Managing a case of buckle intrusion with recurrent vitreous haemorrhage: a case report

Sharan Shetty¹ and Muna Bhende²

Introduction

Scleral buckling (SB) with silicone implants is an effective method to reattach the retina. Silicone implants used for SB in retinal detachment surgery have been associated with various complications which include buckle infection, granuloma formation, extrusion of the implant through the conjunctiva, double vision and restriction of ocular motility. Intrusion of the implant through the sclera may develop due to progressive scleral thinning.¹

Intrusion is defined as erosion, followed by protrusion of the scleral implant into the vitreous cavity. The intruding material may either be the material implanted on the sclera or the sutures. Intrusion of the buckle through the sclera into the subretinal space is particularly difficult to manage and can result in severe vision loss, recurrent retinal detachment and subretinal or vitreous hemorrhage.² We report a case of a patient suffering from recurrent vitreous haemorrhages following scleral buckle intrusion 14 years after surgery, managed by buckle removal without removing the encirclage band.

Case report

A 31-year-old male presented to us with history of recurrent floaters in the left eye since 3 months. He had undergone SB 14 years back for rhegmatogenous retinal detachment following a blunt trauma. Patient had good vision following the surgery and was on regular follow-up. He developed recurrent retinal detachment for which he underwent pars plana vitrectomy, 3 months ago. On examination, his best-corrected visual acuity (BCVA) was 20/40 with intraocular pressure of 30 mmHg. Slit-lamp examination was within normal limits. Fundus examination revealed an attached retina with high buckle indentation and buckle intrusion in the inferior half (Figure 1) along with neovascularization and haemorrhage over the area of intrusion (Figure 2). Patient was started on topical 0.5% timolol maleate twice a day. On follow-up visit after a month, he gave a history of one more episode of vitreous haemorrhage. On examination, subconjunctival haemorrhage was noted over the superior bulbar conjunctiva with anterior migration of the buckle element. Patient was put on a full course of oral antibiotic along with topical antibiotics and was advised removal of the segmental buckle. General anaesthesia was preferred in view of high chance of intraoperative globe rupture. However, patient did not undergo the surgery and reported back to us after 3 months. Anterior migration of the scleral buckle was noted this visit. Patient was taken up for scleral buckle removal along with trimming the encirclage over the segmental buckle element.

An external approach was planned for buckle removal. A standby scleral graft was made available to patch any visible scleral defect. The conjunctiva and the tenons were dissected of the scleral buckle in the supero-temporal quadrant. The two anchor sutures were cut and removed. The buckle element was cut at the centre and gentle expressed out. The encirclage over the buckle was trimmed and edges were repositioned into the sub-tenons space. The tenons and the conjunctiva were sutured in layers (Figure 3).

Postoperatively, the retina remained attached with a BCVA of 20/30. Two months later, patient had maintained a vision of 20/30 with reduction of intrusions, or is a significant danger to the integrity of the ocular structures.²

Discussion

SB with exogenous material is an effective method to reattach the retina. Retrospective series have reported complications of SB, most commonly extrusion and infection, in 1.3–24.4% of eyes. Intrusion and erosion are rarely reported complications of SB, noted to occur in approximately 4 of 4400 cases.³ It has been associated with myopia because of the related scleral thinning and altered scleral strength.⁴ SB erosion and intrusion may cause visual symptoms and result in retinal detachment, vitreous haemorrhage and endophthalmitis. An intruding or eroding SB may be left untouched unless there is any complications, or is a significant danger to the integrity of the ocular structures.⁵

The decision to remove an SB can be puzzling, as each case is unique. SB removal can be considered necessary if signs and symptoms are progressive or additional complications occur (e.g., endophthalmitis and scleral necrosis). If signs and symptoms are chronic and stable (e.g., extrusion), SB removal is elective. The most dreaded consequence of SB removal is recurrent detachment.⁶ The cause of retinal detachment after buckle removal can be proliferative vitreoretinopathy or a...
Patients with areas of traction or high-risk lesions should have laser prophylaxis before SB removal.

SB removal is performed in the operating room with topical, local or general anaesthesia. A local anaesthetic injection should be performed with

**Figure 1:** Fundus photo montage of the left eye showing attached retina with buckle intrusion in the infero-nasal quadrant.

**Figure 2:** Neovascularization and haemorrhage over the area of buckle intrusion.
Figure 3: (A) Intraoperative photo showing buckle element *in situ* with the encirclage band cut over it. (B) The buckle element is cut at the centre. (C) The buckle element is expressed out. (D) The encirclage band is trimmed and repositioned in the sub-tenons space.

Figure 4: Postoperative fundus photo showing reduction in buckle indent height with resolution of haemorrhage.
caution as many eyes are myopic with a distorted globe after buckle surgery. General anaesthesia should be opted for in cases where scleral necrosis, erosion and intrusion are suspected as chances of globe perforation are high.

Often the SB can be removed with opening one quadrant of conjunctiva or using a pre-existing exposure site. Information of which elements were used and where their ends lie is vital, as dissecting without a clear plan is difficult. When this information is unavailable, SB details can sometimes be gathered by examining the conjunctiva and looking at the buckle indentation on fundus examination. The route of removal of buckle element depends on the degree of intrusion. For example, if the segment is intravitreal then it can be removed via the pars plana.

Depending on the indication, SB-related complications can be managed by 1) cutting the encircling band, 2) removing the exposed segmental buckle element with the other elements left in place and 3) most often, all elements removed along with sutures. Sutures can be removed or left in place, depending on if they are causing problems and their accessibility. Irrigation with antibiotics should be considered after the procedure, particularly with an infected SB. If scleral necrosis or erosion and intrusion are suspected, patch materials and sutures should be kept available.

Removed SB and sutures should be sent for microbiological examination.

In this case, a conservative approach of removal of the just the buckle element without removal of the encirclage was followed as there was anterior migration of the scleral buckle element along with the intrusion of the encirclage in the opposite quadrant.

References