Vitreoretinal Surgery on Video

Tape 5

Traumatic retinal detachment (II)

Late traumatic retinal detachment (RD) combined with proliferative vitreoretinopathy (PVR)
Traumatic RD after double perforation
Traumatic RD combined with giant retinal tear (GRT)
Intraocular foreign bodies
Traumatic RD combined with destruction of anterior segment - use of temporary keratoprosthesis

Surgeons:
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Text:
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“Vitreoretinal Surgery on Video” shows a selection of operations performed in the last eight to ten years. The series is meant for vitreoretinal surgeons who have mastered the initial difficulties of this area and now encounter more and more difficult cases in their daily work. Nonetheless, even the experienced vitreoretinal surgeon, who does not exclude any patients from his practice but treats even the most complicated cases himself, will find difficult cases here in all the regular indication groups.

The cases on the videos are divided into the usual indication groups.

From the point of view of philosophy and surgical concepts, vitreoretinal surgery has not changed much in the last ten years. The surgery undertaken in this series is based on the philosophy and surgical concepts described in my book *Silicone Oil in Vitreoretinal Surgery*, which are still valid. The field has, however, undergone significant modifications in its techniques. The development of new instruments, the introduction of the perfluorocarbon liquid (PFCL) and of the wide angle system are the most important recent innovations. This development can be followed on the videos in the selection of cases, but none of the cases presented can be seen as an isolated technique. On the contrary, surgeons who are not in the situation to apply the most recent techniques in their daily work will be able to see how it is possible to operate successfully with less sophisticated means. Surgeons who are in a position to apply all the modern techniques available will also find sufficiently many cases of interest.

The videos are divided into several texts and films. Each text gives relevant facts on the patient, a description of the course of the operation, with the emphasis on specific moments in the surgery, and the instruments which were used. The videos on proliferative diabetic retinopathy and on macular surgery do not always follow...
the described pattern, for obvious reasons. In a number of cases we have added a short comment.

In most cases, the surgery was performed by myself, in some, particularly in the macular surgery and miscellaneous videos, the surgeon was Dr. Carel Claes. The name of the surgeon is given after each case. The text and comment of the course of the operations was written by Dr. Taraprasad Das in cooperation with myself. Most instruments presented and used in the surgery were manufactured by the Dutch Ophthalmic Research Center International.

R. Živojnović, M.D.

PART I

Patient data

Thirty-year old male patient, penetrating injury in the left eye with retained metallic intraocular foreign body. Within a few hours after the injury, the patient developed star-shaped corneoscleral laceration, partial damage to the lens and vitreous hemorrhage.

Surgery

1. Exploration of the wound site and wound cleaning. Excision of the iris and vitreous incarcerated in the wound.

2. Core pars plana vitrectomy. Foreign body was seen lying on the retina.

3. Extraction of the foreign body with intra-ocular magnet. Before extraction, the long axis of the foreign body was aligned with the sclerotom site, the sclerotomy was enlarged to accommodate the large foreign body.

4. The foreign body was negotiated through the sclerotomy site and finally removed using surgical forceps.

5. Additional vitrectomy done. Retinal laceration nasal to the disc was seen.

6. Lensectomy done since blood was sticking to the back surface of the lens. It was not possible to save the lens without compromising the surgery.

7. After further vitrectomy, retinal detachment without posterior vitreous detachment and star shaped retinal wound similar to the scleral injury was seen.

8. Fluid-silicone oil exchange and simultaneous endodrainage. (The patient was operated before the introduction of PFCL).

Instrumentation

Electric intra-ocular magnet; Sato knife; back-flush needle; needle with side port (19 g) for removal of silicone oil.

Surgeon: R. Živojinović

PART II

Patient data

Forty-five year old male patient, left eye injured in an industrial explosion and the other eye enucleated due to gross mutilation of the eye. He underwent pars plana lensectomy and vitrectomy done. (Details of the surgery not available). One year after the last surgery, the patient developed limbal scar, iris coloboma, lens remnants with total retinal detachment and PVR. A retained intra-ocular foreign body was suspected in the subretinal space.

Surgery

1. Removal of the peripheral lens capsule.
2. The fibrotic remnants and peripheral retina also removed.
3. The subretinal space was inspected, and a large foreign body (non-metallic) was located.
4. Initially, attempt was made to retain the capsule surrounding the foreign body so that it could be grasped and removed, but the foreign body jumped out of the capsule. Several instruments were tried to remove the foreign body, and it was finally removed using surgical forceps.
5. Removal of the subretinal proliferation.
6. The fibrotic scar was diathermised and removed using forceps.

7. Fluid - silicone oil exchange and simultaneous endo-drainage. (The surgery was done before introduction of PFCL).
8. Repositioning of the retina under the silicone oil and endophotocoagulation.

Instrumentation

Serrated, end-gripping forceps; hockey stick forceps; intra-ocular diathermy; silicone-tipped back-flush needle; retinal knob.

Surgeon: R. Živojinović

PART III

Patient data

Forty-year old male patient; right eye injured while hammering a nail. The injury was one day old and primary repair had not been done. The patient had a self-sealing temporal scleral injury, clear lens, a large retained intra-ocular nail, retinal edema and laceration with localised inferior retinal detachment.

Surgery

1. Core pars plana vitrectomy to free the nail from adherent vitreous and hemorrhage. (Movement of the nail during vitrectomy seen).
2. First attempt to remove the foreign body using an intra-ocular magnet through enlarged sclerotomy was not successful.
3. A small spot of retinal hemorrhage occurred due to damage to the retina by movement of the nail and retinal touch.
4. Two sclerotomies were done a few mm apart in the
supero-temporal sclera to accommodate normal surgical forceps. The large nail was grasped, negotiated through the opposite sclerotomy and removed with the help of another pair of surgical forceps.

5. The localised inferior retinal detachment with one hole was repaired with encircling band, radial sponge and fluid - air exchange.

Instrumentation

Intra-ocular magnet; surgical forceps; serrated forceps.

Surgeon: C.Claes

PART IV

Patient data

Forty-year old male patient; right eye injured and the other lost in an explosion. Primary repair of the wound had been done. One year after that surgery, the patient had a large corneal scar and shrunk cornea. The corneal diameter was 6 mm horizontally and 4 mm vertically. The axial length of the globe was 16 mm and there was total funnel retinal detachment, seen on ultrasonography.

Surgery

1. Infusion cannula (8 mm) was sutured to the inferotemporal sclera. Trephination of the cornea and sclera 6 mm. The sclera was included in trephination since the cornea was small.
2. The corneoscleral button was removed.
3. Open sky retinotomy and retinectomy.
5. Inspection and cleaning of the back surface of retina to remove the subretinal proliferation.
7. Superior retina was found to be extremely contracted. The retinotomy was enlarged with additional removal of subretinal proliferation.
8. Depigmentation of the supero-temporal RPE and choroid, typical of long standing retinal detachment.
9. Fluid-silicone oil exchange with simultaneous endodrainage (the surgery done in pre-PFCL era).
10. Endophotocoagulation.
11. Penetrating keratoplasty.

Five years later the patient had severe corneal decompensation. In these five years, he had undergone two more penetrating keratoplasties, and between the surgeries he always had navigational vision. Because every successive graft is smaller than the previous one, a decision was made to implant the permanent kerato-prosthesis (PKP).

· Surgery

1. Lamellar keratectomy.
2. Trephination of cornea 4 mm.
3. The PKP fitted to the trephined corneal wound and the four limbs of the PKP were sutured with 50Å steel suture.
4. The silicone oil was left inside the eye since the eye was chronically hypotonous.

Comments

Steel sutures rather than conventional sutures were selected because they are less reactive, non-inflammatory, non-migrating-and permanent in nature.
Instrumentation

Long infusion cannula (8 mm); corneal trephine; curved vitreous scissors; end-gripping and hockey stick forceps; silicone-tipped back-flush needle; temporary kerato-prosthesis (TKP)-Eckardt type; permanent kerato-prosthesis (PKP)-Worst type.

Surgeons: R. Živojnović, H. Beekhuis.

PART V

Patient data

Twenty-eight year old male patient; left eye injured in explosion. Primary repair of the wound had been done with lens removal. Four months after the last surgery, the patient had a large corneal scar, aphakia, and total closed funnel retinal detachment.

Surgery

1. Placement of the long (8 mm) infusion cannula.
2. Trephination of cornea 6.75 mm.
3. Open sky vitrectomy and bimanual membrane separation using the forceps, scratcher and the spatula. Total retinal detachment with 90° giant retinal tear.
4. Eckardt’s temporary kerato-prosthesis (TKP) sutured.
5. Removal of fresh blood from the funnel of the detachment (the fresh blood had come from current surgical trauma).
6. Initial attempt to open the funnel with injection of perfluorocarbon liquid (PFCL).
7. Inspection of the subretinal space and removal of subretinal proliferations. The peripheral retina was found to be extremely contracted.
8. Injection of additional PFCL, extension of retinotomy, and removal of residual peripheral membranes.
9. Typical intrinsic contraction of the retina. The peripheral contracted retina excised with the vitreous cutter after initial diathermy of the retina.
10. Final injection of PFCL and endophotocoagulation.
11. PFCL-silicone oil exchange.
12. Penetrating keratoplasty.

Instrumentation

Long infusion cannula (8 mm); corneal trephine; end-gripping and hockey stick forceps; long retinal spatula; retinal scratcher; silicone-tipped back-flush needle; Eckardt’s temporary kerato-prosthesis (TKP).

Surgeon: R. Živojnović

PART VI

Patient data

Forty-year old male patient. A shotgun injury to both eyes sustained 4 years ago had caused the left eye to become enucleated. During primary repair of the right eye, an intra-ocular bullet had been noticed. The retina was attached. Encircling band and cryopexy was done and the bullet was left in the eye. Visual acuity 1.0 with attached retina. After 3 or 4 weeks, his visual acuity decreased. He was found to have inferior retinal detachment with macular pucker and retinal tear at 6 o’clock. The bullet was situated at the ora serata at 6 o’clock position.
Surgery

1. Pars plana vitrectomy.
2. Immediately after beginning of pars plana vitrectomy, the bullet passed through the retinal tear under the retina.
4. Injection of PFCL.
5. Moving of the bullet into the vitreous cavity by means of PFCL and retinal knob.
6. Removal of the bullet through the enlarged sclerotomy.
7. To prevent hypotony, temporary suture is placed in the middle of the sclerotomy.
8. Surgical forceps used to remove the bullet through the sclerotomy.
9. PFCL-air exchange.

Instrumentation

Small spatula; end-gripping forceps; retinal knob; surgical forceps.

Surgeon: R. Živojnović

The video series “Vitreoretinal Surgery on Video” by R. Živojnović consists of eight videos, which are available in PAL and NTSC, either separately or as a complete set.

Tape 1. Retinal detachment combined with proliferative vitreoretinopathy (PVR) I
Tape 2. Retinal detachment combined with proliferative vitreoretinopathy (PVR) II
Tape 3. Giant retinal tears (GRT)
Tape 4. Traumatic retinal detachment I
Tape 5. Traumatic retinal detachment II
Tape 6. Proliferative diabetic retinal detachments (PDRD)
Tape 7. Macular surgery
Tape 8. Complications incataract surgery, intraocular tumors and miscellaneous