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Case Report

Foveal Abnormality Associated with Epiretinal Tissue of Medium Reflectivity (FATIAS): A Case Report with Multimodal Imaging Analysis and Literature Review

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Abstract

Introduction: This report describes a clinical case of FATIAS syndrome (Foveal Abnormality Associated with Epiretinal Tissue of Medium Reflectivity and Increased Blue-Light Fundus Autofluorescence Signal), detailing its clinical characteristics and multimodal imaging findings.

Case Description: A 39-year-old woman presented for routine evaluation with BCVA 20/20 bilaterally and unremarkable anterior segments. Fundus imaging revealed bilateral central reddish, well-defined lesions suggestive of macular holes. Optical Coherence Tomography (OCT) showed foveal pit asymmetry (nasal elevation), while Optical Coherence Tomography Angiography (OCT-A) demonstrated enlarged foveal avascular zones in both superficial and deep capillary plexuses.

Conclusion: In brief, our case integrates OCT-A with Spectral-Domain Optical Coherence Tomography (SD-OCT) criteria, revealing new vascular features (FAZ enlargement) that augment structural findings, validating and expanding the original phenotypic description.

Keywords: Foveal Abnormality Associated with Epiretinal Tissue of Medium Reflectivity (FATIAS); Optical Coherence Tomography Angiography (OCT-A); Spectral-Domain Optical Coherence Tomography (SD-OCT); Vitreomacular Interface (VMI) Disorders; Guinea

Introduction

Vitreomacular Interface (VMI) disorders are a heterogeneous group of retinal conditions caused by abnormal interactions between the vitreous and the macula. These disorders may lead to variable visual impairment and can sometimes remain asymptomatic, being detected only by imaging modalities such as OCT. Well-known examples include vitreomacular traction, epiretinal membranes and macular holes [1]. Recently, FATIAS syndrome (Foveal Abnormality Associated with Epiretinal Tissue of Medium Reflectivity and Increased Blue-Light Fundus Autofluorescence Signal) has been identified as a distinct VMI disorder, characterized by foveal contour abnormality, epiretinal tissue of medium reflectivity and increased blue-light fundus autofluorescence [2]. Recognition of FATIAS is important for the diagnosis and management of atypical macular abnormalities. This paper presents a rare case of a 39-year-old woman with FATIAS, highlighting its clinical features and diagnostic approach.

Case Report

A 39-year-old woman with no significant medical history was referred to our clinic for a routine ophthalmic evaluation. Best Corrected Visual Acuity (BCVA) was 20/20 in both eyes. Examination of the anterior segment in both eyes was unremarkable, with no abnormal findings detected. Color fundus photographs reveal bilateral central reddish lesions with a well-defined round configuration, initially suggestive of bilateral macular holes (Fig. 1).

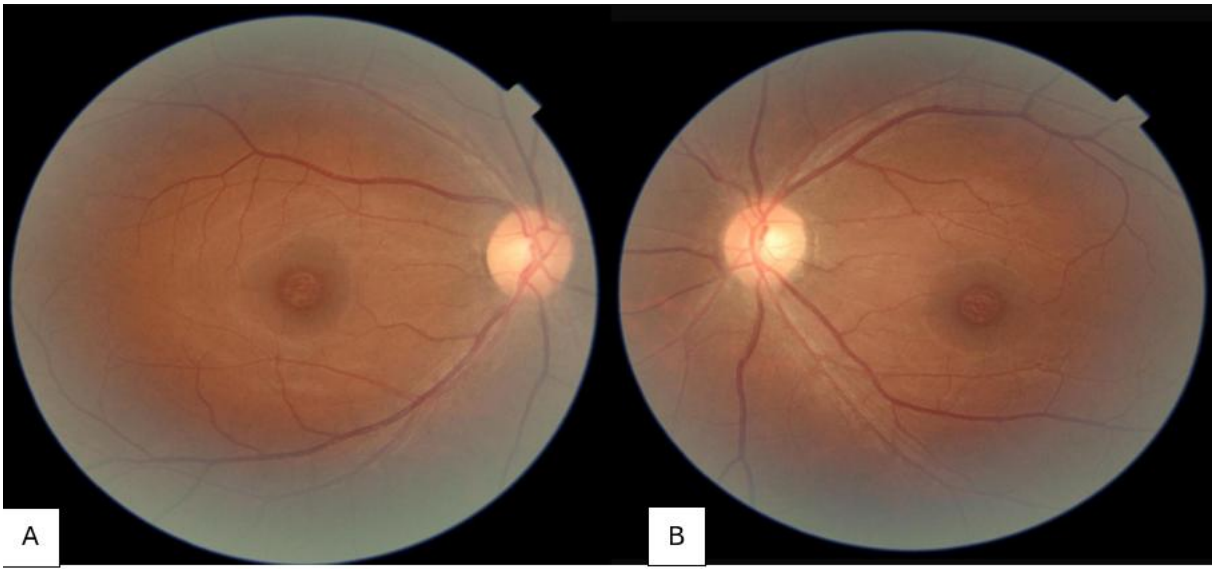

Figure 1: Color fundus photographs reveal bilateral central reddish lesions with a well-defined round configuration, initially suggestive of bilateral macular holes (A: RE B: LE).

A macular OCT was performed, which revealed a foveal pit an asymmetric contour between the nasal and temporal aspects of the foveal pit with the nasal part that appears to be more elevated in both eyes (Fig. 2).

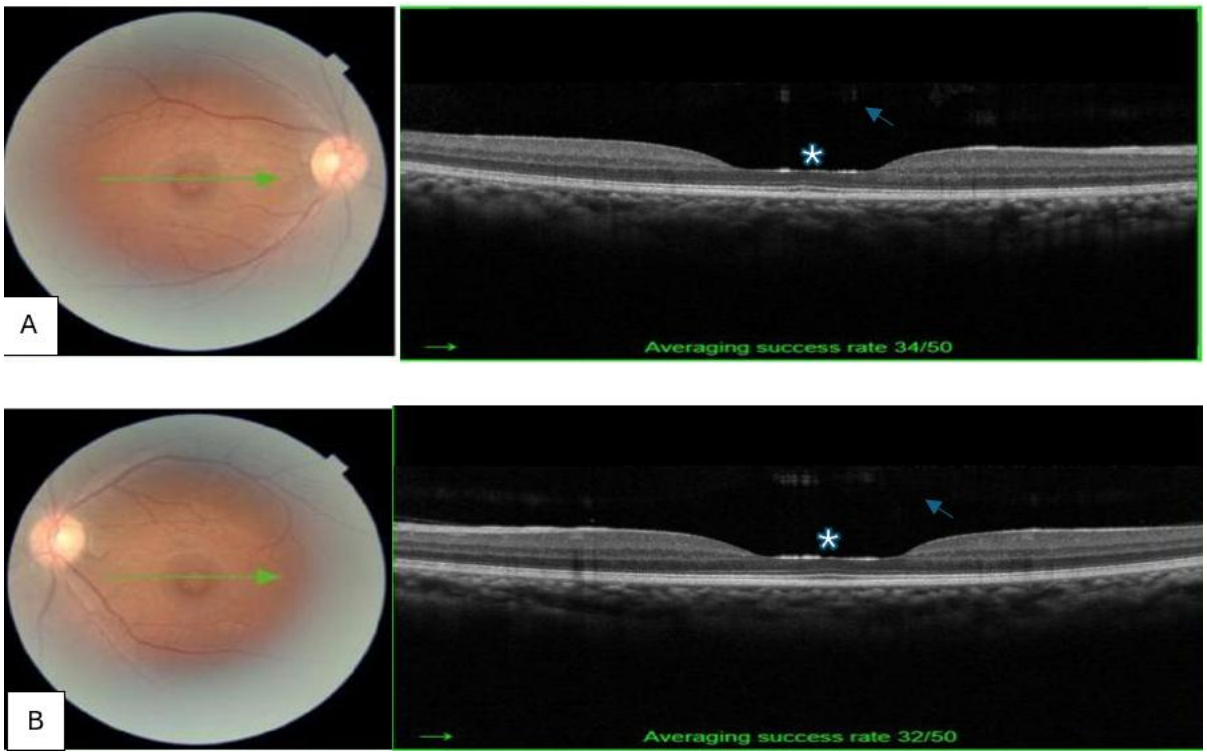

Figure 2: OCT scans demonstrate a shallow foveal pit and a rail of medium-reflectivity tissue (asterisk), thicker centrally and tapering toward the foveal pit margins. A detached posterior vitreous cortex is visible (blue arrow) (A: RE B: LE).

OCT-A (Optical Coherence Tomography Angiography) was performed and demonstrated enlargement of the Foveal Avascular Zone (FAZ) in both the superficial and deep capillary plexuses, bilaterally (Fig. 3).

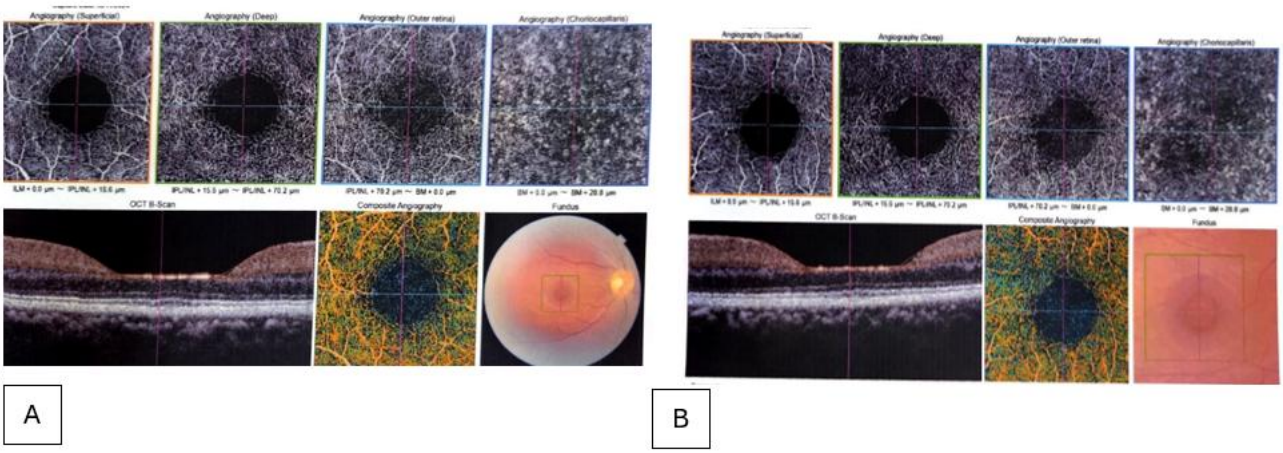

Figure 3: 3X3 mm Optical Coherence Tomography Angiography (OCT-A) of superficial, deep and capillary plexuses and correlating Optical Coherence Tomography (OCT) enlargement of the foveal avascular zone in both eyes (A: RE B: LE).

Through multimodal imaging assessment a diagnosis of Foveal Abnormality Associated with Epiretinal Tissue of Medium Reflectivity and Increased Blue-Light Fundus Autofluorescence Signal (FATIAS) was established in a 39-year-old woman presenting with preserved visual acuity (20/20 bilaterally).

Discussion

Spectral-Domain Optical Coherence Tomography (SD-OCT) has revolutionized the management of Vitreomacular Interface (VMI) disorders by replacing subjective clinical signs with objective, quantifiable, layer-specific metrics [3]. This Advanced imaging enables accurate diagnosis and staging of vitreomacular disorders, facilitating personalized treatment and improved prognostic precision [4].

Anatomically, the human fovea demonstrates an elliptical morphology rather than a perfectly spherical or symmetrical structure, with its long axis oriented along the nasal-temporal axis. Foveal thickness exhibits variability influenced by interindividual variability, sex-related dimorphism and ethnic variations [5,6].

Five distinct vitreomacular interface disorders Vitreomacular Traction (VMT), Epiretinal Membrane (ERM), Pseudomacular Hole (PMH), Lamellar Macular Hole (LMH) and Full-Thickness Macular Hole (FTMH) are clearly distinguished from normal foveal anatomical variants through advanced imaging techniques such as Optical Coherence Tomography (OCT) [7]. Each condition presents unique imaging characteristics and differs in its progression and surgical outcomes [2]. This paper reports a case of a distinct VMI disorder that known as FATIAS. This condition was first described in 2019 by dell'Omo, et al. [2].

Similar to other VMI diseases, FATIAS is more prevalent in females than males (4:1 ratio) with a mean onset age of 69 years. While epidemiologically similar to other VMI pathologies, FATIAS is distinguished by characteristic Spectral-Domain Optical Coherence Tomography (SD-OCT) and Blue Fundus Autofluorescence (B-FAF) findings [2].

FATIAS is recognized by unique SD-OCT findings such as an abnormal foveal contour-either a step or shallow pit with a hyperreflective layer at the fovea's inner surface, but without epiretinal membranes, lamellar hole-associated proliferation, cysts or intraretinal splitting. Blue fundus autofluorescence shows focal hyperautofluorescence at the fovea. Patients maintain good visual acuity and stable retinal structure over time, distinguishing FATIAS from other vitreomacular interface disorders [2].

FATIAS presents in two patterns: the step type, with asymmetric foveal elevation and medium-reflective tissue inside the fovea and the rail type, with a shallow foveal pit and a linear medium-reflective "rail". Our case is rail type, showing these SD-OCT and autofluorescence features with stable vision and anatomy [2].

The diagnostic challenge of this condition lies in distinguishing it from other macular disorders, such as Macular pseudohole hole and Wide-based Foveal Pit.

Macular pseudohole describes a foveal defect that looks like a hole but is actually due to epiretinal membrane contraction, not a full-thickness macular hole [8-11]. Wide-based foveal pit is an anatomical variation characterized by an abnormally wide Foveal Base Width (FBW), defined as larger than the mean plus one standard deviation of normal populations (around >390 μm) [12]. FATIAS demonstrates enlargement of the Foveal Avascular Zone (FAZ) in both eyes on Optical Coherence Tomography Angiography (OCT-A), affecting the superficial and deep capillary plexuses. This finding correlates with structural anomalies observed on Spectral-Domain Optical Coherence Tomography (SD-OCT), such as abnormal foveal contour and medium-reflective tissue at the inner foveal surface. To our knowledge, this represents the first documented case of FATIAS characterized using OCT-A, highlighting its utility in visualizing vascular changes associated with this disorder.

The FAZ expansion observed in FATIAS aligns with patterns seen in other retinal pathologies such as diabetic retinopathy and preclinical Alzheimer's disease, but differs by occurring alongside preserved outer retinal layers and stable visual acuity, key diagnostic features of FATIAS [13,14].

Conclusion

In summary, here, we describe a distinct VMI disease form that is not included in the current classification systems. To our knowledge, this pathology has only been described once in the literature, by Dell'Ommo. OCT-A finding complements the established SD-OCT criteria, providing a multimodal imaging profile for the condition.

Conflict of Interest

The author declares no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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Author's Contributions

All authors have contributed equally to this work and have reviewed and approved the final manuscript for publication.

Consent For Publication

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Ethical Statement

Not Applicable.

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