

Ocular perforating injury by an acupuncture needle: two cases reports

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Dear Editor,

We report two rare cases of ocular perforating injuries caused by acupuncture needles. Both cases were approved by the Ethics Committee of Xi'an People's Hospital (Xi'an No.4 Hospital) (KJLL-Z-K-2023060). Written informed consents were obtained from the patients. Acupuncture is an integral part of traditional Chinese medicine, and is widely used for the treatment of systemic diseases and ophthalmologic diseases^[1-8], such as paralysis caused by stroke^[4], diabetes^[7], dry eye disease^[8], pigmentary degeneration of retina, macular degeneration, glaucoma, and optic atrophy^[6]. Improper acupuncture technique can lead to accidents.

CASE REPORT

Case 1 is a 51-year-old woman, who presented with decreased vision in her left eye since the previous day. While undergoing acupuncture for hypertension, she was accidentally stabbed in the left eye with an acupuncture needle, causing pain and decreased vision. On examination, the visual acuity (VA) was 20/25 in the right eye and hand motion at 50 cm in the left eye, the intraocular pressure (IOP) was 12.8 mm Hg in the right eye and 24.3 mm Hg in the left eye. The examination of the left eye revealed mild conjunctival congestion, mild corneal edema, a small clump of white substance resembling pus and blood accumulation in the lower 1/3 of the anterior chamber, aqueous flare (++), cell (++), mild opacity of the crystalline lens, and there were no external signs of

the wound entry. Dilated funduscopy revealed a vitreous hemorrhage, and unclear visualization of other posterior segment structures. An ultrasound scan of the eye revealed vitreous opacity. The examination of the right eye was unremarkable. The initial diagnosis was penetrating eye injury, traumatic anterior chamber hemorrhage, traumatic cataract, and vitreous hemorrhage of the left eye. Managed with phacoemulsification, pars plana vitrectomy and intraocular lens implantation was provided. Intraoperatively, it was confirmed that the temporal posterior capsule of the lens was ruptured, and some of the lens cortex fell into the vitreous body, and there were multiple retinal hemorrhage and 2 separate retinal holes. One retinal needle hole was located behind the 4-o'clock serrated edge, and another needle hole was located anterior to the 10-o'clock serrated edge, both holes were accompanied by pre-retinal and subretinal hemorrhage. Laser photocoagulation around both retinal holes was performed (Figure 1). Antibiotic eye drops and intravenous cefotaxime were administered after surgery. Two months postoperatively, the best corrected visual acuity (BCVA) was 20/40. The retina remained flat with mild macular edema.

Case 2 is a 59-year-old woman, who presented with sudden vision loss in her left eye for the past 3d. This occurred after the patient underwent acupuncture for facial paralysis. When a needle was removed, she suddenly felt that her left eye was obscured by a black shadow and vision declined. On examination, VA was 20/33 in the right eye and counting fingers in the left eye, IOP was 15 mm Hg in the right eye and 20 mm Hg in the left eye. Examination revealed mild conjunctival congestion, and there were no external signs of the wound entry. Dilated funduscopy revealed a vitreous hemorrhage, and unclear visualization of other posterior segment structures. An ultrasound scan of the left eye revealed vitreous opacity. The right eye examination was unremarkable. The initial diagnosis was penetrating eye injury and vitreous hemorrhage of the left eye. Pars plana vitrectomy was performed, and intraoperatively, it was confirmed that there were 2 separate wounds. An irregular retinal tear was visible in the peripheral retina at 12-o'clock with hemorrhage, and another retinal hole was visible at 6:30-o'clock. Laser photocoagulation around both retinal holes was performed.

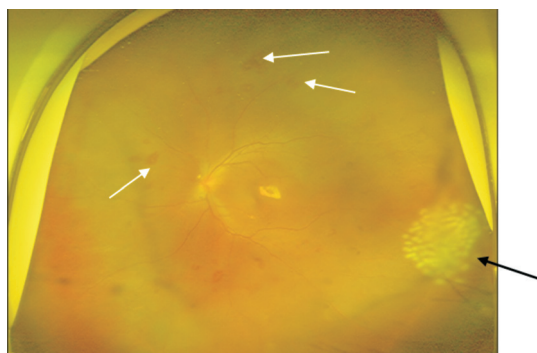


Figure 1 Case 1 Color fundus photograph of 1d post-operation showing retinal hemorrhage (white arrow) and laser spots at the 4-o'clock position (black arrow).

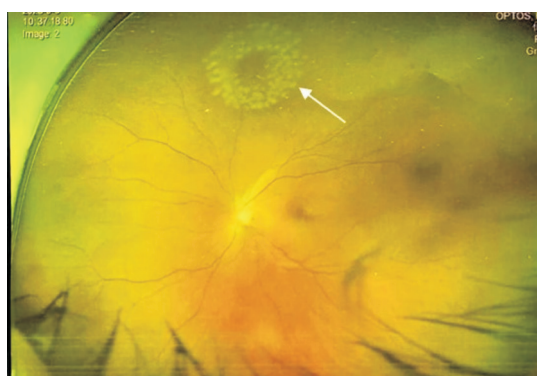


Figure 2 Case 2 Color fundus photograph of 50d post-operation showing laser spots at the 12-o'clock position (white arrow).

Antibiotic eye drops and intravenous cefotaxime were administered after surgery. Fifty days postoperatively, the BCVA was 20/25. The retina remained flat with no postoperative complications (Figure 2).

DISCUSSION

Acupuncture therapy has been considered an effective method for thousands of years. It refers to the practice of inserting sterile needles into a specific body area (acupoint) at a certain angle under the guidance of traditional Chinese medicine theory, and using acupuncture techniques such as twisting and lifting to stimulate specific parts of the body in order to treat diseases^[9]. Ocular injury caused by an acupuncture needle is rare and serious, which can cause damage to multiple intraocular tissues. One report described a patient who developed endogenous endophthalmitis following acupuncture, which led to vision loss^[10]. To date, there have been merely few case reports about penetrating eye injury or traumatic cataract caused by an acupuncture needle^[10-13].

Both cases we reported developed ocular perforating injury caused by acupuncture needles, with the entrance and exit wounds located at different quadrants of the retina, and the exit located in the opposite side of the entrance, which were confirmed intraoperatively. In both cases, perforating needle injury led to retinal injury and vitreous hemorrhage, which could not be fully managed by retinal laser treatment

alone. Consequently, vitrectomy was essential to prevent retinal detachment, proliferative vitreoretinopathy, and endophthalmitis. Fortunately, both patients experienced relatively good outcomes, indicating that early treatment may have a good prognosis.

Both patients were treated with the same model of acupuncture needles, featuring stainless steel round tips, measuring 0.25 mm in diameter and 40 mm in length. Common periorbital acupuncture sites are adjacent to the orbital rim^[14]. Therefore, non-standard acupuncture technique can easily cause ocular injury, including traumatic cataract, perforating injury, or even endophthalmitis. No external signs of the wound entry were found in either case. This may be due to that the acupuncture needles are slim and sharp.

In conclusion, ocular perforating injury caused by acupuncture needle is rare, however they may have poor prognosis. Early treatment is crucial for this kind of ocular injury. Moreover, standardized acupuncture procedures should be rigorously implemented, and education on eye trauma should be promoted to reduce its incidence.

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