

Role of microscope-integrated optical coherence tomography in detecting myopic choroidal neovascularization intraoperatively in a case of myopic rhegmatogenous retinal detachment

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Key words: Myopic CNV, mi-OCT, pathological myopia, retinal detachment

A 22-year-old boy presented to our center with subtotal rhegmatogenous retinal detachment (RRD). His best-corrected visual acuity (BCVA) was 20/1200 in the affected eye. Posterior segment examination revealed large superotemporal horse-shoe tear with multiple lattices [Fig. 1a and b]. The patient underwent vitreoretinal surgery with an encircling band and silicone oil tamponade using 3D heads-up visualization system. [Fig. 1c and d] Intraoperatively, brilliant blue G dye and PFCL (perfluorocarbon liquid) were injected to peel the internal limiting membrane. However, microscope-integrated optical coherence tomography (mi-OCT) revealed subretinal fluid persistent at the posterior pole along with RPE elevation (double layer sign) under the PFCL [Fig. 1e and f]. A diagnosis of underlying type 1 choroidal neovascularization (CNV) was made and half-dose intravitreal bevacizumab (0.625 mg/0.025 ml)^[1] was injected after silicone oil tamponade.

Discussion

The prevalence of high myopia in north India is 1.5%^[2] and CNV occurs in 5–10% of cases of pathological myopia.^[3] Moreover, in cases of pathological myopia with RRD, it is challenging to determine the presence of CNV, both clinically and with the use of OCT, due to the presence of thick viscous subretinal fluid in chronic detachments.

The use of intraoperative mi-OCT in cases of myopic retinal detachment helps us diagnose a wide spectrum of abnormalities^[4] at the posterior pole and allows us to treat

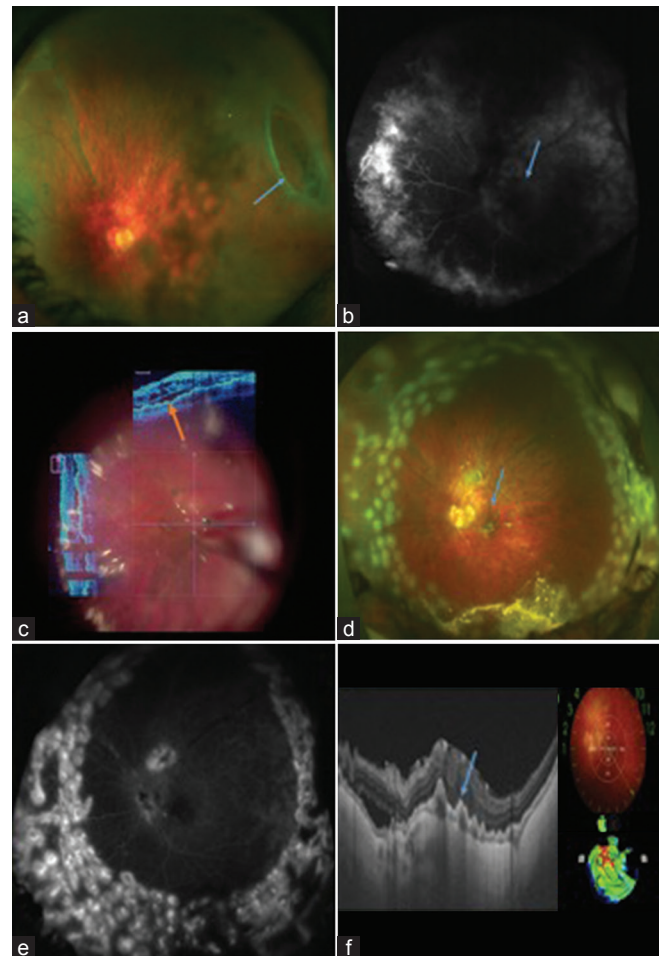


Figure 1: (a) Ultrawidefield (200°) clinical photograph of the left eye showing subclinical RRD with a superotemporal large HST along the margin of a lattice. Myopic changes of the retina like a temporal crescent and tessellated fundus in attached retina are seen but an underlying CNV at the posterior pole could not be made out. (b) Ultrawidefield FFA of the same patient not showing any leak at the posterior pole. Presence of blocked fluorescence due to the presence of thick subretinal fluid. (c) Ultrawidefield (200°) postoperative clinical photograph of the left eye with attached retina and laser marks at the periphery. A greyish membrane can be seen at the posterior pole confirming the presence of CNV. (d) Ultrawidefield FFA of the same patient not showing any leak at the posterior pole could rule out the presence of an active CNV. (e) Intraoperative snapshot of the left eye in the 3D heads-up system with mi-OCT showing the presence of subretinal fluid under PFCL and the presence of double-layer (membrane between RPE and bruchs membrane) confirming the presence of type 1 CNV. (f) Postoperative OCT showing multiple fibrovascular PEDs and double-layer sign adjacent to the PED

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during the same surgery. A unique finding, in this case, was the inability of PFCL to displace the entire subretinal fluid to the periphery. The presence of a thin layer of subretinal fluid under PFCL could be attributed to the CNV.^[5] The specific gravity of this persisting fluid is higher than that of the PFCL which prevents its displacement. This heavy SRF could have a very high concentration of protein which has collected following chronic exudation of plasma from the diseased choroid and RPE following CNV.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Disclosure

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Conflicts of interest

There are no conflicts of interest.

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