

Optical coherence tomography findings in optic disk melanocytoma

Optik disk melanositomun optik koherens tomografi bulguları

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ABSTRACT

A 49 years old male patient admitted to hospital with difficulty in reading. Distant visual acuity, anterior segment examination, and intraocular pressure measurements were normal in his both eyes. The fundus examination was normal in his right eye but in the left eye a pigmented lesion overlying and surrounding the optic disk was detected. Visual field examination (HFA II version 740 Humphrey Instruments, Inc SanLeandro, CA, Central 30-2 Threshold Test) was unremarkable in his right eye but an enlarged blind spot was detected in his left eye. Optical coherence tomography (OCT) scans showed high reflectance layer with optical shadowing behind it. OCT is a useful device in describing the actual size of melanocytoma and its follow up. OCT has a role to find out associated subretinal fluid, cystoid retinal edema, retinal traction and epiretinal membrane. We are presenting this case to emphasize the OCT findings of melanocytoma.

Key words: Optical coherence tomography, melanocytoma, optic disk

INTRODUCTION

Melanocytoma of the optic disk is a benign tumor that is usually detected as a dark brown mass on or adjacent to the optic nerve head. It is thought to derive from dendritic uveal melanocytes of the lamina cribrosa¹. Melanocytomas have several characteristic growth patterns, including growth deep in the optic nerve parenchyma, in the juxtapapillary choroid, and in the retinal nerve fiber layer.²

Melanoma transformation is extremely rare in optic disk melanocytomas. But visual loss due to several reasons such as spontaneous necrosis, compressive optic neuropathy can be seen during follow up. It is also associated with subretinal fluid, cystoid

ÖZET

Kırk dokuz yaşında erkek hasta yakını görememe şikâyetiyle kliniğimize başvurdu. Her iki gözde uzak görme keskinliği, ön segment bulguları ve göz içi basıncı normal bulundu. Sağ gözde fundus muayenesi normal iken sol gözde hemen hemen optik diskin tamamını çevreleyen zeminden kabarık pigmentte bir lezyon tespit edildi. Görme alanı muayenesi (HFA II versiyon 740 Humphrey Instruments, Inc SanLeandro, CA, Santral 30-2 Eşik Test) sağ gözde normaldi fakat sol gözde kör nokta genişlemesi tespit edildi. Optik koherens tomografi (OKT) incelemesinde altında optik gölgelenme yapan yansıtıcılığı yüksek bir tabaka izlendi. OKT melanositomun gerçek boyutlarını belirlemede ve hastalığın takibinde faydalı bir yöntemdir. Ayrıca hastalıkla ilişkili subretinal sıvı, kistoid retinal ödem, retinal traksiyon ve epiretinal membran gibi durumları tespit etmede de yeri vardır. Bu vakayı melanositomun OKT bulgularını vurgulamak için sunuyoruz.

Anahtar kelimeler: Optik koherens tomografi, melanositom, optik disk

retinal edema, retinal traction and epiretinal membrane, which can be detected by use of OCT.^{3,4}

Diagnostic tools such as ultrasonography, optical coherence topography can be used with different diagnostic values. Ultrasonography can be helpful in depicting enlargement or growth posteriorly into the optic nerve. OCT is most reliable and common in the diagnosis and follow-up of melanocytoma.¹ OCT is a high-quality imaging technique that provides resolution much better than standard ocular B mode ultrasonography. Typical OCT finding of melanocytoma is a high-reflectance band with optical shadowing behind it. The high-reflectance band produced by the melanocytoma goes ahead with the

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high reflectance signal produced by the adjacent retinal nerve fiber layer.¹

CASE

A 49 years old male patient admitted to hospital with difficulty in reading. Distant visual acuity, anterior segment examination, and intraocular pressure measurements were normal in his both eyes. The fundus examination was normal in his right eye but in the left eye a pigmented lesion overlying and surrounding the optic disk was detected (Figure 1). Visual field examination was unremarkable in his right eye but an enlarged blind spot was detected in his left eye. OCT scans (Optopol Technology S.A Ver. 2.01) showed high reflectance layer with optical shadowing behind it on the optic disk area. The high reflectance band produced by the melanocytoma was continuous with the high reflectance signal produced by the adjacent retinal nerve fiber layer (Figure 2). Horizontal diameter was 880 microns and the thickness was 4126 microns in OCT section measured at the highest point of the mass (Figure 2). There was no subretinal fluid or increase in macular thickness. The patient was advised periodic ocular examination. Regular follow-up revealed no change in OCT findings of the lesion, and his visual acuity remained 20/20.



Figure 1. Color photograph shows melanocytoma of the left optic disk.

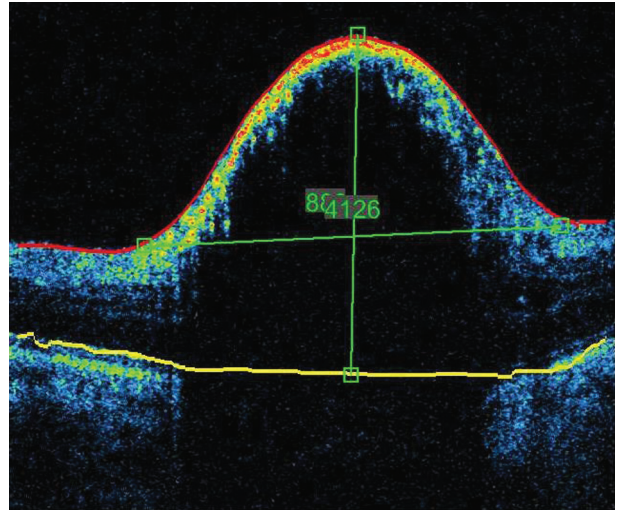


Figure 2. OCT scan shows high reflectance layer with optical shadowing behind it on the optic disk area. The high reflectance band produced by the melanocytoma was continuous with the high reflectance signal produced by the adjacent retinal nerve fiber layer.

DISCUSSION

New diagnostic equipments give ophthalmologist the opportunity to find out and follow up of some hard pathological conditions. OCT is one of these new methods for high resolution cross-sectional imaging of the retina. It has become a sensitive tool for diagnosing and categorizing retinal and optic disk lesions. OCT scan of the retina shows posterior high reflectance peak assumed to be the retinal pigment epithelial layer, indicating the high melanin content of the pigment epithelium. A lesser peak at the vitreoretinal interface and layers of varied reflectance representing the layered arrangement of the retina is obtained at anterior of the retina pigment epithelium layer.^{5,6}

OCT of optic disk melanocytoma portrays a dome-shaped tumor configuration but it provides little internal detail of the tumor (Figure 1). Similar findings were reported by Antcliff et al.¹ in three cases and Chaudhary et al.⁶ in one case. This is likely related to the darkly pigmented mass blocking transmission of light penetration through the tumor. The relative lack of light penetration through pigmented tissue in OCT could be a drawback of this imaging technology for intraocular tumors. Nevertheless, the technique is useful in providing information about the adjacent retinal tissue. There is no associated pathology in adjacent retinal tissue in our patient.

The OCT finding at this case was high reflectance signal overlying optical shadowing, which is corresponded with the melanocytoma. High reflectance signal of the solid lesion was continuous with the retinal nerve fiber layer in the adjacent retina and as might be expected, it was not continuous with the posterior high reflectance signal generated by the retinal pigment epithelium and choriocapillaris. This finding is important in differentiation between melanocytoma and choroidal melanoma. The high intensity of the signal from lesion and discontinuity from the retinal pigment epithelial choriocapillaris complex could be taken as evidence of high melanin content of tumor.¹

In summary, OCT is useful for obtaining the exact measurements of the mass lesion and may be used in follow-up of the progress and growth pattern of the lesion. Moreover, it has role to find out associated lesion such as subretinal fluid, cystoid retinal edema, retinal traction and epiretinal membrane.

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