

OPTICAL COHERENCE TOMOGRAPHY IN CENTRAL RETINAL ARTERY OCCLUSION

TOMOGRAFÍA ÓPTICA DE COHERENCIA EN OCLUSIÓN DE ARTERIA CENTRAL DE LA RETINA

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ABSTRACT

Clinical cases: Three eyes with central retinal artery occlusion (CRAO) have been studied. Optical coherence tomography (OCT) was performed in each of them. Ophthalmoscopic signs of CRAO were equivocal in the three eyes. However, the presence of a hyporeflective signal in the OCT scan could be seen clearly in each of them.

Discussion: The presence of a hyporeflective band between the neurosensory retina and the retinal pigment epithelium in OCT images, that persist for several months after a CRAO episode, is useful in establishing the diagnosis in these patients (*Arch Soc Esp Oftalmol 2006; 81: 553-556*).

Key words: Central retinal artery occlusion, optical coherence tomography, cherry-red spot, subretinal fluid, macular edema.

RESUMEN

Casos clínicos: Presentamos tres ojos afectados de obstrucción de arteria central de la retina (OACR). En todos ellos realizamos exploración con tomografía óptica de coherencia (OCT). Dependiendo del tiempo de evolución del cuadro clínico, los signos oftalmoscópicos de OACR eran más o menos evidentes. Sin embargo, la presencia de una banda hiporreflectante en las imágenes de OCT pudo objetivarse en todos los casos.

Discusión: La presencia en las imágenes de OCT de una banda hiporreflectante por debajo de la retina neurosensorial en los casos de OACR, que persiste incluso meses después del inicio del cuadro clínico, resulta útil en el diagnóstico de esta patología retiniana.

Palabras clave: Oclusión de arteria central de la retina, tomografía óptica de coherencia, mancha rojo cereza, líquido subretiniano, edema macular.

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INTRODUCTION

The obstruction of the central retina artery (OCRA) is a well known cause of eyesight loss which almost always has a negative prognosis. This obstruction generally occurs in patients with cardiovascular risk factors and usually produces a severe impairment of central vision. The presence of macular edema and «cherry-red spots» are the main ophthalmological signs in the diagnosis of this pathology (1). Optical Coherence Tomography (OCT) is a valid image-based diagnostic technique for assessing various macular pathologies which is also useful for diagnosing OCRA (2,3).

CASE REPORTS

We present three eyes which suffered sudden and severe loss of vision. All the cases were diagnosed with OCRA. Case 1 (fig. 1) is a 74-year old woman

who exhibited loss of vision in her right eye which started 11 days ago. Case 2 (fig. 2) concerns a 73-year old man who complained of severe vision loss in his left eye, which had occurred suddenly 24 days ago. In both cases the funduscopic exploration revealed the presence of a sharp macular edema with «cherry-red spots» in the affected eyes. OCT imaging revealed the presence of an increased reflectancy coming from the neuroretina, as well as the existence of a hyporelecting strip occupying the space comprised between the neurosensory retina and the strip of the pigmentary and choriocapilar epithelium. In turn, Case 3 (fig. 3) concerned a 76-year old man who referred a severe reduction of vision in the left eye which began over 2 months ago. The eye fundus exploration revealed the existence of drusen and alterations of the macular pigmentary epithelium in both eyes in the context of a non-exudative age-related macular degeneration.

The right eye OCT revealed the presence of some irregularities in the strip of pigmentary epithelium

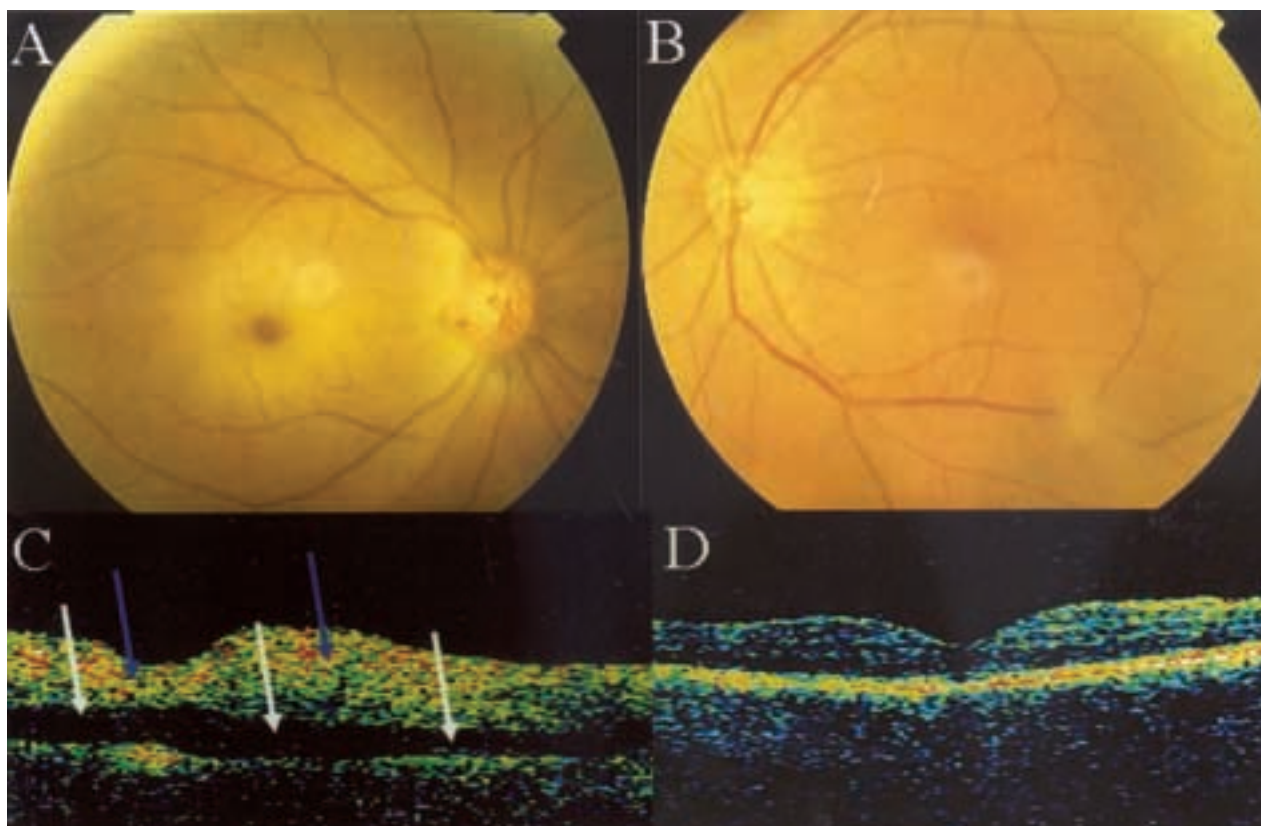


Fig. 1: Case 1. Retinographies of both eyes (A and B). OCT of both eyes (C and D). Hyporelecting strip (white arrows) and increased reflectancy from the internal retina layers (blue arrows).

and the left eye OCT illustrated the presence of a clear hyporeflecting strip below the strip corresponding to the neurosensory retina.

DISCUSSION

The finding of increased reflectiveness arising from the internal retina layers and a reduced reflectiveness in the external retina layers was first described by Puliafito et al (4). Said authors attribute the increase of reflectancy arising from the internal neurosensory retina layers to the morphological changes secondary to ischemia. On the other hand, the hyporeflecting signal arising from the external retina layers would be related to the accumulation of fluid in the area. The possibility that the hyporeflecting strip represents the absence of the external retina layers seems discarded by the work of Hay-

reh et al (5) who, by means of histological studies, demonstrated that two hours after an OCRA irreversible damages had been caused in the internal retina layers, even though the external layers, including the external third of the internal nuclear layer, remained normal.

In our cases it was possible to objectively prove the presence of said hyporeflecting strip below the neurosensory retina in all three cases. It seems particularly interesting that in Case 3 the ophthalmological signs typical of OCRA were no longer present, probably due to the evolution period (which, as mentioned above, exceeded two months). However, the OCT image (fig. 3) clearly depicts the presence of a hyporeflecting strip between the neuroretina and the pigmentary epithelium.

This finding of the OCT persisted at least two months after the appearance of the clinical case and

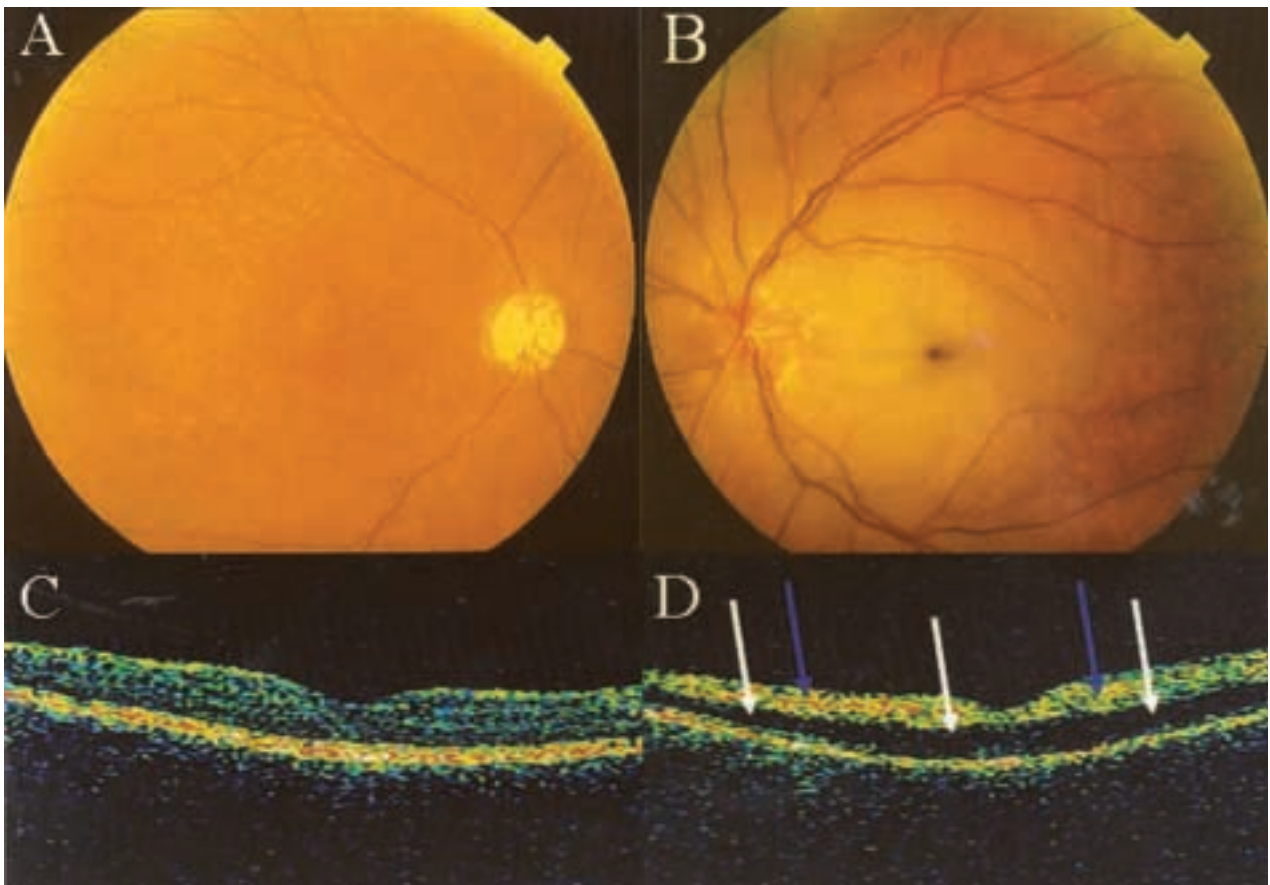


Fig. 3: Case 3. Retinographies of both eyes (A and B). OCT of both eyes (C and D). Irregularities in the strip corresponding to the retina pigmentary epithelium (arrow tips). Hyporeflecting strip (white arrows).

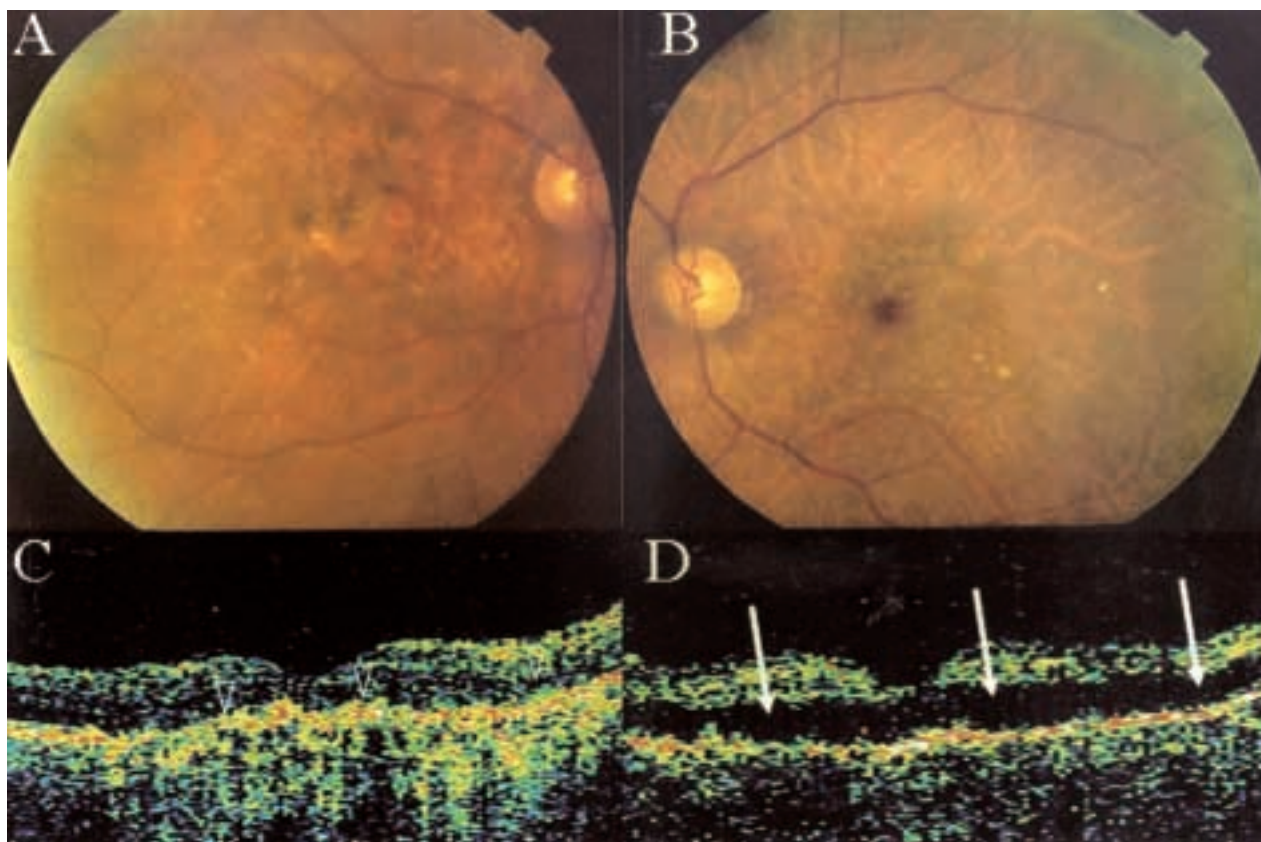


Fig. 3: Case 3. Retinographies of both eyes (A and B). OCT of both eyes (C and D). Irregularities in the strip corresponding to the retinal pigmentary epithelium (arrows). Hyporeflecting strip (white arrows).

therefore could be useful for diagnosing these patients.

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