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High Pressure 23G Vitrectomy to Treat Proliferative Vitreoretinopathy

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Abstract

Objective: *To present the 23 gauge3 high pressure vitrectomy (80mmHg), to treat retinal detachment with Proliferative Vitreoretinopathy (PVR) 2.*

Material and methods: *32 patients with retinal detachment and proliferative vitreoretinopathy, treated with 23G vitrectomy, using the Dorc vitrectomy system, using high pressure air infusion (80mmHg) and release of the traction points caused by the PVR through tractional cuts or retinostomy.*

Results: *In all cases we obtained the application of the retina at the end of the surgery. In 4 cases there was re-detachment of the retina, and they underwent surgery again, using the same surgical technique successfully in 3 patients. There was significant improvement in visual acuity in the post-surgery compared to the pre-surgery.*

Conclusion: *High pressure 23G vitrectomy (80mmHg) is a good alternative for the treatment of retinal detachment with Proliferative Vitreoretinopathy (PVR) 2, with the advantage of not needing the use of liquid perfluorocarbon or another.*

Keywords: *retinal detachment; fibroglial; retinotomy; liquid perfluorocarbon; proliferative vitreoretinopathy.*

Introduction

It is important to mention that liquid perfluorocarbon is indicated to treat proliferative vitreoretinopathy and help us to have a better management of the detached retina in this complex case. This substance can cause some complications during vitrectomy, such as toxicity when in contact with the retina, residues that may remain after surgery, accidental passage to the subretinal space.

High pressure vitrectomy with air infusion at 80mmHg is a less expensive technique, and has shown us to be productive without offering difficulties in manipulating the detached retina in cases of PVR², even in the most severe cases it can be performed in less surgical time. In none of the operated cases we had to use the liquid perfluorocarbon.

Material And Methods

Thirty two patients with complex retinal detachment plus proliferative vitreoretinopathy were studied at different stages, divided into two groups:

Group I patients with previous retinal detachment surgery and

Group II patients with more than one retinal detachment surgery.

Both groups were surgically treated with high pressure vitrectomy (80mmHg), using the 23 gauge technique.

The 23 gauge vitrectomy technique is used with an infusion of high pressure air (80mmHg.), Always monitoring the beat of the central retinal artery since with this intraocular pressure it can decrease or stop

the beat and cause a complication severe, and even blindness. We can perform this technique with PVR up to a C1 degree, star-folds, with a more advanced degree of PVR[2], it is not recommended since we will have no other option but to use liquid perfluorocarbon, with the help of a second hand to hold the retina and thus, a safe peeling of the periphery can be performed with removal of the peripheral vitreous. After having carried out the fluid-air exchange, subsequently depending on the case, a retinostomy is performed with endodiathermy or release of retinal tractions with micro scissors, for the release of the traction points caused by PVR. At the retinotomy site, we usually mark with the same endodiathermy a point next to the retinotomy so as not to lose sight of it, in the case of areas of retinal fibrosis or fibroglial bands, we must dedicate ourselves to cutting all these alterations of the proliferative vitreoretinopathy[2] that causes traction and prevents the retina from being applied without difficulty. After this procedure, we begin to aspirate the subretinal fluid through the retinostomy with the extrusion cannula (23G aspiration flute) until the retina is applied, then we perform endolaser impacts around the retinotomy and areas of ruptures prior to surgery. To finish, with the extrusion cannula we suck up the remains that may be at the level of the posterior pole and especially at the level of the optic disc and then place silicone oil [5]. Due to the complexity of the retinal detachment and because of its PVR, we prefer that the silicone oil be 5,000U.

Results

In all cases, we obtained the application of the retina at the end of the surgery. In 4 cases there was a new retinal detachment and they underwent surgery again, using the same surgical technique successfully in 3 patients. There was significant improvement in visual acuity in the post-surgery compared to the pre-surgery.

The group of patients with surgery had a percentage of 18.8%, those who were worse or stable, and 81.2%, the patients who experienced recovery, for the group of patients who had more than one previous surgery, had a percentage 38.5% were those who were worse or stable and 61.5% were those who experienced a recovery. The visual acuity achieved for both *Group I* and *Group II* is detailed in Figures 2 and 3 respectively. The complications that arose in the two groups are detailed in figure 4.

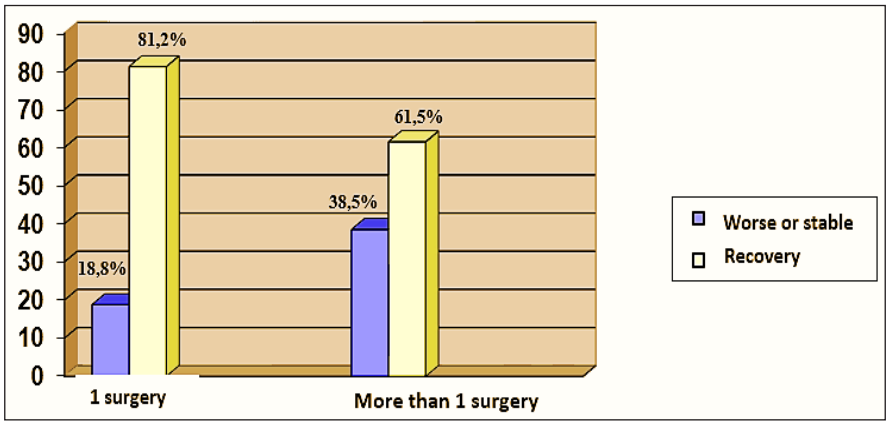

Figure 1. *Number of surgeries performed.*

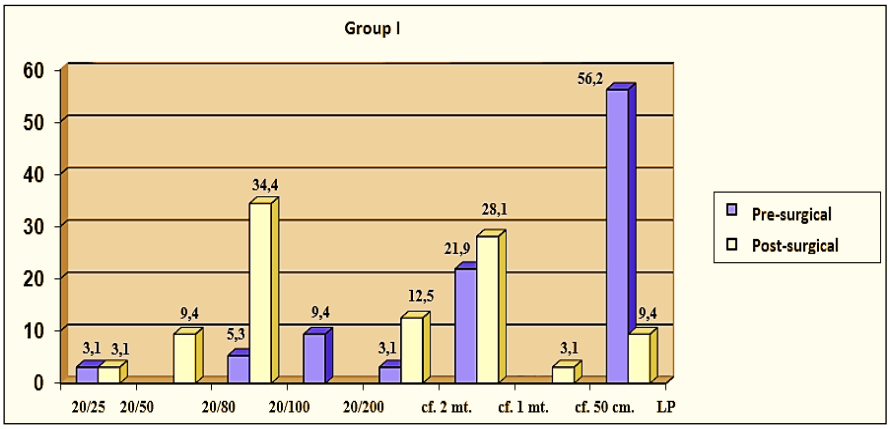

Figure 2. *Visual acuity / cf: Couting fingers – LP: light perception – mt: meter – cm:centimeter.*

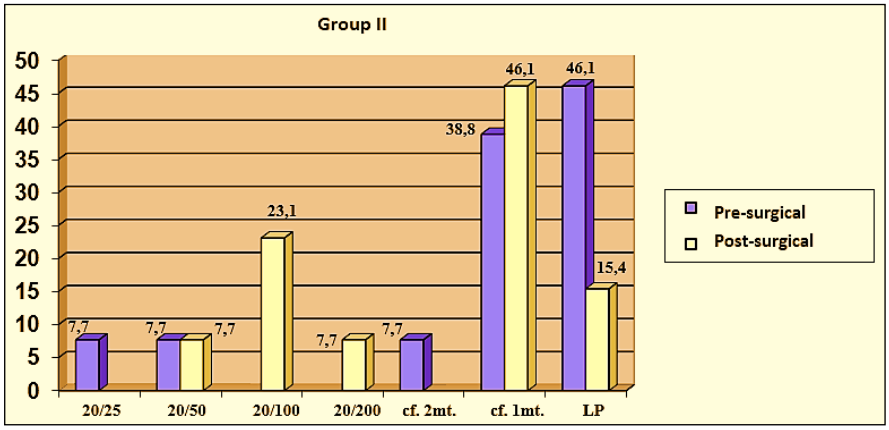

Figure 3. *Visual acuity / cf: Couting fingers – LP: light perception – mt: meter.*

Complications	1 surgery Quantity / %		More than 1 surgery Quantity / %	
None	22	68,7	0	0,0
ERM	5	15,6	0	0,0
PVR	0	0,0	9	69,2
⬆IOP	2	6,3	0	0,0
Hypema / ⬆IOP	1	3,1	0	0,0
Hypotonía / PVR	0	0,0	1	7,7
Hemovítreo / PVR	0	0,0	2	15,4
Perimacular Hemorrhage	1	3,1	0	0,0
ERM / ⬆IOP	1	3,1	0	0,0
PVR / ⬆PIO	0	0,0	1	7,7
TOTAL	32	100,0	13	100,0

Figure 4. *Complications scheme*

- **ERM**= Epiretinal membrane
- **PVR**= Proliferative vitreoretinopathy
- ⬆ **PIO**= Increased intraocular pressure

Discussion

High pressure 23G (80mmHg) vitrectomy is a good alternative for the treatment of retinal detachment with proliferative vitreoretinopathy (PVR), with the advantage of not needing the use of liquid perfluorocarbon.

This technique has shown very good results without major difficulties or complexity during the surgical procedure, lasting approximately 30 to 40 minutes, and even in the most severe cases.

In 23G high pressure vitrectomy (80mmHg), as it is not necessary to use liquid perfluorocarbon, it gives us a little more peace of mind since we will not have the drawbacks that this drug can give us during and after surgery, such as its toxicity, waste that can be left after surgery, the accidental passage to the subretinal space, also taking into account the high cost of this drug.

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