CASE REPORT

Good visual outcome in a longstanding macular detachment associated with an optic disc pit treated with vitrectomy, laser, and gas tamponade: case report

Bom resultado visual no descolamento macular de longa data por fosseta do nervo óptico tratado com vitrectomia, laser e tamponamento com gás: relato de caso

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ABSTRACT

Optic disc pit is a congenital anomaly of the optic nerve frequently associated with macula detachment. It has a poor visual prognosis if left untreated. The treatment of the optic disc remains controversial and includes the use of laser along the edge of the optic nerve, vitrectomy with gas tamponade with or without removal of posterior hyaloid. We report a case of a 19-year-old female with a longstanding macula detachment due to optic disc pit who was treated with vitrectomy with removal of posterior hyaloid, gas tamponade, and laser. Despite longstanding macular detachment the final visual acuity was 20/25.

Keywords: Retinal detachment. Vitrectomy. Macula lutea. Optic nerve. Retina.

RESUMO

Fosseta do nervo óptico é uma anomalia congênita do nervo óptico frequentemente associada com descolamento macular. Se não tratado o prognostico visual é ruim. O tratamento da fosseta do nervo óptico é controverso e inclui laser na borda do nervo óptico, vitrectomia com ou sem remoção da hialoide posterior e tamponamento com gás. Relatamos o caso de uma jovem de 19 anos com descolamento macular de longa data, associado a fosseta do nervo óptico que foi submetida à cirurgia de vitrectomia com remoção da hialoide posterior e tamponamento com gás, que apesar descolamento macular antigo, a acuidade visual final foi de 20/25.

Palavras-chave: Descolamento retiniano. Vitrectomia. Macula lutea. Nervo optico. Retina.

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INTRODUCTION

Optic disc pit is congenital optic disc anomaly that occurs in approximately one in 11,000 patients.[1] Most are unilateral and asymptomatic.[2] 25% to 75% of the optic disc pit is associated with maculopathy.[3] The macular retinoschisis, or serous detachment, seen in association with optic disc pit maculopathy appears most commonly when the pit is located in the temporal region of optic disc and in larger pits.[1]

Imperfect closure of the superior edge of the embryonic fissure is the cause of the congenital pits of the optic nerve.[4] The origin of the subretinal fluid is not clear, but liquid vitreous and cerebrospinal fluid have been involved.[2,5] However, the pathogenesis of optic disc pit maculopathy remains unclear. [6]

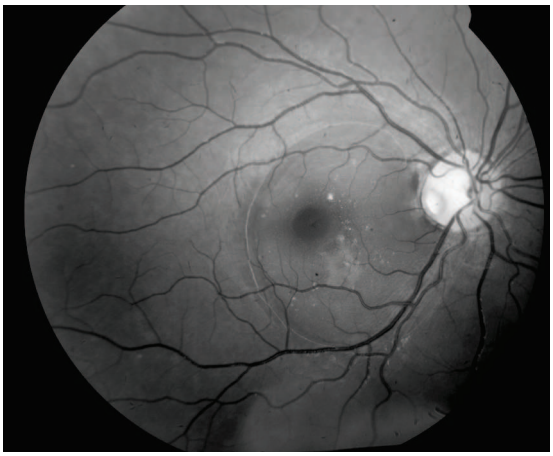
The treatment of the optic disc pit maculopathy remains controversial, various successful treatments have been reported, including laser, vitrectomy and gas tamponade to reattaching the retina and improving visual acuity.[2,6]

CASE REPORT

A 19-year-old Caucasian female, presented with a one-year history of decreased visual acuity in the right eye. On examination her best correct visual acuity (BCVA) was 20/200 in the right eye and 20/20 in the left eye. The anterior segment appeared normal, intraocular pressure was normal in both eyes. She has an afferent papillary defect in the right eye. Funduscopy revealed a serous retinal detachment of the macula clearly linked to a temporal optic disc pit in the right eye. The fundus in the left eye was normal. Fundus photograph of the right eye showed an abnormal temporal optic head appearance with excavation (pit) disc. The adjacent retina was thickened and elevated, extending into the macula. (Figure 1) Optical coherence tomogram (OCT) illustrated subretinal fluid associated with the optic pit. (Figure 2).

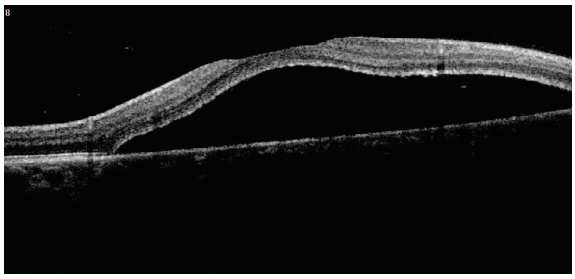
Patient was treated three months before with laser photocoagulation along the edge of the optic nerve with no improvement of the serous detachment.

Figure 1. Preoperative fundus photograph showing optic disc pit with macular detachment in the right eye.



Source: prepared by the authors.

Figure 2. Preoperative OCT of the right eye showing the macular detachment.



Source: prepared by the authors.

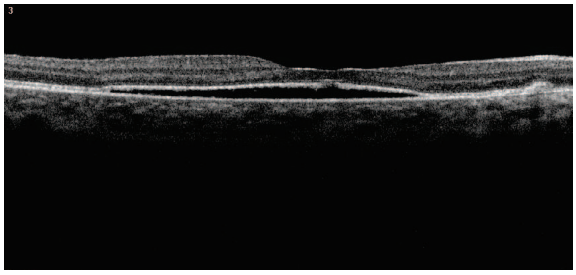
It was explained to the patient and she agree to be treated with vitrectomy with removal of the posterior hyaloid, laser photocoagulation along the edge of the optic disc, fluid-air exchange and complete intraocular gas tamponade (14% C_3F_8). Postoperatively the patient was asked to stay in a facedown position for two weeks.

After 2 months, the macular elevation disappeared at the funduscopy (Figure 3) and OCT revealed a flattening of the macular area with a small amount of subretinal fluid (Figure 4), the BCVA in the right eye was 20/25. The visual acuity remained the same after six months.

Figure 3. Postoperative fundus photography of the right eye showing macular reattached and scars of laser.

Source: prepared by the authors.

Figure 4. Postoperative OCT revealing macular reattachment and small amount of subretinal fluid in the right eye.



Source: prepared by the authors.

DISCUSSION

Optic disc pits are congenital excavations of the optic nerve head usually seen in association with other abnormalities of the optic nerve and peripapillary retina. Visual acuity is usually not unaffected unless the pit is complicated by subretinal fluid.[1] Controversy exists over the source of subretinal fluid in retinal detachments. Histologically, optic disc pits are defects in the lamina cribrosa and have been reported to be associated with a variety of retinal abnormalities including aberrant nerve fibres and pigmented tissues, resembling retinal pigment epithelium, and a supported by a framework of glial tissues.[1] Some studies argue that the liquid vitreous reaches the subretinal spaces not via retinal tear, but rather via optic nerve pit or a developmental defect in the optic nerve.[5] However, macular detachment also occurs in young patients who usually do not have significant vitreous liquefation.[3] Others have proposed that the subretinal fluid does not come from the vitreous but rather from cerebrospinal fluid. The absence of separation of the posterior vitreous in patients with macular detachment suggests that vitreous traction in this area could play a role in the origin of the passive movement of fluid the subretinal space. The optical coherence tomography (OCT) of the macular detachment shows frequently a retinoschisis-like separation of the retina during the development of serous macular detachment.[6] In the literature have been described many modalities of treatment such laser therapy, laser associated with gas, gas injection alone, vitrectomy associated with gas tamponade, removal of the posterior hyaloid alone or with the internal limiting membrane, and scleral buckling.[3] The varied opinions on the origin of the subretinal fluid and consequent mechanisms underlying the associated retinal detachment have led to a wide range of reports on different approaches to management. In a series of five patients one underwent spontaneous resolution over 18 months without treatment. In the other four the remained detached despite laser teraphy.[7] The laser therapy may induce a adhesive barrier for fluid from the pit.[8] A review of published series confirms that treatment with vitreous surgery and laser is most effective.[9] Vitrectomy to remove the traction around the entrance cavity may decreases fluid currents and better allow remodelling of photoreceptor outer segments and, then, better visual function. The induction of posterior vitreous detachment and gas tamponade without laser treatment is effective in reattaching the retina and improving visual acuity corroborating that vitreous traction around the optic disc pit may cause passive fluid migration in to the intraretinal space through the pit, although most eyes required almost 1 year to reach complete reattachment.[6] Internal limiting membrane (ILM) removal is suggested during vitrectomy. ILM removal ensures complete hyaloids removal, however, ILM peeling is probably not essential in the treatment of most cases. The gas used alone flattens the outer layer detachment with an improvement in visual acuity, nevertheless is temporary because the flow from the optic disc remains constant.[6] The use of gas tamponade associated with vitrectomy shows better results.

In this case we report the successful reattachment of serous macular detachment associated with optic disc pit by vitrectomy with removal of the posterior hyaloid alone, gas tamponade (C_3F_8), and posterior laser photocoagulation. Despite longstanding, the final visual acuity after two months of the treatment reached 20/25.

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