Chocolate or haematic crystals are cystic lesions with collections of blood and its products, giving them a brownish hue. Usually, they result from intratumoural haemorrhage within a dermoid cyst, post-traumatic or spontaneous orbital haemorrhage, and vascular lesions such as lymphangiomas and haemangiomas.⁴

Numerous complications have been attributed to hydrogel implants, such as orbital pseudotumours, as a result of which

Figure 2 (A–F) Preoperative and postoperative clinical photograph in three gazes showing resolution of dystopia and restoration of movement temporally.

multimodality imaging is well described in cases of hydrogel implants.⁵ The development of a chocolate cyst resulting from haemorrhage within an encapsulated silicone SBE after an

Patient's perspective

After surgery I have been relieved of double vision and I am aesthetically looking better.

Learning points

- ▶ Encapsulated scleral buckle elements can lead to chocolate cysts.
- ▶ Three-dimensional volume rendered CT imaging is useful in eliciting the exact relationship between the orbit, and the band and buckle elements, and thus can be of use in cases of scleral buckle-related complications.
- ▶ Excised cyst and fluid should be sent for histopathology and cytopathology examination to rule out any malignancy.

event of inflammation or infection has not been reported. In this rare development, CT imaging was helpful in diagnosing the cyst to be an extraocular collection in relation to retained SBE and very well documented scleral integrity without any uveal tissue. VR imaging was useful in eliciting the exact relationship between the orbit, and the band and buckle elements, and thus can be of use in other such cases of scleral buckle-related complications.

Competing interests None declared.

Patient consent Obtained.

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