Abstract
Dome-shaped macula is a macular condition present in 5-10% of highly myopic eyes. This case report outlines the presentation, differentials, and management of dome-shaped maculopathy.

I. Case History:
Patient Demographics
- 70 year-old Caucasian male

Chief Complaint
- Floaters OS

Ocular History
- Acute symptomatic posterior vitreous detachment (PVD) OS x 05/2017
- Peripapillary staphyloma OD; posterior staphyloma temporal to macula OS
- Epiretinal membrane with pseudo-macular hole OS
- High myopia OU

Medical History
- Alcohol dependence, in remission; hyperlipidemia; carcinoma of prostate

Medications
- Enzalutamide, Simvastatin

II. Pertinent Findings:
Initial Comprehensive eye exam: 04/18/2012-
BCVA: OD: -6.25 +1.00 x 060  20/25
OS: -7.25 +1.25 x 098  20/20
Cirrus OCT Macula with HD 5 line Raster:
OD: normal foveal contour, curved due to posterior staphyloma, CST 283um
OS: normal foveal contour, convex, anterior protrusion of macular contour, CST 284um

Follow up Macular OCTs:
Cirrus HD 5 line raster: 04/03/13, 09/12/13, 01/26/15 - SD-OCT OS: Visible posterior staphyloma temporal to macula and stable convex, anterior protrusion of macula
Cirrus HD 5 Line Raster: 03/01/16, 04/04/17, 06/08/17- 9mm line EDI- OCT OS through optic nerve and macula: stable convex, anterior protrusion of macula, mild ERM nasal

Follow up on PVD OS: 07/25/17-
BCVA OD 20/40, OS 20/30
Cirrus OCT Macula; 9mm line EDI- OCT OS through optic nerve and macula OS:
ERM nasal to macula with irregular foveal contour c/w pseudomacular hole; Stable convex, anterior protrusion of macula, no subretinal or intraretinal fluid, or detachments

Follow up scheduled: 09/20/17- Perform B Scan, EDI Macula OCT scan

III. Differential Diagnosis:
Primary: Dome-shaped maculopathy
Others: Choroidal metastasis, choroidal hemangioma, central serous chorioretinopathy

IV. Diagnosis and Discussion:
Dome-shaped maculopathy was first described by Gaucher et al in 2008 using time-domain OCT, B-scan, ICGA, and FA. Gaucher characterized this pathology by an abnormal convex, anterior protrusion of the macula that may be present bilaterally or
unilaterally. The convex elevation included the retina, retinal pigment epithelium, and choroid usually within the concavity of a posterior staphyloma. Although the pathophysiology remains unclear, a study by Imamura et al using EDI-OCT showed dome-shaped maculae resulting from localized thickening of the sclera in myopic patients. The differentials for etiology remain unclear between: resistance of deformation of the scleral staphyloma, localized thickening of the macular area, tangential vitreoretinal traction, or even ocular hypotony. Most dome-shaped maculae display either a horizontal or vertical oval-shaped dome that could be missed on a single scan of the OCT. Studies using SS-OCT showed that prevalence of horizontal domes exceeded that of vertical domes.

V. Treatment and Management:
The patient will be followed by primary care optometry every 6 months to monitor for potential complications. The most common complication is the presence of a foveal serous retinal detachment, where a positive correlation exists between frequency and dome height. A 12-month study with SS-OCT documented fluctuations in active and inactive stages of serous retinal detachments, with spontaneous resolution of the detachment possible. One study suggested the degree of severity in serous retinal detachment depended on the stage of dome-shaped maculopathy. Lorenzo et al found neither anti-VEGF nor PDT effective in treating associated sub-retinal fluid. Other complications include foveal and extrafoveal retinoschisis, macular pigmentation, and choroidal neovascularization.

VI. Conclusion:
Dome-shaped maculopathy is a fairly recent finding made possible by optical coherence tomography. The incidence of dome-shaped maculopathy and its associated signs may be underreported due to the area of affected macula, placement of scans through the dome, and patient’s lack of symptoms. Utilization of OCT, ICGA, and FA can help us determine characteristics of this pathlogy.

Bibliography

Available images: Cirrus SD-OCT with EDI technology, fundus photos, scheduled B-scan