

Natural Course of Macular Detachment in Relation to Optic Pit

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Optic pit is a rare disorder, occurring in one in 11,000 people. Currently, the treatment of choice of optic-pit-associated maculopathy is pars plana vitrectomy. Thus, it is unusual to present the natural course of this disease in spectral-domain optical coherence tomography (SD-OCT, Copernicus, Optopol, Zawiercie, Poland; distributed by Canon Europe). Here we present a report of a 17-year old girl who refused surgery for many years but who continued to attend follow-up visits.

PRESENTATION

This patient presented with (Snellen) visual acuities of 0.8 in the eye with an optic nerve pit and 1.0 in the fellow eye. Fundus examination revealed a unilateral cavitory optic disc anomaly and an associated serous macular detachment. At that time, SD-OCT showed the presence of retinoschisis in the macular area. Striae of retinal tissue could be seen between the outer plexiform layer and the outer nuclear layer (Figure 1A). The macula was elevated to 678 μm central retinal thickness (CRT). Because of good visual acuity the patient refused surgery.

SD-OCT FINDINGS IN NATURAL HISTORY

After 2 years of stabilization, visual acuity suddenly dropped to 0.3. SD-OCT revealed additional photoreceptor detachment in the center of the fovea. CRT was 890 μm (Figure 1B). Two months later, visual acuity improved to 0.4, and SD-OCT showed a slight decrease in the macular elevation to 683 μm CRT. In SD-OCT scans we observed a further elevation of the photoreceptor layer. Moreover, a new connection between the photoreceptor layer and the outer nuclear layer was

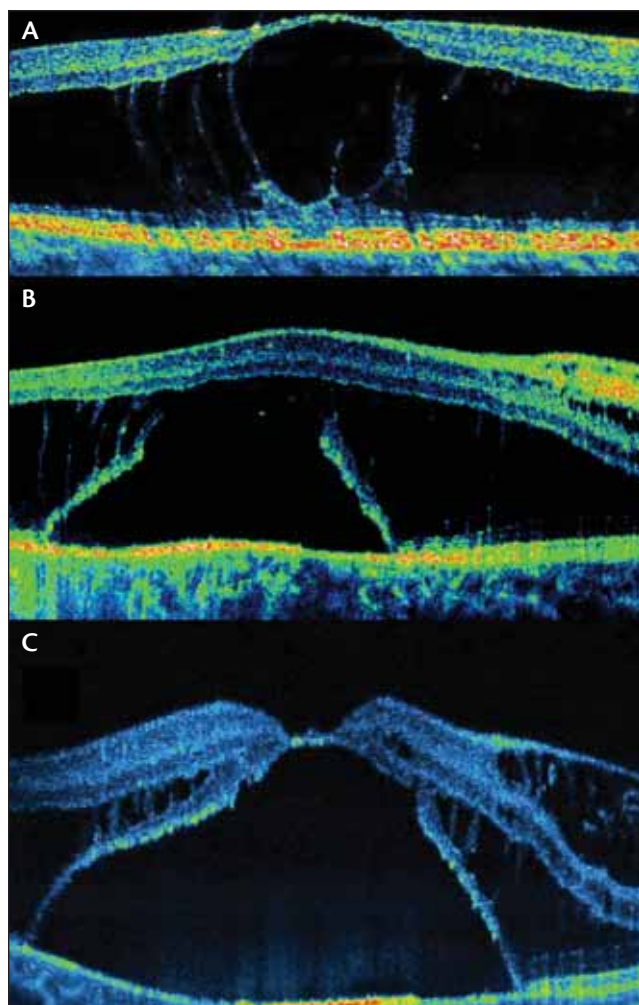


Figure 1. Striae of retinal tissue could be seen between the outer plexiform layer and the outer nuclear layer (A). Central retinal thickness (CRT) was 890 μm (B). A new connection between the photoreceptor layer and outer nuclear layer was observed.

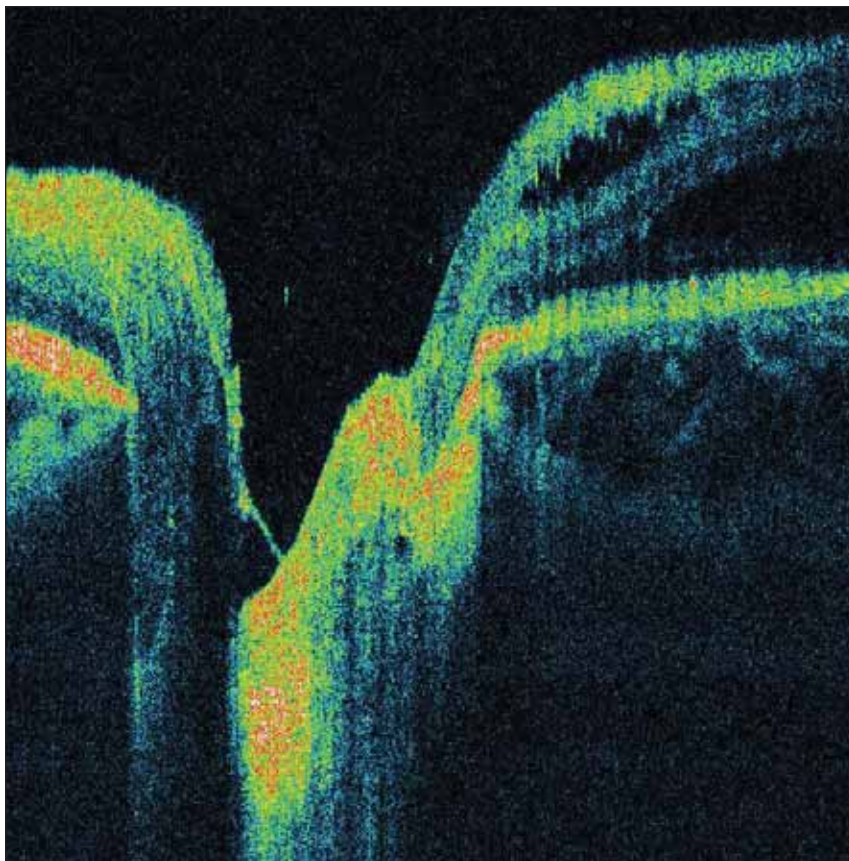


Figure 2. On SD-OCT images of the optic disc, a membrane on the bottom of the disc was noted.

We propose that a schisis-like elevation is the first step in the process of total macular detachment.

observed (Figure 1C).

The visual acuity was stable for the next year, and then the schisis spontaneously slightly resolved and the fovea was elevated to only 230 μm . Cystoidal spaces in the outer retinal layers were noted, and additionally an interconnection between the cystoid space and the subretinal layer was noted. The patient continued to refuse surgery. On SD-OCT images of the optic disc, a membrane on the bottom of the disc was noted (Figure 2).

DISCUSSION

Macular detachment is frequent in optic pit maculopathy. Based on the case presented above, we pro-

pose that a schisis-like elevation is the first step in the process of total macular detachment. The tissue-forming striae between the outer nuclear segments and photoreceptor layer tend to shorten and further to detach the photoreceptor layer.

Another interesting issue in this case is the vision improvement after the photoreceptors detached from the pigment epithelium and approached other detached retinal layers. Additionally, there was a membrane on the bottom of the optic disc, which in our opinion, is notable. Doyle and coworkers¹ also observed this membrane in three of eight cases presented in their SD-OCT documented study. The authors suggest that the membrane may represent a barrier to the passage of fluid into or under the retina, consisting of neuroectodermal and astroglial tissue. It was also suggested that an intact membrane protects against maculopathy

because in all three presented cases maculopathy did not coexist. In the case we present, although on the central scan the membrane is intact, there are disruptions in other B-scans in the 3-D imaging mode.

To conclude, SD-OCT enables the clinician to spot subtle changes in the macula during the natural course of optic-pit-associated maculopathy. Additionally, 3-D optic disc imaging is possible. ■

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1. Doyle E, Trivedi D, Good P, Scott RA, Kirkby GR. High-resolution optical coherence tomography demonstration of membranes spanning optic disc pits and colobomas. *Br J Ophthalmol*. 2009;93:360-365.