IMPORTANCE OF CHOOSING INTRAOCULAR IMPLANTS AFTER EVISCERATION

ABSTRACT

Objective: To describe a case of implant complication after evisceration.

Results: The patient was 28 years old and presented to the emergency department with left retro-orbital pain and progressive worsening for one month, associated with abundant purulent oozing secretions. There was a history of ocular trauma and evisceration of the left eye five years previously, with placement of an intraocular ball. The examination of the left orbital cavity revealed palpebral edema, externalization of the deteriorated hydroxyapatite ball, absence of sclera and conjunctiva, and abundant purulent yellowish secretions. The patient underwent emergency lavage. Antibiotic therapyand revision surgery were performed. The evolution wasfavorable.

Keys-words: evisceration, beads, antibiotherapy, implant, ball

Introduction

The evisceration is a surgical procedure designed to remove the contents of the eyeball in cases of non-functional, unsightly, painful or phthisic eyes. After evisceration, the orbital volume needs to be reconstituted to restore normal anatomy, which is essential for aesthetic and stable rehabilitation over time. Many complications associated with implants (beads) have been described, hence the importance of making the right choice of implant and surgical technique prior to surgery. We report the case of a patient admitted for a post-evisceration complication.

Case presentation

The patient was 28 years old and presented to the emergency department with left retro-orbital pain, with progressive worsening for one month, associated with abundant purulent

oozing secretions. There was a history of ocular trauma and evisceration of the left eye five years previously, with placement of an intraocular ball.

The examination of the left orbital cavity revealed palpebral edema, externalization of the deteriorated hydroxyapatite ball, absence of sclera and conjunctiva, and abundant purulent yellowish secretions (picture1). The examination of the adelphic eye was normal.

The patient underwent emergency lavage with dilute povidone-iodine and 0.9% isotonic saline. The antibiotic therapy was amoxicillin + clavulanic acid and revision surgery were performed.

The surgical revision consisted in removing the hydroxyapatite ball (picture 2), replacing it with a silicone ball, suturing the muscle flaps (picture 3-4) and inserting a conformer. A conjunctival graft (with sublabial flap) was planned at a distance. The evolution wasfavorable.

Discussion

Eyeball mutilation surgery occupies a special place in ophthalmic surgery. It must be performed by an experienced team, to limit post-operative complications and easily adapt a quality prosthesis [1]. The most frequent complication is implant exposure. The choice of orbital implant (ball) remains an important step. It depends on: the diameter of the globe, the surgical technique used (non- or conservative evisceration, table evisceration) [1]. Different types of intraorbital implant exist, but nowadays it's the biocolonizable implants that are the benchmark: Synthetic hydroxyapatite (HA), alumina, covered beads [1].

However, it can be difficult to insert a biocolonizable porous orbital implant of sufficient volume after conventional evisceration. That's why, in 2004, X. Morrel proposed the "four squares" surgical technique, which enables petal-like closure, thus facilitating the implantation of large beads. In a study of 15 patients, the <<four squares>> technique proved effective, with no complications noted for a 12.4-month setback [2]. Furthermore, in 2014 Delmas found in his study that the two-stage Müller muscle flap technique enables local treatment of bead exposure using a pedicled autologous flap from the homolateral upper eyelid with good results (68% success rate)[3].

The HA beads, which are more affordable, are recommended for table evisceration or enucleation, and above all for the treatment of anophthalmic eye syndrome.

A number of complications have been described, and the choice of beads must take into account the characteristics of the different beads, the size of the bead, but also the long-term cost and therefore the socio-economic level of patients, to avoid additional surgery for patients.

Implant exposure is a frequent complication of hydroxyapatite beads. The histological examination of explanted implants shows intense inflammation adjacent to the exposure zone and a proliferation of epithelial cells within the bead pores, putting the container at risk of contraction. A prompt intervention and coverage of large exposures will minimize conjunctival contraction. [4]

The explantation guarantees the removal of irritating HA spicules from buried inflammatory and epithelial cells [4]. Indeed, the rough surface of HA implants is a source of chronic inflammation, leading in some cases to the destruction of the sclera and conjunctiva [5].

Most beads are made of glass. PMMA (poly methyl methacrylate) or silicone carry the risk of rejection, infection or allergy, but also because these materials are not capable of being vascularized and colonized by the surrounding tissues, and therefore do not allow oculomotor muscles to attach directly to the bead[6].

The current intraorbital beads are made of natural or synthetic hydroxyapatite (HA)[7, 8]. This material has the advantage of being partially biocompatible, non-toxic, non-allergenic to humans[9, 10] and, above all,the arevascularizable and colonizable by the surrounding fibro-vascular tissues due to the existence of intercommunicating pores of regular diameter[6].There are also someintraorbital beads made of hydroxyapatite and tricalcium phosphate, which are not only integrated by the organism, but also "digested" and transformed into bone by it [6].

Nunery studied 137 eyes, comparing the exposure risks of hydroxyapatite and silicone implants, and found that hydroxyapatite implants were more likely to be exposed after implantation, due to the greater inflammation they generate [10], in contrast to some studies which found less exposure with HA beads [2]. The statistical analysis did not include implant size as an exposure factor [10]. The risk factors for exposure include: superficial implant placement, absence of sutures, too-tight sutures of tenon's fascia and conjunctiva, infection, use of antimetabolites or radiotherapy [11].

Conclusion

The use of a hydroxyapatite implant is particularly well tolerated, even in the pediatric population. To avoid complications, a compromise must be found between the indication, the technique and a sufficient implant diameter to achieve a good aesthetic result. The complications associated with the use of hydroxyapatite beads must be known to enable appropriate management.

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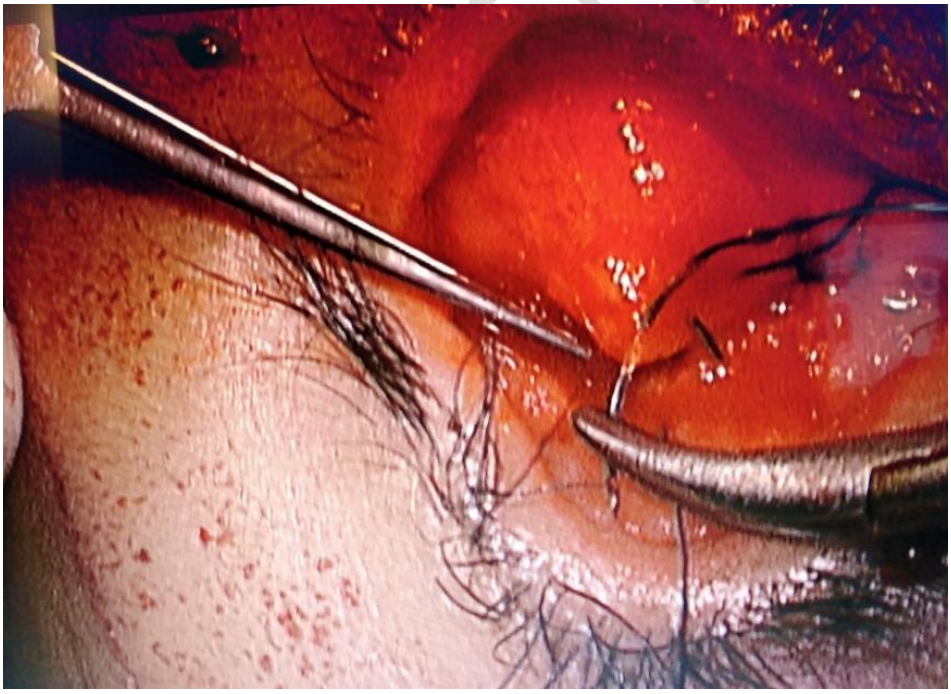
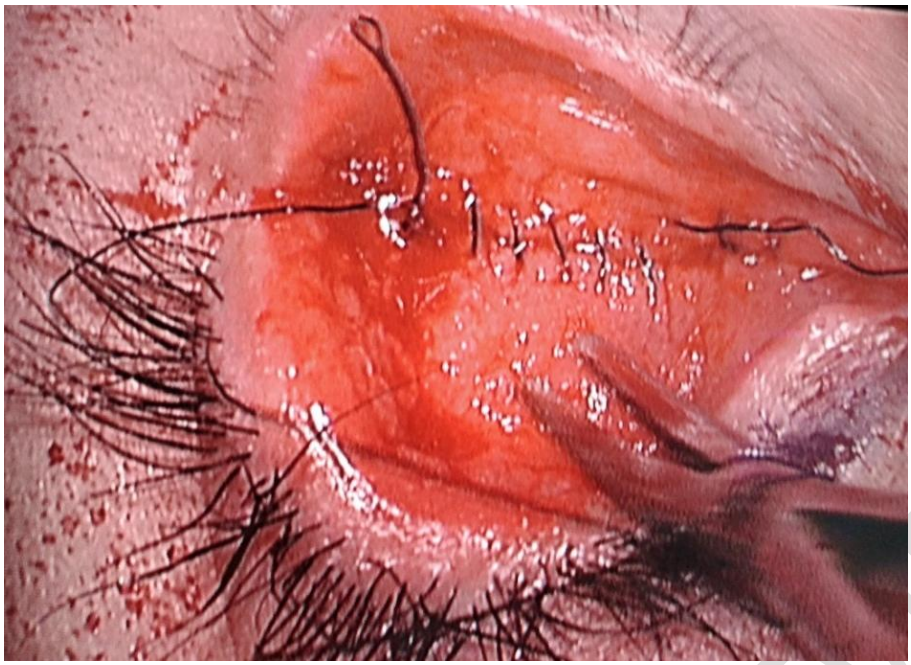
Picture 1: Exposedintraocular implant

Picture 2 : Exposed intraocular implant



Picture 3 :closure of the muscle plane after insertion of the silicone bead



Picture 4:suture of muscle lamellae completed