Removal of Intraocular foreign body by 25-Gauge Microincision Vitrectomy

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To evaluate the anatomical and functional outcomes of transconjunctival 25-gauge pars plana vitrectomy (PPV) for the patients with intraocular foreign body (IOFB) retained in the posterior segment.
METHODS

This retrospective study reviews the patients’ charts of 8 consecutive patients with posterior segment IOFB who underwent 25-gauge PPV and IOFB removal combined with phacoemulsification.

The preoperative, intraoperative, postoperative clinical parameters and outcomes were assessed.

- age,
- sex,
- entry site of the IOFB (Zone 1 for the cornea, Zone 2 for the sclera up to 5 mm posterior to the limbus, and Zone 3 for the sclera more than 5 mm posterior to the limbus),
- IOFB characteristics,
- the initial and last-visit best-corrected visual acuity (BCVA),
- details of the surgical procedures,
RESULTS

- 8 (all patients were male) patients with a mean age of 28.8 ± 5.3 years were recorded.
- Foreign body entry points involved zon 1 in 6 (75%) eyes, zon 2 in 2 (25) eyes.
- The median interval between the time of injury and IOFB removal was 4 (1-16) days.
- All IOFB materials were metallic.
- The patients were followed for 20 (min:6-max:40) months.
- All patients had lens injury and traumatic cataract.
- 25-gauge PPV and IOFB removal combined with phacoemulsification was applied all of the eyes.
  - The surgical procedures were performed by one trained vitreoretinal surgeon (P.Y.) under general or local anesthesia. Membran blue was used to better visualize the anterior capsule before capsulotomy when anterior capsule was not intact. Bimanual aspiration was performed when the nucleus was soft; phacoemulsification was performed prior to PPV via a 2.8 mm clear corneal tunnel with a standard technique when the nucleus was harder.
  - All patients underwent 25-gauge vitrectomy. A standard 25-gauge transconjunctival PPV was performed to find and release the IOFB. With the foreign body forceps; IOFB was retrieved and safely placed in the anterior chamber. After stabilization of the anterior chamber with viscoelastic injection, IOFB extraction through the corneal incision was performed. IOL implantation was delayed until the end of the surgery.
- Anatomical success was achieved in all of the eyes and visual acuity improved in all patients.
- No complications related to the procedure were observed.
- 5 of 8 (62.5%) patients achieved a visual acuity of 20/40 or better.
RESULTS

Intraocular metallic foreign body

Preoperative color fundus photograph of a patient with metallic IOFB

25-gauge PPV and IOFB removal combined with phacoemulsification

Postoperative anterior segment photograph of the patient (after 60 days from the surgery)

Postoperative color fundus photograph of the patient (after 60 days from the surgery)
DISCUSSION

- 25-gauge approach allows a less traumatic appearance, less intraocular inflammation, and more rapid healing of sclerotomies when compared with 20-gauge PPV (1).
- Advances in small-gauge (25-gauge or 27-gauge) vitrectomy instrumentation and surgical techniques have increased indications for complex cases (2,3).
- The use of 25-gauge vitrectomy to remove intraocular foreign body has also been reported (3,4).

Thanks to the improvement in the surgical procedures, 25-gauge PPV is and effective and safe approach in the surgical management of the patients with posterior segment intraocular foreign bodies and lens injury.