

Case Report

Long Term Results of Pneumatic Retinopexy: A Case Series

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Abstract: Objective: The purpose of this paper is to report the clinical results of pneumatic retinopexy (PR) in 4 cases in pseudophakic patients with rhegmatogenous retinal detachment (RRD). **Materials and Methods:** This was a case series of four patients with pseudophakic retinal detachment. Sulfur hexafluoride (SF6, 100 %), 0.4-0.5 mL was used for retinopexy. All cases were pseudophakic. Visual acuity (in Snellen), intraocular pressure (IOP) and status of retina were used to assess the outcomes of treatment. Postoperative head positioning for 7 days was used in each case. **Results:** Four eyes were treated with SF6 injection for retinal detachment. The follow-up period was 2.5 years. The final visual acuity was > or = 20/100 in all cases. **Conclusion:** Pneumatic retinopexy was safe and simple procedure in pseudophakic patients with retinal detachment at superior quadrant.

Keywords: Pneumatic Retinopexy, Pseudophakic Retinal Detachment, Laser Photocoagulation

INTRODUCTION

Pneumatic retinopexy (PR) is a minimally invasive surgical procedure in the treatment of primary rhegmatogenous retinal detachment (RRD). First introduced in the mid-1980s by Dominguez in Spain, and Hilton and Grizzard in the United States, this technique has been used in a variety of cases all over the world [1-3].

Case report 1

A 66-year-old male patient presented with a history of loss of vision for 2 days in the right eye. He underwent uncomplicated cataract surgery before 2 years. His visual acuity was 20/1250 in the right eye and 20/22.2 in the left eye. Intraocular pressure (IOP) was recorded 11 mmHg in the right eye and 18 mm Hg in the left eye. Dilated fundus examination showed retinal detachment at superior quadrant with an oval tears at 11 o'clock. For retinopexy 0.5 mL SF6 injected into vitreous using a 27 gauge needle. After 2 days 0.2 ml SF6 injected again. Laser photocoagulation (532 nm, 400 µm spot size) was applied around of the tears in 3 days.

Two years later after injections and laser photocoagulation visual acuity was 20/66.6 and IOP 17 mm Hg in the right eye, dilated fundus examination showed attached retina and old laser spots at superior quadrant.

Case report 2

A 70-year-old male patient presented with a history of loss of vision for 2 days in the right eye. He underwent cataract and (Intraocular lens) IOL implantation surgery without complications before 2 years. Visual acuity was 20/400; IOP 9 mm Hg in the right eye and visual acuity was 20/40; IOP 17 mm Hg

in the left eye. He had age related macular degenerations. Dilated fundus examination showed retinal detachment at superior quadrant with retinal tears. The patient received 0.5 mL SF6 via injection from 3.5 mm at limbus. Laser photocoagulation was applied around of the tears after SF6 injection in 2 days. Three years later after treatment visual acuity was 20/50 and IOP was 18.5 mm Hg in the right eye, retina was attached.

Case report 3

A 60-year-old male patient presented with decreased visual acuity. He operated for cataract surgery before 3 years. Visual acuity was 20/1250; IOP 11 mm Hg in the left eye and visual acuity was 20/20 and IOP 16 mm Hg in the right eye. Dilated fundus examination showed retinal detachment at superior quadrant with two small retinal tears at 12 and 1 o'clock. The patient was treated with intravitreal 0.4 mL SF6 injection from 3.5 mm at limbus. Laser photocoagulation was performed to around the tears after injection in 3 days. Two years later visual acuity was 20/28.5 and IOP 20 mm Hg in the left eye, dilated fundus examination showed attached retina with old laser spots.

Case report 4

A 56-year-old female patient presented with of loss of vision for one days in the left eye. She operated for cataract and IOL implantation before 2 years. Visual acuity was 1.0 in the right and 20/50 in the left eye. Intraocular pressure was 18/10 mmHg in the right and left eye respectively. Dilated fundus examination showed retinal detachment at superior quadrant with oval tears. The patient was treated with intravitreal 0.5 mL SF6 injection from 3.5 mm at limbus in the operating room. The laser photocoagulation was

applied around tears. After 10 days retina detachment become total and she had to undergo pars plana vitrectomy (PPV) and silicon oil injection. Silicon oil was extracted after 4 months. Three years later visual acuity was 20/33.3 and IOP 18 mm Hg in the left eye, dilated fundus examination showed attached retina and old scars of lesser photocoagulation at superior quadrant.

DISCUSSION

Efficacy for repairing a retinal detachment depends on three cardinal steps: induction of retinopexy around all retinal breaks with cryopexy or laser, intraocular gas injection, and strict postoperative head positioning for an appropriate time to allow the gas tamponade to achieve closure of the retinal breaks [4]. PR can be used with external buckling for the management of rhegmatogenous retinal detachment [5]. Proponents of PR have underscored the advantages of less tissue trauma, lack of major complications, no hospitalization, and lower costs in comparison to scleral buckling and PPV [6].

PR has accepted alternative surgical technique to SB and vitrectomy for uncomplicated RRDs with superior retinal breaks. This case series aimed to present the long-term anatomical and functional outcome of PR in pseudophakic RRD in 4 patients after an average follow-up period of 2.5 years. All cases were pseudophakic. In our series for one eye 2 times injections of SF₆ were performed. In one case redetachment occurred after 10 days and this eye had to go through pars plana vitrectomy (PPV) and silicon oil injection. Anatomical and functional success was 75% with gas injection plus laser photocoagulation. Laser photocoagulation was applied to 4 cases (100%) after gas injection. Freyler and Radax achieved primary reattachment in 73% of cases within the first month postoperatively [7]. A study showed that 60% of the cases obtained long-term retinal reattachment with a single operation success [8]. The reattachment rate after gas injection and laser photocoagulation in our cases was 75% at 2.5 years. No cases were recorded with subconjunctival gas, endophthalmitis, intraocular hemorrhage. "Fish-egg" gas bubbles were not observed in our cases. In this case series, no cases showed raised IOP which need antiglaucoma drug.

CONCLUSION

In a long-term follow-up study, anatomical and functional rate was 75% with PR in this case series. This procedure that can be carried out with minimal intraoperative stress, under topical anesthesia, and as an outpatient procedure. Failure after PR leads to further surgical procedures that would otherwise have been chosen as the primary intervention. PR with laser photocoagulation has a high ratio of reattachment in pseudophakic patient with retinal detachment secondary to tears at superior quadrant. PR causes minimal discomfort to the patient and carries minimal surgical risk, yet the patient has a 75% chance of achieving permanent reattachment of the retina with laser photocoagulation.

References

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