

Surgical management of retinal fold after 23-Gauge pars plana vitrectomy retinopexy

Manejaemento cirúrgico de dobra de retina após retinopexia com vitrectomia via pars plana de 23-Gauge

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ABSTRACT

The authors report a case of retinal fold after retinal detachment repair performed using 23-gauge pars plana vitrectomy technic (PPV). The fundus photography and optical coherence tomography (OCT) showed a posterior retinal fold with the retina periphery attached. The patient's best corrected visual acuity (BCVA) was 20/200 with severe metamorphopsia. A 25-gauge PPV, subretinal balanced saline solution (BSS) injection using a 25-39-gauge cannula, and gas-fluid exchange were performed. The patient's BCVA improved significantly after treatment. The retinal fold observed is not a frequent complication and can be managed with PPV, subretinal BSS injection and fluid-air exchange.

Keywords: Vitrectomy/methods; Vitreous body/surgery; Vitrectomy/adverse effects; Retinal detachment/surgery; Case reports

RESUMO

Os autores relatam um caso de dobra retiniana após a cirurgia de reparação de descolamento de retina realizada com vitrectomia via pars plana de 23 gauge (VVPP). A retinografia e a tomografia de coerência óptica (OCT) mostraram uma dobra posterior da retina com a periferia da retina colada. A melhor acuidade visual corrigida do paciente foi de 20/200 e severa metamorfopsia. Foi realizada uma VVPP de 25G, injeção subretiniana de solução salina balanceada (BSS) utilizando uma cânula de calibre 25-39 e troca de fluido-gasosa. A melhor acuidade visual corrigida do paciente melhorou significativamente após o tratamento. A dobra retiniana não é uma complicação freqüente e pode ser tratada com VVPP, realização de injeção subretiniana de BSS e troca fluido-gasosa.

Descritores: Vitrectomia/métodos; Corpo vítreo/cirurgia; Vitrectomia/efeitos adversos; Descolamento de retina/cirurgia; Relatos de casos

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INTRODUCTION

The outcomes of retinal detachment surgery repair are improving, and better vision as well as less ocular irritation are expected with the small gauge technic.⁽¹⁾ Macular fold is an uncommon and underreported retinal complication that can interfere with the final visual acuity results.⁽²⁾ We report a case of retinal fold post 23-gauge vitrectomy (PPV) surgery for retinal detachment repair in which, after evaluation with OCT, we decided in favor of a new surgical intervention.

CASE REPORT

A 43-year-old man, presenting minus 4.50 myopia in both eyes, reported loss of vision for five days in the inferior field of the left eye. Best Corrected Visual Acuity (BCVA) was hand motion in the left eye. The results of anterior biomicroscopy were irrelevant. Dilated ophthalmoscopy of the left eye revealed a macula-off rhegmatogenous retinal detachment (RRD) extending from the 9-o'clock to the 3-o'clock meridians with a horseshoe retinal tear located along the 2-o'clock meridian. Findings of dilated ophthalmoscopy of the right eye were insignificant.

After patient's consent twenty-three-gauge pars plana vitrectomy (PPV) was performed on the next day. The surgery was performed using the small gauge vitrectomy technic (23-gauge), with complete removal of the vitreous, followed by drainage of the sub-retinal fluid through the pre-existing retinal tear. The cavity was then filled with air, argon laser was applied around the retina tear, and perfluoropropano (C3F8 10% concentration) was injected at the end of the procedure.

On the first day after surgery, the patient reported poor vision, with gas filling 80% of the vitreous cavity. Ophthalmoscopy showed a peripheral retina attached with a retinal fold involving the foveal area.

After 30 days, BCVA was 20/200 with severe metamorphopsia, and the retina fold with subretinal fluid remained unaltered (Figure 1A). The 360 degree peripheral retina was attached. Optical Coherence Tomography (OCT) results demonstrated the folded retina and a sensorial retinal detachment with subretinal fluid (Figure 2A)

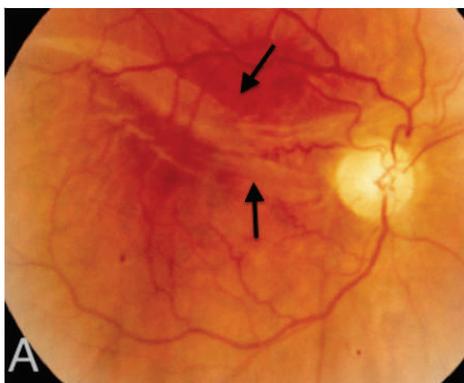


Figure 1: A-fundus photography showing the retina fold (arrows) in the posterior pole after PPV to repair the retinal detachment. B-fundus photography after the second surgery showing retina unfolded.



Figure 2: A-Optical Coherence Tomography (OCT) demonstrating neuro-sensorial retinal detachment (arrow) with sub-retinal fluid after retinal detachment repair. B-Optical Coherence Tomography (OCT) findings demonstrating the attached neuro-sensorial retina after the second surgery to treat the retinal fold.

After 45 days, the BCVA remained at 20/200 and the patient kept complaining about poor vision. Ultimately, we decided for another surgical intervention with a 25-gauge PPV, subretinal BSS injection using a 25-39-gauge cannula, and fluid-air exchange with 10% C3F8 gas. (Figure 3 A, B, C and D).

At the first post-op evaluation, the retina fold had disappeared and the retina flattened in 30 days (figure 1B). One month later, the BCVA was 20/50 with no metamorphopsia; the resolution of retinal fold was demonstrated by OCT.(Figure 2B)

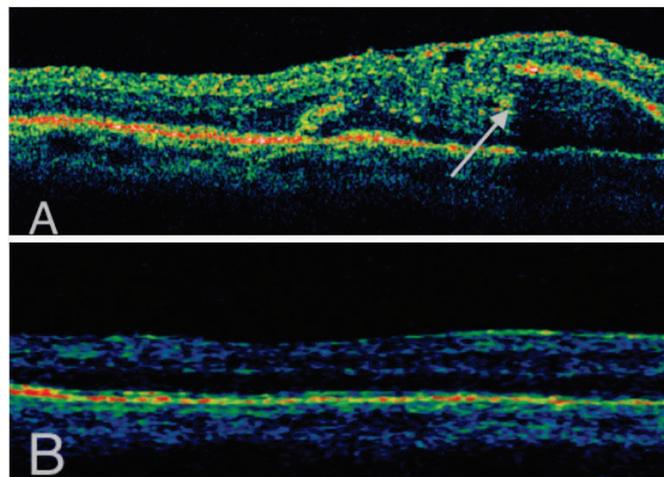


Figure 3: Intraoperative photography showing: 3A (top-right)-Starting the subretinal BSS injection under the retina fold (see the brightness of the retina). 3B (top-left)-Subretinal bobble of BSS going up under de retina fold. 3C (bottom-right)-sub-retinal bobble enlarged and displaced to the posterior pole center. 3D (bottom-left)-sub-retinal bobble spread out under the retinal space.

DISCUSSION

Primary Small gauge PPV has been used for treatment of rhegmatogenous retinal detachment (RRD), demonstrating the potential benefits for reducing postoperative ocular irritation with good outcomes.⁽¹⁻⁵⁾ However, the potential complications include residual persistent fluid under de retina, leading to posterior retina folds formation.^(3,4)

As has been described by other authors,⁽²⁾ we agree that this complication in retinal detachment could be prevented with a complete removal of posterior liquid, a complete fluid/gas exchange and postoperative positioning.⁽²⁾ However, in a

few cases the retina fold occur. A hypothesis for the formation of a posterior retinal fold after PPV could be a consequence of migration of the residual subretinal fluid from the periphery to the posterior pole during the fluid-air exchange, since there is a small film of fluid between the curve of the air bubble filling the cavity and the liquid to be drained.

Surgery is required if there is loss or defect of central vision. In 2006, Trinh et al. described one case where the retinal fold was treated by creating a new detachment of the posterior pole by means of an injection of BSS into the subretinal space with a 39-gauge cannula, followed by an injection of perfluorocarbon liquid (PFC) to move the fold upwards, applying endolaser treatment at the inferior limit of the fold, and silicone oil injection.⁽²⁾

El-Amir et al., described one case that was repaired by a technique similar to that used in retinal translocation surgery. Direct balanced saline solution (BSS) was injected into the macular fold.⁽³⁾

Zacharias et al., described perimacular subretinal blebs created with a 41-gauge cannula in conjunction with fluid-air exchange to coalesce the fluid at the macula, PFC was then injected to flatten the retina, and subretinal fluid drainage was performed through a peripheral retinotomy.⁽⁷⁾

Unlike other reports,^(2,3,6,7) we did not use perfluorocarbon liquid to spread the subretinal fluid and also did not drain the subretinal liquid. Our goal was to execute the most appropriate procedure causing as little trauma as possible, performing an intra-ocular surgical intervention as described by other authors, but avoiding procedures that could increase retinal trauma such subretinal drainage.

The result was satisfactory, with complete disappearance of retinal fold and consequent metamorphopsia, the BCVA recovery to 20/50 in 30 days, a period in that the liquid displaced under the retina was absorbed by the RPE.

In summary, although there are risks involved in surgical procedures, the persistent metamorphopsia and loss of visual acuity may justify the second surgery approach.

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