Hematic Cyst Formation After Repair of Blow-out Fracture

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Alloplastic implants are known to be inert for many years, though complications are infrequently reported many years after their insertion. We report the case of a patient who had undergone a blow-out fracture repair five years before the discovery of a hematic cyst. He had been free of symptoms for the first five years after his orbital floor repair but then developed pain on eyeball movement and persistent vertical diplopia, which finally led to surgical intervention. At surgery, a hematic cyst was found to have formed around the implanted silastic plate. When alloplastic material is used in orbital fracture repair, we should be alert for late complications which may occur many years after surgery.

Key words: alloplastic implant, blow-out fracture, complication, hematic cyst, silastic plate

INTRODUCTION

When an orbital floor fracture is repaired, an implant is used to cover the floor defect and to prevent rehemorrhage of the displaced orbital tissues. Alloplastic implants, such as methylmethacrylate, Teflon, silicone, Supramid, and silastic, have been favored by ophthalmologists, whereas plastic surgeons have preferred autogenous materials. Complications associated with alloplastic implants are infrequent, but infection, orbital hemorrhage, implant extrusion, motility restriction, migration of implant causing dacryocystitis, ectropion with scleral show, cystic formation from gelatin film implants, and visual loss have been described. We report the case of a patient who developed a hematic cyst from a silastic plate implanted for his blow-out fracture repair five years previously.

CASE REPORT

A 27-year-old man was referred to our clinic because of diplopia, pain, and injection of his right eye for two days. Five years previously he had undergone an orbital floor fracture repair with a silastic plate on the right eye at the department of plastic surgery of our hospital. He was asymptomatic until he suddenly developed vertical diplopia and pain on extraocular movement. Ocular examination revealed visual acuity of 20/20 in both eyes with normal pupillary response. Intraocular pressure was 26 mm Hg in the right eye, and 14 mm Hg in the left, using the Goldmann applanation tonometer. Chemosis with ciliary injection was noted in the inferior conjunctiva, and 1 mm of proptosis was present in the right eye. There was also 2 mm of scleral show beneath the limbus on the right eye (Fig. 1). Depression of the right eye was moderately restricted, and vertical diplopia was noted in primary gaze and worsened on downgaze. Right hypertropia of 8 prism diopter was measured. CT scans showed a mass between the orbital floor and the inferior rectus muscle of the right eye, giving the impression of an orbital pseudotumor.
film was taken, and the mass was slightly larger than on the previous films. To rule out orbital tumor, surgical exploration was undertaken using an external inferior subciliary incision. Dissection was performed inferior to the inferior orbital rim.

On the periorbital a wire from the previous operation was noted and removed before making an incision on the periorbital, which over the inferior orbital rim was partially eroded, and the implant was faintly visible through this partial erosion. As the periorbital incision was made, a thick brownish fluid gushed out from the subperiosteal space. The silastic plate was surrounded by a fibrous capsule, and the anterior margin of the capsule adhered firmly to the periorbital. It was supposed that it was from this cystic space that the fluid was egressing, since the incision made on the periorbital seemed to simultaneously open the cyst. The fracture site was found to have been replaced by a dense fibrous tissue; the cyst with the silastic plate was completely removed. It measured $3 \times 3 \times 0.7$ cm. Histological examination showed a fibrous cystic wall with some proliferating capillary blood vessels and foreign body giant cells. Immediately after surgery, diplopia disappeared, and six months later the patient was free of symptoms.

**DISCUSSION**

Complications following orbital floor fracture repair have been reported infrequently, and may be divided into two types. One is complications associated with the fracture itself, and the other is complications associated with the implants used during the surgical repair. Alloplastic implants are generally well tolerated and inert, but complications may develop at any time. Mauriello et al. reported three patient who developed proptosis 13 to 20 years after a Teflon® implantation, and hemorrhage into the fibrous capsule surrounding the implant was responsible for the development of late proptosis. Sutula and Palu reported a delayed cyst 21 years after the repair of an orbital fracture with a silicone implant which had migrated and was believed to have caused repeated bleeding. Incomplete absorption of absorbable gelatin film may lead to cyst formation. Jordan et al. reviewed the complications secondary to alloplastic implants,
including two cases of cyst formation.1

We believe that in our case, the silastic implant had partially migrated anteriorly and had eroded the periosteum and surrounding capsule, causing inflammatory signs and probably hemorrhage into the fibrous capsule. Medical treatment had allowed the inflammatory symptoms, but not the diplopia, to subside. Due to restricted motility and persistent vertical diplopia, a decision was made to carry out surgical exploration. After surgical removal of the implant and fibrous capsule, the patient was free of diplopia, and motility returned to normal.

The overall incidence of complications with alloplastic implant has not been exactly reported, but is believed to be relatively low. Although alloplastic implants may be inert for many years and give a false sensation of safety, we should be aware of these late complications because they can occur even twenty or more years after insertion.

REFERENCES