TEMPORAL PERIPAPILLARY VITREORETINAL TRACTION ASSOCIATED WITH BERGMEISTER'S PAPILLA: A RARE CASE REPORT AND BRIEF REVIEW

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Bergmeister's papilla is a rare congenital optic disc remnant that is usually benign. We report a case of temporal peripapillary retinal traction associated with Bergmeister's papilla in a 42-year-old asymptomatic woman. She presented with mild near-vision blur due to presbyopia, but normal distance vision and had 20/20 visual acuity bilaterally. Anterior segment and intraocular pressures were normal. Fundus examination revealed a large Bergmeister's papilla in the right eye, and spectral-domain optical coherence tomography (SD-OCT) demonstrated temporal peripapillary traction with focal cystic change while preserving the foveal contour. The patient was counseled and scheduled for six-month follow-up. This case highlights that although Bergmeister's papilla is typically benign, it may occasionally induce subtle tractional changes, and comprehensive evaluation using OCT is essential for accurate diagnosis and long-term monitoring.

Keywords: Bergmeister's papilla, optic disc anomaly, retinal traction.

I. INTRODUCTION

Bergmeister's papilla (BP) is a rare congenital remnant of the hyaloid vascular system and represents the least common form of persistent fetal vasculature (PFV).[1,2] In adults, BP is exceedingly uncommon and typically detected incidentally without visual symptoms.[3] Although traditionally considered benign, emerging evidence indicates that BP may induce vitreoretinal traction, occasionally leading to complications such as prelaminar schisis, vitreomacular traction, or tractional retinal detachment.[4-6] Advances in OCT and OCTA have improved the detection of these subtle structural changes.[7,8] This report describes a rare adult case of a large BP associated with localized peripapillary vitreoretinal traction, highlighting its distinct morphological features, discussing potential tractional implications, and providing a brief review of the relevant literature.

II. CASE REPORT

A 42-year-old healthy woman presented to the Ophthalmology Department, Hanoi Medical University Hospital, for evaluation of intermittent blurred near vision. She had no prior ocular or systemic disease. Best-corrected visual acuity was 20/20 in both eyes with mild presbyopia, and intraocular pressures were 15 mmHg bilaterally.

Anterior segment findings were unremarkable. Fundus examination of the right eye revealed voluminous grayish-white fibroglial tissue arising from the nasal margin of the optic disc and arching across the disc surface toward the macular region, forming a

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broad, dome-shaped structure consistent with a prominent Bergmeister papilla (BP) (Figure 1A). The extent and topography of this fibroglial complex, span the optic disc-macula axis. The left fundus was normal.

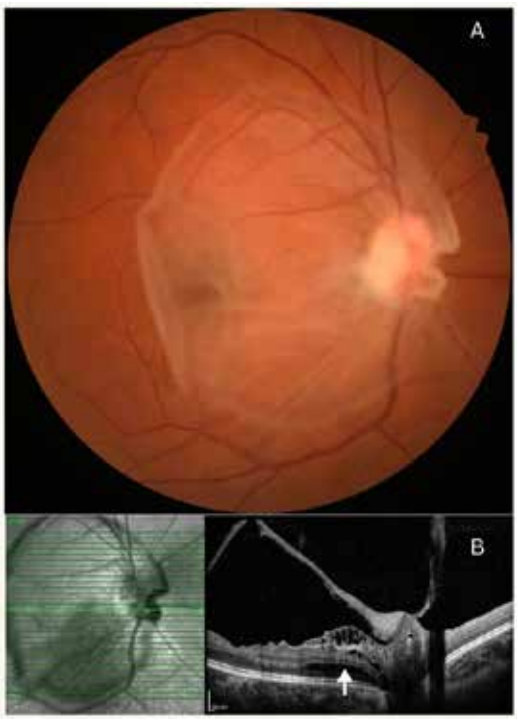

Figure 1 - Fundus photograph and SD-OCT findings of the patient's right eye

Spectral-domain OCT demonstrated a dense fibroglial band exerting pronounced temporal vitreoretinal traction, accompanied by focal peripapillary cystic changes but with preserved foveal contour and outer retinal integrity (Figure 1B).

She was counseled about the potential of progressive vitreomacular traction or visual distortion, and scheduled for long-term OCT follow-up every six months.

III. DISCUSSION

During fetal ocular development, the hyaloid vascular system (HVS) plays a crucial role in supplying nutrients to the developing primary lens. This transient vascular network arises between the 4th and 6th gestational weeks, becomes fully established by week 12, and consists of the hyaloid artery extending through Cloquet's canal from the optic disc to the posterior lens capsule. Physiologic regression of the HVS occurs between weeks 20 and 28 as the retinal and choroidal circulations mature, and it typically disappears completely by the eighth or ninth month of gestation, leaving a clear Cloquet's canal. When this regression process is incomplete, residual structures may persist, collectively termed PFV.[1]

The BP represents the posterior remnant of the HVS and is the rarest of the three PFV variants, representing approximately 12-22% of all cases.[2] A population-based survey by Bassi et al. (2019) of 6,013 adult eyes in India identified only two cases of BP, corresponding to an estimated prevalence of 0.03%.[3] Histopathological analyses demonstrate that BP primarily consists of glial and fibrous tissue, occasionally containing small residual vessels, covered by the inner retinal layers but devoid of ganglion cell axons.[7] Functionally, BP is regarded as a benign vestige of incomplete vascular regression, typically stable over time and not associated with visual impairment.[9]

Clinically, BP is most often detected incidentally on fundus examination as a small grayish-white tuft protruding from the optic disc margin, usually on the nasal side, with a smooth surface and no prominent feeding vessels.[1] Approximately 90% of cases are unilateral, with preserved visual acuity.[2] Imaging modalities such as OCT are essential for confirming the diagnosis, showing a hyperreflective, cone-shaped structure extending from the optic disc without invasion of the nerve fiber layer-key

features that help differentiate BP from optic nerve head fibrous membranes or astrocytic hamartomas, and detecting secondary complications of BP.[7,8]

The secondary complications of BP are typically the result of abnormal tractional forces exerted on the retina. In 2019, Venkateswaran et al. reported a BP case causing localized vitreoretinal traction and retinal distortion identified on OCT.[4] In 2024, Saito et al. further demonstrated a relationship between BP and prelaminar schisis, suggesting a possible pathogenic role of BP in prelaminar structural changes.[5] Another risk of BP in adults is promoting the appearance of VMT, a condition that typically occurs around the age of 60 and is more common in females; however, congenital vitreous abnormalities such as BP can elevate the risk and lead to earlier onset, with approximately 30% of OCT-confirmed cases presenting visual symptoms such as decreased acuity, central scotoma, or metamorphopsia.[6]

In most PFV cases, including BP, observation with periodic follow-up is recommended unless complications threaten the visual axis or involve retinal detachment.[9] Periodic evaluation with fundus examination and OCT ensures early detection of subtle structural changes.

In our patient, an unusually voluminous and prominent BP was incidentally detected in a middle-aged woman with transient blurred vision but preserved best-corrected visual acuity (20/20). The fibroglial proliferation extended from the optic disc toward the temporal peripapillary and parafoveal regions, forming an exceptionally rare morphological pattern. Spectral-domain OCT revealed localized temporal vitreoretinal traction with associated peripapillary cystic changes, while the foveal architecture remained intact. Given the patient's age, gender, and macula-involving tractional pattern, there is a conceivable risk of future VMT or other traction-related complications. She was counseled regarding potential visual symptoms and scheduled for six-monthly evaluations to detect any anatomical or functional progression.

IV. CONCLUSION

In conclusion, Bergmeister's papilla is a rare congenital remnant of the hyaloid vascular system that is usually benign and generally associated with a favorable visual prognosis. This case illustrates its potential to be associated with peripapillary vitreoretinal traction and related interface changes. These findings suggest that BP may not always represent a purely incidental anomaly and underscore the value of careful clinical evaluation. Based on this single observation, periodic monitoring may be considered, particularly when tractional features are identified. Moreover, this report contributes to the limited literature and highlights the need for further studies to better define the natural history and optimal management of BP-associated vitreoretinal traction.

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DECLARATION OF PATIENT CONSENT

The authors certify that they have obtained the appropriate patient consent form. In the form, the patient has given consent for images and other clinical information to be reported in the journal. The patient understands that their name and initials will not be published, and due efforts will be made to conceal their identity; however, complete anonymity cannot be guaranteed.

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