Acta Scientific Ophthalmology (ISSN: 2582-3191)

Volume 5 Issue 4 April 2022

Case Report

The Pit Stuff: Surgical Management of Optic Disc Pit Maculopathy with Autologous Free ILM Flap

Anju Gupta, Shams Tabrez and Dhaivat Shah*

Head of department of Vitreoretina , Choithram Netralaya, Indore, India

***Corresponding Author:** Dhaivat Shah, Head of department of Vitreoretina , Choithram Netralaya, Indore, India.

Received: February 28, 2022

Published: March 17, 2022

Abstract

Optic disc pit (ODP) is a rare congenital abnormality described under congenital cavitary anomalies of the optic disc which may be accompanied by serous macular detachment with the development of schisis leading to gradual loss of vision. Several invasive and non-invasive methods have been identified in literature with several different modifications including laser photocoagulation, intravitreal gas injection and pars plana vitrectomy with internal limiting membrane (ILM) peeling. The report describes a 42 year old man with a unilateral optic disc pit consistent with serous macular detachment in the left eye which was successfully treated with vitrectomy, ILM peeling and stuffing the autologous free flap into the pit.

Keywords: Congenital Anomaly; Maculopathy; Optic Disc Pit; ILM Peeling; Autologous Free ILM Flap

Introduction

Optic disc pit (ODP) consists of a rare congenital cavitary anomaly of the optic disc which may be accompanied by maculopathy leading to gradual loss of vision [1]. On fundus examination, it is characteristically identified as a unilateral, oval, small, grayish–white hypopigmented excavation of the optic disc, usually observed at the temporal or infero-temporal part of the optic disc [3]. With no clear gender preference, the approximate prevalence of ODP is 1 in 10,000 and is commonly found to be unilateral [2,4]. No distinct genetic association has yet been established with respect to the development of the ODP.

An ODP is usually asymptomatic and is often discovered incidentally. Visual field abnormalities such as paracentral arcuate scotoma or an enlarged blind spot may be noted [5-7]. It has been predicted that at some stage of their life, about 25% to 75% of patients will undergo serous detachment and retinoschisis of the central macula, contributing to the vision loss and development of optic disc pit maculopathy (ODP-M) [6,8]. Various treatments are described in the current literature, with no specific guidelines. We describe the role and outcome of vitrectomy with ILM peeling and stuffing into the pit with C3F8 tamponade in this unique case report, with sequential follow up images.

Case Report

A 42 year old healthy gentleman presented to our clinic with a history of gradual diminution of vision and metamorphopsia of his left eye since a year. The Snellen best-corrected visual acuity (BCVA) was 20/20 and 20/400 in his right and left eye respectively. Dilated fundus examination of left eye revealed an ODP accompanied by large pocket of subretinal fluid with retinoschisis in macular region near optic disc (Figure 1a). Fundus of the right eye was normal. OCT scan of left eye demonstrated an ODP in the temporal aspect of the optic nerve head and serous retinopathy with macular detachment nasal to the fovea with retinoschisis (Figure 1b). The fundus fluorescein angiography demonstrated early hypofluorescence and late diffuse hyperfluorescence in the area of serous elevation (Figure 2 a, b).

Owing to the active nature of the condition and deteriorating vision, the patient was advised surgical intervention. Intraoperatively, after complete vitrectomy and PVD induction using triamcinolone acetate, an area of ILM was peeled across the macula extending till the arcades. This ILM flap was gently stuffed into the pit with the help of max-grip forceps. Red laser light burns were given along the temporal margin of the pit. A slow air fluid exchange was performed keeping the flute away from the pit making sure the flap is not dislodged. 14% C3F8 gas tamponade was placed and patient was advised strict prone positioning for 2 weeks.

One month following the surgery, his BCVA was 20/200. Fundus revealed a closed pit with resolving subretinal fluid (SRF) and C3F8 bubble reflex, and corresponding OCT confirmed a decrease in the height of SRF (Figure 3 a, b).

Six months post-operatively, his BCVA improved to 20/100. The pit appeared well closed on fundus examination and the OCT demonstrated near total resolution of subretinal fluid and patient felt subjective improvement in metamorphopsia (Figure 4 a, b).

Discussion

ODP is a rare entity, usually presented as a unilateral congenital optic disc anomaly which usually remains asymptomatic in uncomplicated cases, however maculopathy causing compromised visual prognosis in approximately two-thirds of the affected patients [9]. Jain and Johnson proposed that abnormal communication occurs when there is defect in the lamina cribrosa or juxtapapillary sclera or both between extraocular and intraocular spaces [2]. Due to the presence of pressure gradients between intracranial pressure and intraocular pressure, migration of vitreoretinal or cerebrospinal fluid occurs. Several treatments for ODPM have been tried till date, although there is no established guideline for surgical interventions [9,10].

Considering the etiopathogenesis, we have discussed the role of autologous free ILM flap stuffed into optic disc pit followed by retinal laser photocoagulation around temporal optic disc edge in our case. Pars plana vitrectomy was performed by inducing PVD, ILM was stained and peeled off followed by stuffing it into ODP to seal or create a barrier for preventing flow of fluid through the defect. Retinal laser photocoagulation (red laser) with light burns to the temporal disc margin was done and fluid exchange was slowly performed to prevent migration of the free flap. Our case showed a significant reduction in the size of the subretinal fluid with improvement in visual acuity. The advantage of this technique is that immune-mediated reaction or inflammation does not occur and retinal endolaser photocoagulation provides an additional barrier preventing migration of fluids.

Conclusion

Stuffing the optic disc pit with an autologous ILM free flap is a simple and effective technique which can give good anatomical and functional results, provided performed in an appropriate manner.

Patient Consent

The patient has viewed the content and images of this case report and has consented to the submission of the case report for publication. Written informed consent was obtained.

Conflicts of Interest

All contributing authors declare no conflicts of interest

Source of Funding

None.

Bibliography

1. Wiethe T. "A case of congenital deformity of the optic disc". *Arch Augenheilkd* 11 (1882): 14-19.

2. Jain N and Johnson MW. "Pathogenesis and treatment of maculopathy associated with cavitary optic disc anomalies". *American Journal of Ophthalmology* 158 (2014): 423-435.

3. Theodossiadis GP., *et al*. "Long-term study of patients with congenital pit of the optic nerve and persistent macular detachment". *Acta Ophthalmology* 70 (1992): 495-505.

4. Ferry AP. "Macular detachment associated with congenital pit of the optic nerve head. Pathologic findings in two cases simulating malignant melanoma of the choroid". *Archives of Ophthalmology* 70 (1963): 346-357.

5. Kranenburg EW. "Crater-like holes in the optic disc and central serous retinopathy". *Archives of Ophthalmology* 64 (1960): 912-924.

6. Brown GC., *et al*. "Congenital pits of the optic nerve head. II. Clinical studies in humans". *Ophthalmology* 87 (1980): 51-65.

7. Shah SD., *et al*. "Optic disc pit maculopathy: a review and update on imaging and treatment". *International Ophthalmology Clinics Spring* 54.2 (2014): 61-78.

8. Gordon R and Chatfield RK. "Pits in the optic disc associated with macular degeneration". *British Journal of Ophthalmology* 53 (1969): 481-489.

9. Sobol WM., *et al*. "Long-term visual outcome in patients with optic nerve pit and serous retinal detachment of the macula". *Ophthalmology* 97.11 (1990): 1539-1542.

10. Avci R., *et al*. "Long-term outcomes of pars plana vitrectomy without internal limiting membrane peeling for optic disc pit maculopathy". *Eye (Lond)* 27.12 (2013): 1359-1367.