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Case report/case series

A surgical cause of pseudopapilloedema

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Abstract

We report a case of vitreopapillary traction mimicking optic disc swelling in a 73-year-old female with pseudophakia in the left eye and satisfactory postoperative vision of 6/6 and N5 two years prior. She presented with insidious onset of blurred vision in her left eye for two months. She was referred to Universiti Kebangsaan Malaysia Medical Centre (UKMMC) for further investigations of apparent optic disc swelling in the left eye by a general ophthalmologist. Her left eye vision was 6/18, pin hole 6/12, with near vision at N6. There was no relative afferent pupillary defect and anterior segment examination was normal. Examination of the posterior segment revealed a pink optic disc with blurred and elevated margins without hyperaemia. Vessels of the optic nerve head appeared normal and a lamellar macular hole was present with dull foveal reflex clinically. Right eye examination was normal. Optical coherence tomography (OCT) of the left eye using the raster line scan showed vitreopapillary traction surrounding the optic disc and vitreomacular traction (VMT) with lamellar macular hole. The patient was counselled for surgical release of VMT, however, she opted for conservative management.

Peripapillary vitreoretinal traction is a rare cause of pseudo-optic disc swelling. Thorough fundus examination with the help of OCT is crucial in making a prompt diagnosis, preventing unnecessary investigations, and evaluating other retinal pathologies which may benefit from treatment.

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Keywords: pseudo-optic disc swelling, vitreomacular traction syndrome, vitreopapillary traction syndrome

Penyebab surgikal pseudopapilloedema

Abstrak

Kami melaporkan kes tarikan vitreopapillari yang mimik pembengkakan cakera optik berlaku pada wanita berusia 73 tahun, beliau sudah menjalani rawatan katarak di mata kiri dengan memperolehi visual akuiti yang memuaskan 6/6 dan N5 dua tahun sebelumnya. Dia dirujuk pada mulanya ekoran dari aduan penglihatan kabur di mata kirinya selama dua bulan. Beliau telah dirujuk ke Pusat Perubatan Universiti Kebangsaan Malaysia (UKMMC) untuk siasatan lanjut mengenai pembengkakan cakera optik kelihatan di mata kiri oleh pakar mata umum. Visi mata kirinya ialah 6/18, lubang pin 6/12, dengan penglihatan dekat pada N6. Tidak ada kerosakan relatif anak mata aferen dan pemeriksaan segmen anterior adalah normal. Pemeriksaan segmen posterior menunjukkan sempadan cakera optik yang kabur dan bengkak tanpa hiperemia. Salur darah pada saraf optik kelihatan normal dan terdapat lubang makula lamina dengan refleks foveal yang pudar dilihat secara klinikal. Pemeriksaan mata kanan adalah normal. Tomografi koherensi optik (OCT) mata kiri menggunakan imbasan garisan raster menunjukkan daya tarikan vitreopapillari mengelilingi cakera optik dan daya tarikan vitreomakular (VMT) dengan lubang makula lamellar. Pesakit disarankan untuk pembedahan pembedahan VMT, namun dia memilih untuk rawatan konservatif.

Daya tarikan vitreoretinal peripapillari sebagai punca pembengkakan cakera pseudo-optik sangat jarang berlaku. Peperiksaan fundus menyeluruh dengan bantuan OCT adalah penting dalam membuat diagnosis segera, mengelakkan penyiasatan yang tidak perlu, dan menilai semula patologi retina lain yang mungkin mendapat manfaat jika dirawat.

Kata kunci: bengkak cakera pseudo-optik, sindrom daya tarikan vitreomakular, sindrom daya tarikan vitreopapillari

Introduction

Vitreomacular traction (VMT) and vitreopapillary traction (VPT) syndrome have been well described in the literature,[1] but less attention has focused on the clinical effects of mimicking optic disc swelling. This may lead to unnecessary or invasive investigations on patients misdiagnosed with optic disc swelling, increasing

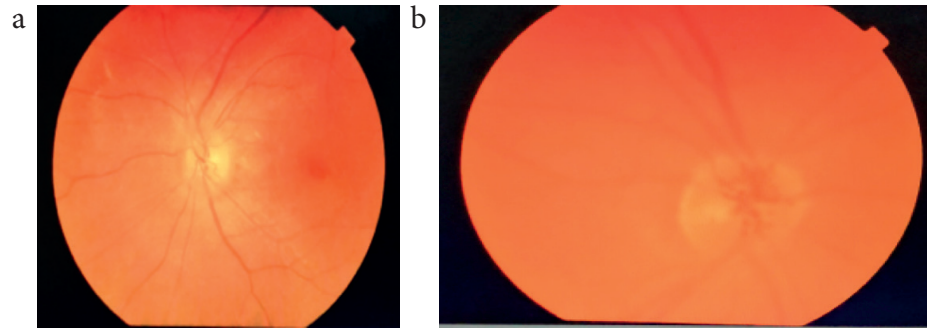

Fig. 1. (*a*) LE optic disc appeared swollen with blurred optic disc margin at all quadrants. (*b*) RE optic disc was normal.

medical costs and causing anxiety in patients. We report a case of VPT mistaken for optic disc swelling.

Case report

A 73-year-old, nondiabetic female presented with insidious onset of painless blurring of vision in her left eye for two months. She underwent uncomplicated cataract operation in her left eye two years prior with postoperative vision of 6/6, N5. She was referred by a general ophthalmologist to our centre for optic disc swelling in her left eye. She denied metamorphopsia, visual field defect, or history of ocular trauma. Symptoms and signs suggestive of raised intracranial pressure were negative. There was no headache, nausea, vomiting, or neurological deficit. Symptoms of optic neuritis, such as recurrent eye redness or painful eye movement, were absent. Other history suggestive of anterior ischaemic optic neuropathy, cat-scratch, SLE, or multiple sclerosis was absent. Her left eye vision was 6/18, ph 6/12, and N6, without relative afferent pupillary defect (RAPD). Anterior segment was normal with clear cornea, deep and quiet anterior chamber, and stable intraocular lens. Fundus examination revealed a pink left optic disc with a blurred and elevated optic disc margin in all quadrants without disc hyperaemia (Fig. 1a). Th retinal vessels surrounding the optic disc appeared normal. A lamellar macular hole was present with negative Watzke-Allen test. Right eye examination was unremarkable (Fig. 1b). Colour vision and contrast sensitivity test of the left eye was normal. OCT raster line scan (Heidelberg Engineering, OCT SPECTRALIS) of the left eye (Fig. 2a) showed VMT with lamellar macular hole, VPT surrounding the optic disc in all quadrants (Fig. 2b-d), and elevation of retinal nerve fibre layer (RNFL) thickness in the superior and temporal quadrants. Normal optic disc vascular integrity with no leakage was observed on fundus fluorescein angiography (Fig. 3). OCT of the

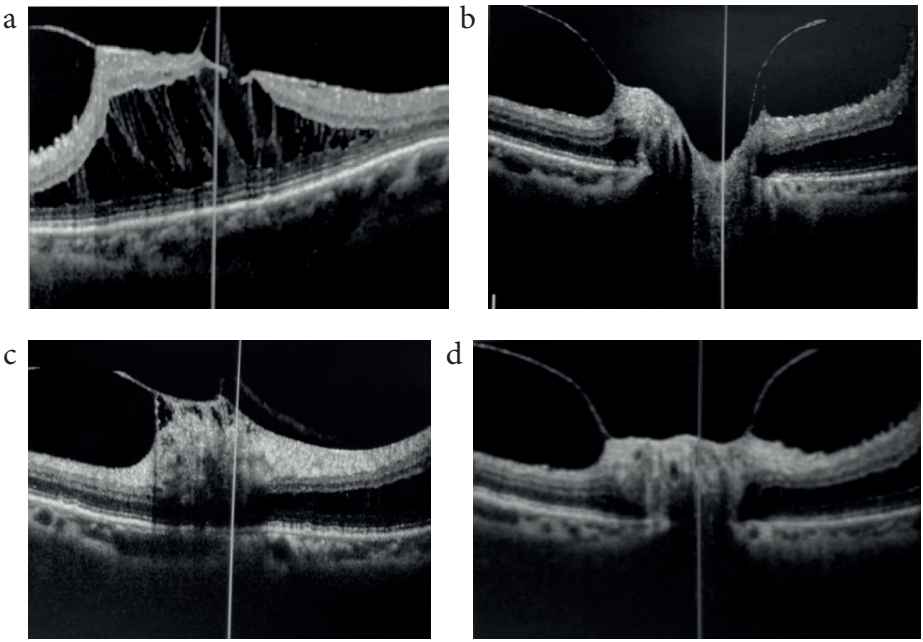

Fig. 2. (*a*) OCT of left macula illustrating retinoschisis as a result of focal VMT (size of area attachment < 1500 µm) with lamellar macular hole. (*b-d*) OCT of the left eye optic disc at three levels including: (*b*) optic cup level, (*c*) superior optic disc margin, and (*d*) inferior optic disc margin showed VPT surrounding the optic disc causing tractional elevation of optic disc.

Fig. 3. LE fundus fluorescein angiography showed no hot disc or vascular leaking.

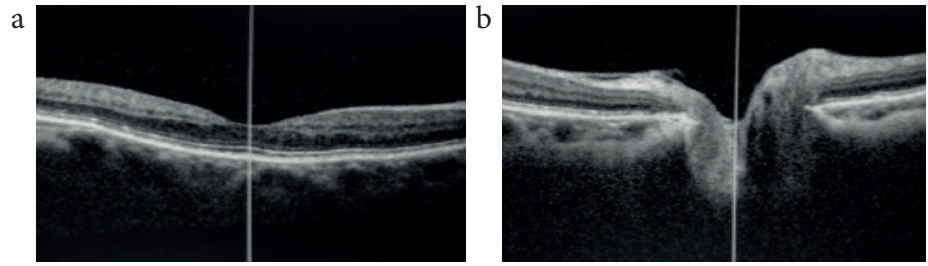

Fig. 4. OCT of the right eye showed (*a*) normal macular architecture and (*b*) normal optic disc architecture.

RE macula (Fig. 4a) and optic disc (Fig. 4b) were normal. The patient was referred to the vitreoretinal team for surgical intervention; however, the patient opted for conservative management. For the subsequent monthly follow-up until now, her vision was stable without progression of VMT and VPT on OCT.

Discussion

VPT in adults is associated with diabetic retinopathy, central retinal vein occlusion, macular hole, nonarteritis anterior ischemic optic neuropathy, and epiretinal membrane.[2] It presents in 40% of eyes with ERM.[3]

VPT has been well reported as a cause of pseudo-optic disc swelling. Elizabeth *et al.* reported that VPT at the optic nerve head caused elevation of the optic disc,[4] obscuration of the disc margins, and peripapillary haemorrhage and can be mistaken for optic disc swelling.

Thomas *et al.* used OCT imaging to diagnose VPT,[5] while Shikha *et al.* conducted further studies using spectral-domain OCT (SD-OCT).[6] Qualitative parameters of papillary elevation and RNFL thickness were used by Shikha *et al.* The authors concluded that normal RNFL thickness in all four quadrants was in keeping with pseudopapilloedema, as none of the patients with true papilloedema had normal RNFL thickness. Apart from that, increased nasal RNFL thickness had a high diagnostic ability for true papilloedema. They described the difference between optic disc appearance on OCT and the hyporeflective spaces to distinguish between the two conditions. The triangular space in pseudopapilloedema was smaller and had minimal anterior reflection compared to true papilloedema (Table 1). In our case, we also used the quantitative RNFL thickness measurement guide from the study by Ahnul Ha *et al.*[7] as a comparison (Table 2).

Peter *et al.* also reported a case of VPT in proliferative diabetic vitreoretinopathy which had similar findings to our case.[8] There was presence of traction on the nasal side of the optic disc that caused margin elevation on OCT. However, our patient was nondiabetic and nasal RNFL was not elevated (Table 2).

Table 1. Comparison between true and pseudopapilloedema[6]

True papilloedema	Pseudopapilloedema
Elevated RNFL thickness in all four quadrants	RNFL thickness can be normal or elevated
Increased nasal RNFL thickness	Nasal RNFL thickness not increased
Larger hyporeflective triangular space above RPE peripapillary	Smaller hyporeflective triangular space above RPE peripapillary
No buried drusen in optic nerve head	Buried drusen can usually be found under optic nerve head
With initiation of treatment, serial OCT showed decreased RNFL thickness	With initiation of true papilloedema treatment, serial OCT showed no improvement in RNFL thickness

OCT: optical coherence tomography; RNFL: retinal nerve fibre layer; RPE: retinal pigment epithelium

Table 2. Peripapillary RNFL thickness for all four quadrants of the left eye compared to healthy RNFL[7]

Parameters (µm)	Left eye (OS)	Healthy RNFL[7]
Superior RNFL	178	129.78
Inferior RNFL	95	145.56
Temporal RNFL	104	85.25
Nasal RNFL	44	79.51
Average RNFL	117	110.03
Inferior TRT	474	526.5
Superior TRT	601	544.4

OCT: optical coherence tomography; RNFL: retinal nerve fibre layer; TRT: total retinal thickness

In our case, OCT was used to confirm the diagnosis of VPT with a normal nasal RNFL thickness (Table 2). The appearance of an elevated optic disc also precluded the diagnosis of lamellar hole due to VMT as the true cause of decreased vision. Vitrectomy will be beneficial in this case, as it can eliminate the tangential forces at the vitreoretinal interface that might lead to progression of the lamellar hole or retinoschisis, as stated in the study by Romano *et al.*[9] However, Hoyt *et al.* described eight VPT patients who did well with stable vision without surgery during their six-month follow-up.[10] Our patient was not keen for vitrectomy. Her vision and VPT remained stable without progression during her six-month follow-up until the time of this writing.

Conclusion

VPT is an uncommon cause of pseudo-optic disc swelling. Thorough fundus examination with adjunctive OCT imaging aids in arriving at the correct diagnosis. With the correct diagnosis, we can not only prevent unnecessary investigations, but also deliver more targeted treatment.

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