Vitreoretinal Surgery on Video

Tape 2

Retinal detachment combined with proliferative vitreoretinopathy (PVR) II

Technique without perfluorocarbon liquid (PFCL)
Technique using PFCL
Pseudophacic retinal detachment with PVR
Treatment after failed operation with silicone oil
Treatment of reproliferation behind the silicone oil
Treatment of intrinsic retinal contraction

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Text:
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Tapes in this video series

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 in cataract surgery, intraocular tumors and miscellaneous

Introduction to the series

"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. Živojinović, M.D.

PART I

Patient data

Fifty-five year old female patient. Myopic. She had previously had the following surgery:
1. Scleral buckling for rhegmatogenous RD.
2. Vitrectomy, cataract extraction and intraocular gas for recurrent retinal detachment.
3. Repeated vitrectomy, inferior retinotomy and silicone oil injection for recurrent retinal detachment.

Four months following the last surgery, she developed silicone keratopathy, silicone oil in the anterior chamber, retraction of iris, and total retinal detachment with epiretinal and subretinal membranes. Operation on the right eye.

Surgery

1. Cleaning of the cornea with EDTA.
2. Silicone oil removal.
3. Inspection of the retina showed large epiretinal membranes (ERM) due to perisilicone proliferation. The ERM were removed with help of the retinal scratcher and hockey stick vitreous forceps.
4. Open peripheral retinal break and subretinal proliferations seen. The attempt to remove the subretinal proliferations through the retinal break was not successful.
5. Inferotemporal peripheral diathermy and retinotomy done to help remove the subretinal proliferating membranes.
7. Injection of PFCL to stabilise the posterior retina.
8. A large retropupillary membrane mixed with lens capsule remnants was removed.
9. Stretching of the iris and reconstruction of the diaphragm. Removal of fibrotic tissue from the iris margin. The previous inferior peripheral iridectomy was reopened.
10. Endophotocoagulation and application of diathermy to the pupillary margin.
11. PFCL-silicone oil exchange.

Instrumentation

Retinal scratcher; hockey stick forceps; serrated end-gripping forceps; silicone-tipped back-flush needle.

Surgeon: R. Živojnović

PART II

Patient data

Thirty-year old female patient with a history of perforating trauma. She had had the following surgery previously:
1. Lens extraction and primary wound repair.
2. Vitrectomy and silicone oil injection.
3. Silicone oil removal two months later.
She had no silicone oil in the eye for a period of six months, and the retina was attached. Then she developed temporal half retinal detachment with open temporal retinotomy and a very contracted retina. Operation on the right eye.

Surgery

1. Identification and removal of the epiretinal membrane using the retinal scratcher. The temporal retinotomy was seen to be open. The macula was very close to the optic disc due to intrinsic contraction of the retina. The subretinal space and the back of the retina also examined for any subretinal membranes - there were none.
2. Retinal massage with the retinal knob in an attempt to decontract the retina.
3. Injection of PFCL to settle the retina.
4. Epiretinal membrane (ERM) at the curled edge of the retinal tear was identified and dissected out. Though the retina appeared settled, there was semilunar contraction around the disc and the macula was still very close to the optic disc.
5. In order to mobilize the retina, PFCL was removed. Additional membranes at the edge of the retinal break were identified and removed, followed by application of diathermy to the edges of the retinal break.
6. Injection of PFCL and PFCL-silicone oil exchange. The necrotic edges of the retinotomy were trimmed with curved vitreous scissors, and removed with the help of the silicone-tipped back-flush needle.
7. Endophotocoagulation.

Instrumentation

Retina scratcher; retinal knob; curved vitreous scissors; hockey stick forceps; end-gripping forceps; silicone-tipped back-flush needle.

Surgeon: R. Živojnović
PART III

Patient data

Seventy-year old male patient. One-eyed. He had previously had the following surgery:
1. Cataract extraction and IOL implantation.
2. Vitrectomy and silicone oil injection for rhegmatogenous retinal detachment.
Six weeks following the last surgery, his visual acuity dropped. On examination, a total retinal detachment with PVR D2 was found. Silicone oil was found both in the anterior chamber and in the subretinal space. The retinal break in the temporal side was open. Operation on the right eye.

Surgery

1. Inspection of the fundus showed total retinal detachment with contracted retina. Removal of the silicone oil using the side port 19 g cannula.
2. Epiretinal membrane (ERM) removal. Initial unimanual attempt, later converted to bimanual peeling. ERM was removed with the help of the retinal scratcher, long retinal spatula, and the hockey stick vitreous forceps.
3. Application of diathermy to the temporal peripheral retina and the temporal retinotomy using the vitreous cutter. This was necessary since the subretinal silicone oil could not be removed through the pre-existing retinal break. Following the retinotomy, the silicone oil flowed into the vitreous cavity, which was subsequently removed. Removal of the anterior retina.
4. Bubbles of PFCL seen in the subretinal space were removed.
5. Removal of subretinal proliferations using the hockey stick vitreous forceps.
6. Injection of PFCL to settle the retina. Injection of air into the anterior chamber. Endophotocoagulation to the areas of retinotomy.
7. PFCL-silicone oil exchange. Additional endophotocoagulation using air bubble in anterior chamber as wide field system.

Instrumentation

Retinal scratcher; long retinal spatula; vitreous forceps: end-gripping and hockey stick; cannula 20 g with side-port for removal of silicone oil; back-flush needle.

Surgeon: R. Zivojnović

PART IV

Patient data

Twelve-year old male patient; operation on the left eye. One-eyed patient. Past surgery.
1. Cataract extraction in both eyes for congenital cataract many years ago.
2. Scleral buckling for rhegmatogenous RD in left eye.
3. Vitreous surgery and gas injection for recurrent RD in left eye.
4. Repeated vitreous surgery and gas injection for recurrent RD.
5. Repeated vitrectomy and silicone oil injection for recurrent RD in left eye.
The right eye was also similarly operated a number of times for recurrent retinal detachment and was finally given up; there was no light perception.
One year after the last surgery he complained of pain, redness and a lack of improvement in vision. On examination, he was found to have silicone oil keratopathy,
silicone oil in the anterior chamber, retraction of the iris, aphakia, subtotal retinal detachment and silicone oil in the subretinal space.

_Surgery_

1. Cleaning of the cornea with EDTA.
2. The sclera in the supero-temporal quadrant was extremely fibrotic, possibly due to calcification of the underlying scar tissue and lens remnants. It was not possible to create a sclerotomy there. A different sclerotomy site, closer to the infusion cannula was therefore chosen.
4. Inspection of the scar behind the iris. Diathermy applied to the scar tissue.
5. Peeling and removal of the epiretinal membranes (ERM). Silicone oil is seen behind the retina.
6. Application of diathermy to the peripheral retina and peripheral retinotomy. Removal of subretinal silicone oil.
7. Retinotomy done for the inferior scar. The intraocular bleeding controlled with diathermy.
8. Epiretinal and subretinal tissues removed with hockey stick vitreous forceps.
10. The iris was freed from the calcified tissues behind, and diathermy was applied to the pupillary margin.
11. PFCL was injected to settle the retina, but this was not successful.
12. The retinotomy was extended to 360° to relieve the traction. The anterior retina and fibrotic tissue were removed.
13. Retinal massage and endophotocoagulation.

The surgery was closed with PFCL-silicone oil exchange.

_Instrumentation_

Cannula with side-port (19 g) for removal of silicone oil; small spatula and scratcher; vitreous forceps: hockey stick; curved vitreous scissors; silicone-tipped back-flush needle.

_Surgeon:_ R. Živojnović

**PART V**

_Patient data_

Forty-five year old male patient, one-eyed. He had previously had the following surgery:
1. Scleral buckling for rhegmatogenous RD.
2. Vitrectomy for recurrent retinal detachment.
3. Vitrectomy, lens extraction and silicone oil injection for recurrent retinal detachment.
Two months after the last surgery he developed total recurrent retinal detachment and had a contracted retina.

_Surgery_

1. Inspection of the fundus showed total retinal detachment with epiretinal membranes (ERM). Bimanual peeling and removal of ERM using the end-gripping and the hockey stick forceps.
2. Application of diathermy to the peripheral nasal retina, and nasal peripheral retinotomy. The fresh bleeding from the retinotomy site entered the subretinal space-removed during surgery.
3. Further ERM peeling.
4. Injection of PFCL.
5. The retina was still contracted. The retinotomy was extended inferiorly thus causing a 360° retinotomy.
6. Further injection of PFCL. The contraction of the retina particularly around the disc still not relieved. Bimanual massage of the retina using two retinal knobs. The macula was found rotated under the PFCL.

7. The PFCL was removed; the retina derotated and PFCL was reinjected. The macula now appeared apparently in anatomicallly correct position. Removal of the anterior retinal flap. Endophotocoagulation to the retinotomy sited. PFCL - silicone oil exchange.

**Instrumentation**

Small spatula; vitreous forceps: end-gripping and hockey stick; retinal knob; curved scissors; silicone-tipped back-flush needle.

Surgeon: R. Živojinović

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**PART VI**

**Patient data**

Twenty-year old male patient with a temporal scleral rupture 4 to 5 mm from the limbus. He had previously had the following surgery:

1. Primary repair.
2. Two months later he developed total retinal detachment and PVR. Temporal choroidal detachment with choroidal rupture and detached, fibrotic choroid temporally. Pars plana vitrectomy and temporal retinotomy was done. Resection of temporal choroid and reposition of the retina with subsequent silicone oil injection.

Three months after the last surgery he showed a shallow redetachment with both epiretinal and subretinal proliferation coming partially from the choroidal scar.

**Surgery**

1. Pars plana vitrectomy under silicone oil.
2. Membrane peeling.
4. Small retinotomy round the central scar with removal of subretinal proliferation.
5. Cleaning of the edge of retinotomies, endodrainage with additional silicone oil injection.

**Instrumentation**

Long spatula; scratcher; small spatula; end-gripping and hockey stick forceps; silicone-tipped back-flush needle.

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

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