CASE REPORT

Post-traumatic iridodialysis, crystalline dislocation and vitreous haemorrhage: how to manage

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Accepted 30 July 2014

SUMMARY

A 66-year-old man, while taking care of his horse, sustained a blunt, non-penetrating injury to the right side of his face, which damaged his eye. On slit lamp examination, iris dialysis and crystalline dislocation in the vitreous chamber were observed. On presentation, his best correct visual acuity was hand motion. A 23 G vitrectomy and subsequently an iris reconstruction and a glued intraocular lens implant were performed. Visual acuity reached +0.1 logMAR 1 month after surgery and remained stable after 12 months' follow-up.

CASE PRESENTATION

An ocular trauma is a sudden, unexpected event, with no predictable consequences. This is a case report of a 66-year-old man, who came to our emergency department after blunt, not penetrating facial trauma. He received a horse headshot on the right side of his face. Objective examination of the eye showed periocular haematoma, oedema of the upper eyelid, subconjunctival haemorrhage, conjunctival chemosis, corneal oedema and iridodialysis in the nasal field, between 11 o'clock and 3 o'clock; the crystalline appeared incompletely dislocated in the vitreous chamber. A Seidel test revealed no leakage from the anterior chamber. Visual acuity was hand motion and the fundus oculi examination showed vitreous haemorrhage; no retinal damage was found.

BACKGROUND

Ocular trauma is a common cause of visual impairment. Appropriate and timely ocular surgeries with meticulous methods and good surgical instruments can improve final visual acuity.

INVESTIGATIONS

At the first aid department, a CT was performed (figure 1). The neuroradiologist reported a thin

Figure 1 CT images.

Figure 2 Ultrasonography.

To cite: Loiudice P, Casini G. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2014-205595

Figure 3 Carving of a limbus parallel tunnel with a 25 G needle.

fracture line at the right orbital floor. The patient was visited by a maxillofacial surgeon, who suggested he should not blow his nose; he was given antibiotic coverage and told to present for clinical reassessment in 2 days. In our ophthalmology department an ocular ultrasonography (figure 2) revealed no retinal detachment, mild choroidal congestion, diffuse vitreous haemorrhage and uncompleted dislocation of crystalline in the vitreous chamber. According to the maxillofacial surgeon's revaluation, there was no need to treat the orbital line of fracture.

Informed consent was obtained, explaining purposes, limitations and possible complications of the surgical procedure.

TREATMENT

Surgical procedure

The surgery took place as follows: 23 G vitrectomy, introduction of perfluoro-n-octane (HPF 8) protecting macula, crystalline removal using vitrectome, sterile air introduction, endolaser and exchange between sterile air and perfluoropropane (C3F8) as tamponade agent. Almost 1 month later, as a result of his improved clinical and inflammatory conditions, a new surgical procedure was performed, seeking visual acuity improvement. A suture-less glued intraocular lens (IOL) was implanted, closing the scleral flaps and the conjunctive with fibrin glue. The surgical procedure implied opening of the conjunctiva in the

Figure 5 The intraocular lens haptics have been incarcerated in the sclera's tunnel.

temporal and nasal field, sclerotomy with a 20 G needle, carving of a limbus parallel tunnel with a 25 G needle (figure 3), into the sclera's stroma. The IOL's haptics have been incarcerated in the sclera's tunnel (figures 4 and 5). Iris reconstruction was also carried out using a 10-0 prolene suture anchoring the iris to the sclera (figures 6 and 7). The final result was an almost regular and circular iris shape (figure 8). Fundus oculi examination revealed no retinal damage and normal trophism of the macula (figure 9).

OUTCOME AND FOLLOW-UP

Postoperative examination revealed a progressive improvement of best corrected visual acuity at +0.3 logMAR 1 day after IOL implant, reaching +0.1 logMAR 1 month later and remaining stable after 12 months' follow-up. IOL resulted well centred, correctly positioned; fundus oculi examination revealed normal trophism of the macula.

DISCUSSION

Between 38% and 52% of patients presenting to the ophthalmic emergency department experienced an ocular trauma, which is a common cause of visual impairment.^{1 2} Most of them receive ambulatory care and only 1–2% need hospitalisation.^{3 4}

Figure 4 The intraocular lens after insertion.

Figure 6 Prolene 10-0 suture throughout the iris stroma.

Figure 7 Anchoring prolene 10-0 suture to the sclera.

Mechanical eye trauma may be divided into two categories: open globe and closed globe. According to the Birmingham Eye Trauma Terminology System,⁵ our patient's trauma was classified as a contusion, a closed globe injury in which the energy transfer from object to globe causes damage inside the eyewall. A thorough medical history is necessary to well manage the patient who experiences an ocular trauma. A fluorescein Seidel test can provide information if there is a full-thickness wound. In case of blunt trauma, a blowout fracture must be suspected,⁶ especially in case of extrinsic ocular motility alterations.⁷ A skull orbits CT may be necessary. Depending on the CT report, a neuroradiologist or a maxillofacial surgeon evaluation might be useful. The consequences of ocular blunt trauma might not be predictable and may include various conditions such as iridodialysis,⁸ corectopia, traumatic cataract,^{9–10} vitreous haemorrhage, proliferative vitreoretinopathy and macular tractional retinal detachment.^{11–12} Each of the aforementioned eventualities should be appropriately treated. In our case, we performed a cataract surgery and a 23 G vitrectomy in order to treat vitreous haemorrhage and allow a complete retinal inspection, searching for any retinal damage. A second-line surgery was planned for a better visual outcome. A combined iridodialysis correction and a secondary IOL implant were performed. Many authors propose different techniques for iris repair. Dağlioğlu *et al*¹³ advises the use of an 8-0 polypropylene suture, which is thicker,

Figure 8 Final result, regular and circular iris shape.

Figure 9 Fundus oculi examination.

cheaper and more durable than 10-0 sutures and may provide better iris repositioning. Khokhar *et al*¹⁴ describe a bimanual technique for iridodialysis repair using a bent 26 G needle and a 9-0 prolene suture. We used a 10-0 prolene suture, which provided, in our opinion, a better and more durable iris repositioning, anchoring the iris flap to the sclera. After surgery, the iris appeared well centred and with circular regular shape; a moderate and acceptable degree of pupillary motility was conserved. We may conclude that appropriate and timely ocular surgeries with meticulous methods and good surgical instruments can improve final visual acuity.

Patient's perspective

- ▶ Complete patient satisfaction for medical and surgical treatment and final visual outcome.

Learning points

- ▶ Take a thorough medical history.
- ▶ Classify trauma as open globe and closed globe.
- ▶ In case of extrinsic ocular motility alterations suspect a blowout fracture.
- ▶ Carry out a complete retinal inspection, searching for any retinal damage.
- ▶ Aim to improve final visual outcome.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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