

En face and OCT angiography findings in macular retinoschisis

Retinosquise macular: achados em En face e OCT angiografia

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ABSTRACT

The diagnosis of macular retinoschisis is often complex and demands complementary exams to be confirmed. This is the report of a case of a 27 years old man diagnosed with macular retinoschisis, in which En face OCT and OCT angiography were used to identify and demonstrate the typical patterns of the disease, as well as distinguish them from the findings of cystoid macular edema.

Keywords: Retinoschisis/diagnosis; Angiography; Tomography, optical coherence/methods; Retina; Fluorescein angiography; Macular edema

RESUMO

O diagnóstico de retinosquise macular é, por muitas vezes, difícil e requer exames complementares para sua confirmação. Este é o relato de um caso de paciente masculino de 27 anos diagnosticado com retinose macular, no qual En face Tomografia e Angiografia por Tomografia de Coerência Óptica foram usados para identificar e demonstrar os padrões da doença, bem como distingui-los dos achados de edema macula cistóide.

Descritores: Retinosquise/diagnóstico; Angiografia; Tomografia de coerência óptica/métodos; Retina; Angiofluoresceinografia; Edema macular

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INTRODUCTION

Spectral Domain Optical Coherence Tomography (SD-OCT) is a widely used imaging technique for the diagnosis of macular diseases.⁽¹⁾ OCT angiography, along with the split-spectrum amplitude decorrelation angiography (SSADA) algorithm, is a novel technique that detects signal variations over multiple B-scans resulting from the movement of blood flow.⁽²⁾ En face OCT (C-scan) technology has enriched our understanding about retinal anatomical disorders,⁽³⁾ including macular retinoschisis. Gregori et al reported SD-OCT findings in X-linked retinoschisis (XLRS) patients with macular schisis in other layers, deeper than the nerve fiber layer (NFL), classically described as the site of retinal splitting.⁽⁴⁾

Case report

A 27-year-old man with no blindness related in his family was referred to a regular ophthalmic consultation. His best-corrected visual acuity was 20/80 -1 OD and 20/400 OS. Fundoscopy revealed a blunted foveal reflex with bilateral and symmetric changes in the central macula OU. No peripheral retinoschisis was observed. Fluorescein angiography did not indicate leakage after dye injection (Figure 1). SD-OCT (Spectralis; Heidelberg Engineering, Heidelberg, Germany) showed prominent splitting within the inner retina, with large hyporeflective areas affecting the macula in both eyes. En face OCT and OCT angiography (RT-VUE XR Avanti; Optovue, Fremont, US) demonstrated a typical wheel shaped pattern (Figure 2) in OU.

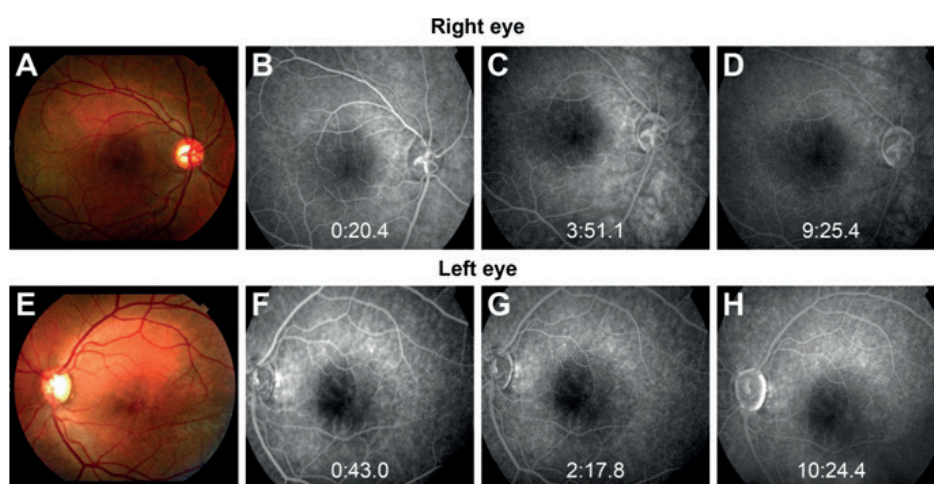


Figure 1. En face OCT angiogram and OCT angiography of both eyes. A and C: OCT angiography of the capillary superficial plexus (SP) and en face image at the same level in OD, respectively. B: OCT angiography of the deep plexus (DP). D: En face OCT image at the DP with a “wheel-shaped” pattern, correlated with SD-OCT (E) horizontal (F) and vertical B-scans, both showing large hyporeflective cystic intraretinal areas, but optically empty. G and I: OCT angiography of the SP and en face images in OS, respectively. The macular schisis in the DP is presented in OCT angiography (H) and en face OCT (J) at the level, with symmetrical features found in OD. K and L: SD-OCT (K) horizontal (L) and vertical B-scans demonstrate multiple confluent cystic areas

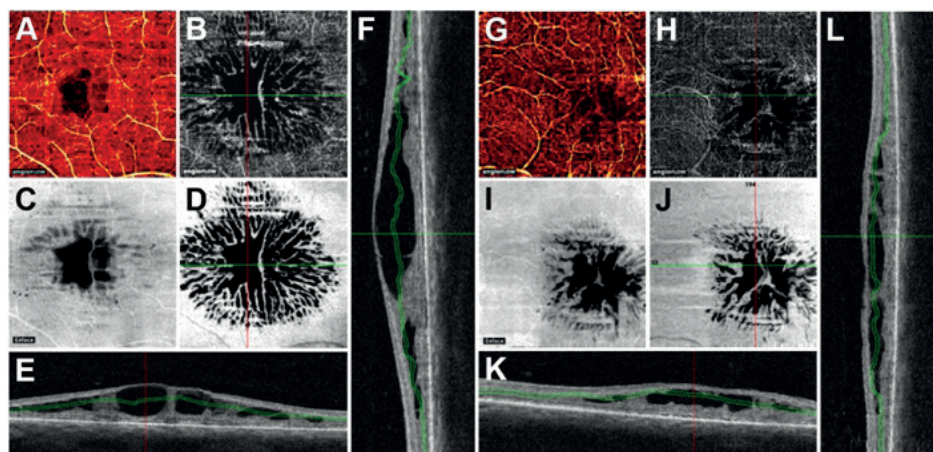


Figure 2. Fundus photograph and fluorescein angiography. It is possible to notice the stellate aspect of the macula in OD (A) and OS (E). The macular schisis does not stain on fluorescein angiography and does not present any abnormality during the examination in OD (B – D) and OS (F – H). This feature also helps to differentiate the imaging presentation of retinoschisis from that of cystoid macular edema

DISCUSSION

To our knowledge, this is the first report of OCT angiography in a patient diagnosed with macular retinoschisis. At first glance, no changes in the typical configuration of the retinal capillary superficial plexus were observed. En face OCT analysis displayed the radial oriented structure of Henle fibers, which are important in shaping the pattern of macular retinoschisis.^(1,4) Furthermore, the characteristics of OCT en face scans in typical retinoschisis diverge from the pictures obtained in patients with cystoid macular edema.⁽¹⁾ The latter presents a flower-shaped pattern, different from the wheel-shaped pattern related to the schisis that represents the radial configuration of Henle fibers and Müller cells.⁽⁴⁾ Additionally, fluorescein angiography helped to distinguish both conditions. This patient presented with such bilateral splitting that started in his inner retina but also affected different levels of the deep retina. In fact, Müller cells exhibited regional variation in their particular organization⁽¹⁾, helping to explain why distinctive retinal layers are predominantly involved in retinoschisis disorders, such as XLRS⁽⁴⁾ and myopic foveoschisis.

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