

Treatment of Serous Maculopathy Associated with Optic Disc Pit without Vitrectomy: A Case Presentation

Mehmet Demir¹, Dilek Guven¹, Zeynep Acar¹, Erdem Ergen¹

ABSTRACT:

Treatment of serous maculopathy associated with optic disc pit without vitrectomy: a case presentation

Objective: To report an serous maculopathy associated with optic disc pit which was treated with gas injection and laser photocoagulation.

Case: A 21-year-old female was admitted with blurred vision in the left eye. Optic disc pit was detected in the left eye. Best corrected visual acuity (BCVA) was 20/400 (Snellen), central macular thickness (CMT) was 768 µm and intraocular pressure was 15 mmHg in the left eye. Right eye was normal. After corneal paracentesis, 0.3 ml perfluoropropane (C₃F₈) gas was injected into vitreous cavity and the patient was advised to assume facedown position for 3 days. Laser photocoagulation was performed on the temporal side of the optic disc. Topical brinzolamide 1 % and topical ketorolac tromethamine were used 2x1/day for 3 months after gas injection. At 36th month BCVA was 20/40, CMT reduced. No change in intraocular pressure was observed during follow up.

Conclusion: Perfluoropropane injection and laser photocoagulation with topical medication were effective and safe for serous maculopathy associated with optic disc pit.

Keywords: Intravitreal gas, laser, optic disc pit, serous maculopathy

ÖZET:

Optik disk pitine bağlı gelişen seröz makülopatinin vitrektomisiz tedavisi: Bir olgu sunumu

Amaç: Optik disk pitine bağlı gelişen seröz makülopati olgusunun lazer fotokoagülasyon ve gaz enjeksiyonu ile tedavisini sunmak.

Olgu: Yirmi bir yaşında bayan hasta sol gözde bulanık görme şikayeti ile başvurdu. Yapılan muayenede sol gözde optik diskte pit, düzeltilmiş en iyi görme keskinliği 20/400 (Snellen), merkezi maküla kalınlığı (MMK) 768 µm ve göz içi basıncı 15 mm Hg olduğu görüldü. Optik koherens tomografide seröz makülopati izlendi. Sağ göz normal idi. Sol göze paracentezi takiben 0.3 ml perfluoropropan (C₃F₈) gazı vitreus boşluğuna verildi. Üç gün süresince, günde 5 saat yüz üstü pozisyon verildi. Optik disk temporaline lazer fotokoagülasyon yapıldı. Gaz enjeksiyonundan sonra topikal brinzolamide %1 ve topikal ketorolak tromethamine 2x1/gün üç ay boyunca kullanıldı. Otuzaltı aylık takip sonunda düzeltilmiş görmesi 20/40 seviyesine çıktı ve MMK düzeldi. Göz içi basıncında değişim olmadı.

Sonuç: Optik disk pitine bağlı seröz makülopati tedavisinde perfluoropropan gaz enjeksiyonu ve lazer fotokoagülasyonuna ilave topikal medikasyon etkili ve güvenli bulundu.

Anahtar kelimeler: İntravitreal gaz, lazer, optik disk pit, seröz makülopati

Ş.E.E.A.H. Tıp Bülteni 2016;50(1):80-3



¹Sisli Etfal Training and Research Hospital, Department of Ophthalmology, Istanbul - Turkey

Address reprint requests to / Yazışma Adresi: Mehmet Demir, Sisli Etfal Training and Research Hospital, Department of Ophthalmology, Istanbul - Turkey

Phone / Telefon: +90-530-203-7124

E-mail / E-posta: drmehmetfe@hotmail.com

Date of receipt / Geliş tarihi: July 13, 2015 / 13 Temmuz 2015

Date of acceptance / Kabul tarihi: October 5, 2015 / 5 Ekim 2015

INTRODUCTION

Optic disc pit is a congenital disc anomaly, first described by Wiethe in 1882, with an incidence of 1/11000 in population (1). The pits are frequently on the temporal side of optic disc (2). The prevalence of

serous maculopathy associated with optic disc pit is between 25-75% (3,4).

The pathogenesis of the serous maculopathy associated with optic disc pit is unknown. The origin of the subretinal fluid can be vitreous, the cerebrospinal fluid or the choroid (5-7). Treatment of

serous maculopathy associated with optic disc pit included observation, laser photocoagulation, pneumatic displacement, macular buckling and pars plana vitrectomy with tamponade (8-13).

CASE PRESENTATION

A 21-year-old Caucasian female was admitted to the ophthalmology clinic with the complaint of blurred vision in the left eye. The refractive error of the patient was -5.25-2.25 x 160 in the right eye, and -3.25-2.25 x 20 in the left eye. Best corrected visual acuity (BCVA) was 20/20 in the right eye, and 20/400 in the left eye. Anterior segment and intraocular pressure (IOP) measurements were normal in both eyes. Myopic retinal findings were observed after pupillary dilation in both eyes. A pit on temporal side of optic disc and serous macular detachment were other findings in the left eye. The central macular thickness (CMT) measured with optical coherence tomography (OCT) was 768 μm (Figure-1) in the left

eye and 248 μm in the right eye. Serous macular detachment and separation of the retinal layers were observed in the left eye's OCT scans.

After examination, intravitreal gas injection 0.3 mL perfluoropropane (C3F8), laser application and facedown position were planned for the patient. Anterior chamber paracentesis was performed before gas injection. Intravitreal gas injection was performed after conjunctival irrigation with povidone iodine 5% and 10 mL saline solution irrigation under general anesthesia in the operating room at the superior temporal area using a 27-gauge insulin needle. Topical tobramycine antibiotic collyre was used for 5 days qid after intravitreal gas injection.

Laser photocoagulation was performed (100 spot size, 80 ms, 80 mW) at the temporal border of optic disc one day after gas injection. Patient kept face-down position for 5 days.

At first month after gas injection BCVA was 20/100 and CMT was 492 μm with some subretinal fluid persisting in the left eye. Second laser application

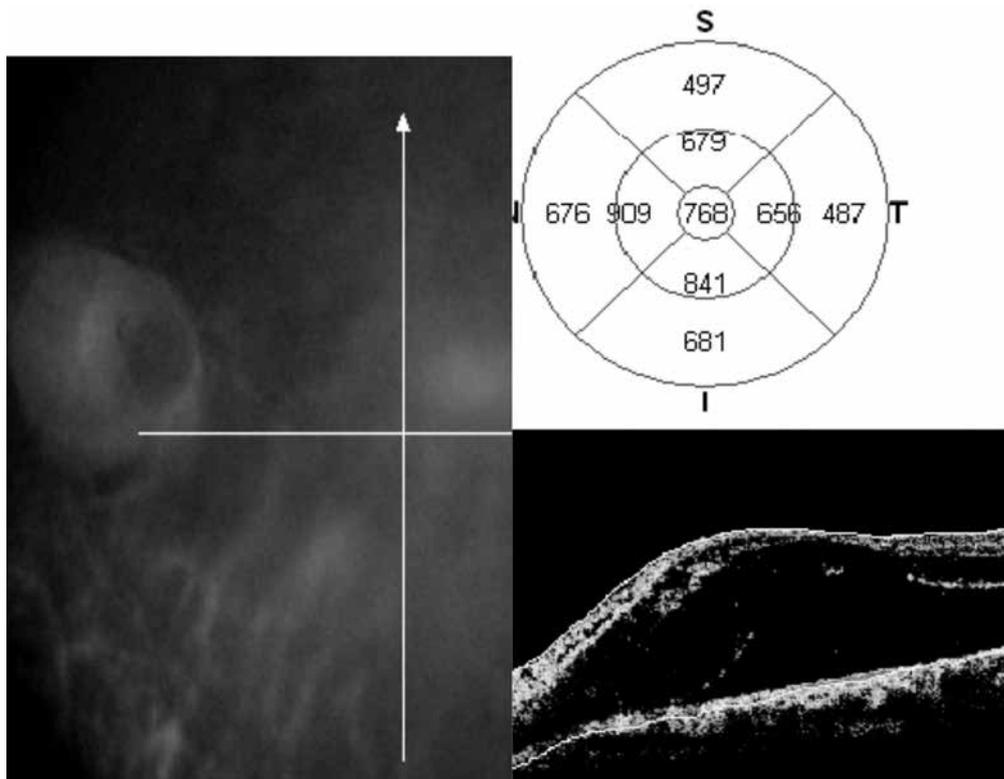


Figure-1: Optical coherence tomography with serous macular detachment in the left eye. Best corrected visual acuity (BCVA) was 20/400, Central macular thickness (CMT) was 768 μm .

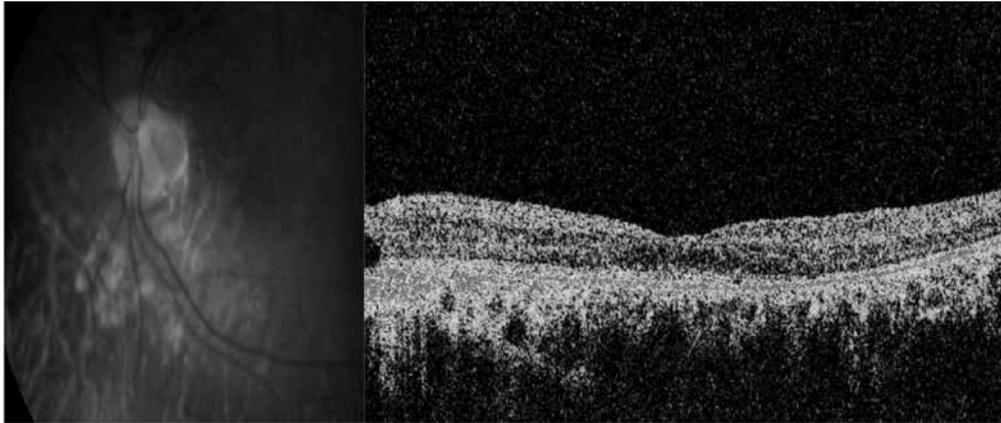


Figure-2: An optic disc pit and scars of laser photocoagulation on the left, last OCT scan, on the right. BCVA was 20/40 and CMT was 140 µm.

was performed 3 months after injection.

After 9 months from injection BCVA was 20/66.6, CMT was 382 µm with subretinal fluid.

Topical brinzolamide 1% and topical ketorolac tromethamine were used 2x1/day for 3 months after gas injection.

Twenty-two months after intravitreal gas injection BCVA was 20/40, CMT was 249 µm without subretinal fluid but with intraretinal fluid. The CMT was 249 µm. The last scan was performed at 36th month. BCVA was 20/40 and CMT was 140 µm (Figure-2).

DISCUSSION

Serous macular detachment is a complication secondary to optic disc pit. Serous maculopathy associated with optic disc pit occurs most frequently in young people. The management of maculopathy has been controversial.

Untreated patients with serous maculopathy associated with optic disc pit underwent loss of visual acuity in long term period (14).

Pars plana vitrectomy is a treatment option for maculopathy associated with optic disc pit (15,16). Pars plans vitrectomy with or without a tamponade has been reported to be not always effective in the

treatment of maculopathy associated with optic disc pit (17). Retinal tears and detachment, cataract formation, proliferative vitreoretinopathy, refractive changes are some complications of the pars plana vitrectomy.

Seperation of external and internal retinal layers was observed in our case. This seperation and serous fluid were disappeared after treatment. Despite the normal thickness and contour of macula, visual acuity did not reached to full (20/20) values. The literature included excellent results after vitrectomy for serous maculopathy associated with optic disc pit (18-20), however success of laser photocoagulation and gas tamponade is 72% (21). Application of laser photocoagulation and gas tamponade is less invasive than vitrectomy, therefore, this method can be used as the first approach, particularly in young patients.

Finally pars plana vitrectomy is a common method for treatment of maculopathy associated with optic disc pit. We used a method with less complication rate, compared to vitrectomy, in this case. The combination of intravitreal gas injection plus laser photocoagulation with topical brinzolamide and ketorolac tromethamine was effective and safe for serous maculopathy associated with optic disc pit in this patient.

REFERENCES

1. Kranenburg EW. Crater-like holes in the optic disc and central serous retinopathy. *Arch Ophthalmol* 1960; 64: 912-24. [\[CrossRef\]](#)
2. Brown GC, Shields JA, Goldberg RE. Congenital pits of the optic nerve head. II. Clinical studies in humans. *Ophthalmology* 1980; 87: 51-65. [\[CrossRef\]](#)
3. Krivoy D, Gentile R, Liebmann JM, Stegman Z, Rosen R, Walsh JB, et al. Imaging congenital optic disc pits and associated maculopathy using optical coherence tomography. *Arch Ophthalmol* 1996; 114: 165-70. [\[CrossRef\]](#)
4. Bonnet M. Serous macular detachment associated with optic nerve pits. *Graefes Arch Clin Exp Ophthalmol* 1991; 229: 526-32. [\[CrossRef\]](#)
5. Regenbogen L, Stein R, Lazar M. Macular and juxtapapillar serous retinal detachment associated with pit of optic disc. *Ophthalmologica* 1964; 148: 247-51. [\[CrossRef\]](#)
6. Gass JD. Serous detachment of the macula. Secondary to congenital pit of the optic nervehead. *Am J Ophthalmol* 1969; 67: 821-41. [\[CrossRef\]](#)
7. Gordon R, Chatfield RK. Pits in the optic disc associated with macular degeneration. *Br J Ophthalmol* 1969; 53: 481-9. [\[CrossRef\]](#)
8. Vedantham V, Ramasamy K. Spontaneous improvement of serous maculopathy associated with congenital optic disc pit: an OCT study. *Eye (Lond)* 2005; 19: 596-9. [\[CrossRef\]](#)
9. Lincoff H, Kreissig I. Optical coherence tomography of pneumatic displacement of optic disc pit maculopathy. *Br J Ophthalmol* 1998; 82: 367-72. [\[CrossRef\]](#)
10. Theodossiadis GP, Theodossiadis PG. Optical coherence tomography in optic disc pit maculopathy treated by the macular buckling procedure. *Am J Ophthalmol* 2001; 132: 184-90. [\[CrossRef\]](#)
11. Hirakata A, Okada AA, Hida T. Long-term results of vitrectomy without laser treatment for macular detachment associated with an optic disc pit. *Ophthalmology* 2005; 112: 1430-5. [\[CrossRef\]](#)
12. García-Arumý J, Guraya BC, Espax AB, Castillo VM, Ramsay LS, Motta RM. Optical coherence tomography in optic pit maculopathy managed with vitrectomy-laser-gas. *Graefes Arch Clin Exp Ophthalmol* 2004; 242: 819-26. [\[CrossRef\]](#)
13. Snead MP, James N, Jacobs PM. Vitrectomy, argon laser, and gas tamponade for serous retinal detachment associated with an optic disc pit: A case report. *Br J Ophthalmol* 1991; 75: 381-2. [\[CrossRef\]](#)
14. Sobol WM, Blodi CF, Folk JC, Weingeist TA. Long-term visual outcome in patients with optic nerve pit and serous retinal detachment of the macula. *Ophthalmology* 1990; 97: 1539-42. [\[CrossRef\]](#)
15. Georgalas I, Petrou P, Koutsandrea C, Papaconstadinou D, Ladas I, Gotzaridis E. Optic disc pit maculopathy treated with vitrectomy, internal limiting membrane peeling, and gas tamponade: a report of two cases. *Eur J Ophthalmol* 2009; 19: 324-6.
16. Shukla D, Kalliath J, Tandon M, Vijayakumar B. Vitrectomy for optic disc pit with macular schisis and outer retinal dehiscence. *Retina* 2012; 32: 1337-42. [\[CrossRef\]](#)
17. Imamura Y, Zweifel SA, Fujiwara T, Freund KB, Spaide RF. High-resolution optical coherence tomography findings in optic pit maculopathy. *Retina* 2010; 30: 1104-12. [\[CrossRef\]](#)
18. Sanghi G, Padhi TR, Warkad VU, Vazirani J, Gupta V, Dogra MR, et al. Optical coherence tomography findings and retinal changes after vitrectomy for optic disc pit maculopathy. *Indian J Ophthalmol* 2014; 62: 287-90. [\[CrossRef\]](#)
19. Avci R, Yilmaz S, Inan UU, Kaderli B, Kurt M, Yalcinbayir O, et al. Long-term outcomes of pars plana vitrectomy without internal limiting membrane peeling for optic disc pit maculopathy. *Eye (Lond)* 2013; 27: 1359-67. [\[CrossRef\]](#)
20. Moreira Neto CA, Moreira Junior CA. Vitrectomy and gas-fluid exchange for the treatment of serous macular detachment due to optic disc pit: long-term evaluation. *Arq Bras Oftalmol* 2013; 76: 159-62. [\[CrossRef\]](#)
21. Sandali O, Barale PO, Bui Quoc E, Belghiti A, Borderie V, Laroche L, et al. Long-term results of the treatment of optic disc pit associated with serous macular detachment: a review of 20 cases. *J Fr Ophtalmol* 2011; 34: 532-8. [\[CrossRef\]](#)