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Short communication

Spectral domain optical coherence tomography in Celestone® retinal toxicity☆

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ABSTRACT

Case report: After inadvertent intravitreal injection of Celestone® (betamethasone sodium phosphate and acetate, benzalkonium chloride) in a patient, the macular spectral domain optical coherence tomography (SD-OCT) images showed hyper-reflectivity, thinning, and irregular spikes in the inner retinal layers. These early findings could explain the toxic secondary anatomical changes due to the drug itself and/or to its excipients. Late and permanent SD-OCT findings included changes in the ellipsoid zone and cystic-like spaces. *Discussion:* In this case, SD-OCT images can help to better understand the pathophysiology of the retinal damage and to diagnose the associated complications, providing information with prognostic value.

Tomografía de coherencia óptica de dominio espectral en la toxicidad retiniana por Celestone®

Palabras clave:
Celestone®
OCT-SD
Toxicidad retiniana
Línea de los elipsoides
Inyección intraocular

RESUMEN

Caso clínico: Tras la administración intravítrea inadvertida de Celestone® (betametasona acetato y fosfato sódico, cloruro de benzalconio) en una paciente, la tomografía de coherencia óptica de dominio espectral (OCT-SD) mostraba hiperreflectividad, adelgazamiento e irregularidad en espículas en las capas internas de la mácula. Estos hallazgos tempranos serían el resultado del efecto tóxico directo del fármaco o sus excipientes. La alteración en la línea de los elipsoides y la aparición de espacios quísticos tabicados fueron hallazgos tardíos.

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Discusión: La OCT-SD puede ayudar a conocer mejor la fisiopatología del daño retiniano y a diagnosticar las complicaciones asociadas, aportando información con valor pronóstico.

Clinic case report

Female, 52, −10 diopter myopic, referred due to suspected intraocular administration of Celestone® (betamethasone acetate and sodium phosphate, benzalkonium chloride) in the right eye one week after orbital decompression carried out by the Maxillofacial Dept. Visual Acuity (VA) was of perception of light with 3+ afferent pupil defect. Biomicroscopy revealed inferior hyposphagma with normal intraocular pressure. Ophthalmoscopy showed 3+ vitreous Tyndall, whitish condensations and fibrous tracts in inferior vitreous together with deep whitish infiltrates in posterior pole and temporal retina, as well as a small inferior retinal hemorrhage. Fourteen days after the injection vitreous cellularity diminished, allowing for the identification of patched peri-artheritis, temporal artery constriction, retinal infiltrates with perivascular distribution and an inferior sub-hyaloid whitish material sediment (Fig. 1). Fluorescein angiography showed delay in the superior temporal vein filling and discrete perimacular late staining (Fig. 2).

Spectral domain optic coherence tomography (OCT-SD, Heidelberg Engineering, Heidelberg, Germany) (Fig. 3) showed hyper-reflective dots in the vitreous (drug traces) and loss of normal macular architecture: a hyper-reflective line that could correspond to a thickened internal limiting membrane or an epiretinal membrane; hyper-reflectiveness, thinning and uneven spicules of the internal retina layers; perifoveal thickening and disappearance of the ellipsoid line. The nasal macula exhibited focal changes similar to those described, with better visualization of the ellipsoid line. Patched hyper-autofluorescence was exhibited in the entire macula area with loss of normal auto-fluorescence, as well as perivascularly arranged hypo-autofluorescent dots (Fig. 3). The visual field exhibited deep and practically full defect in the right eye, while the full field electroretinogram showed diminished

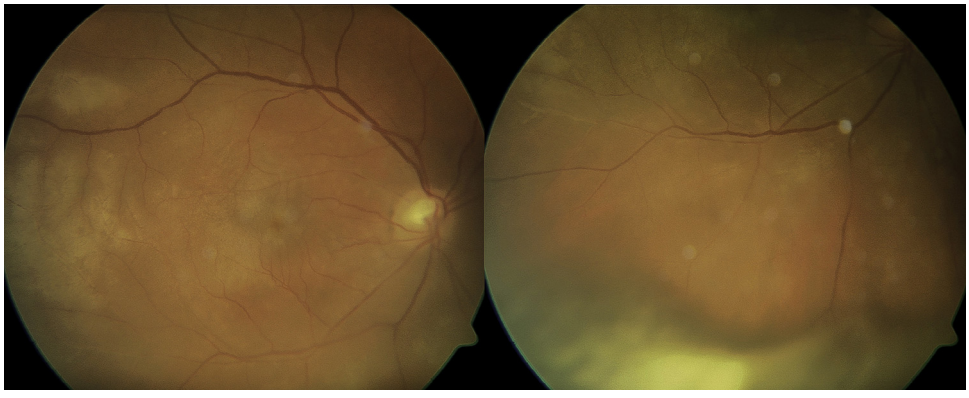

Fig. 1 – Retinographies 2 weeks after the injection: patched peri-arthritis areas, temporal artery constriction, perivascularly distributed retinal infiltrates and faint macular cherry red spot (left), with inferior sub-hyaloid whitish material sediments (right).

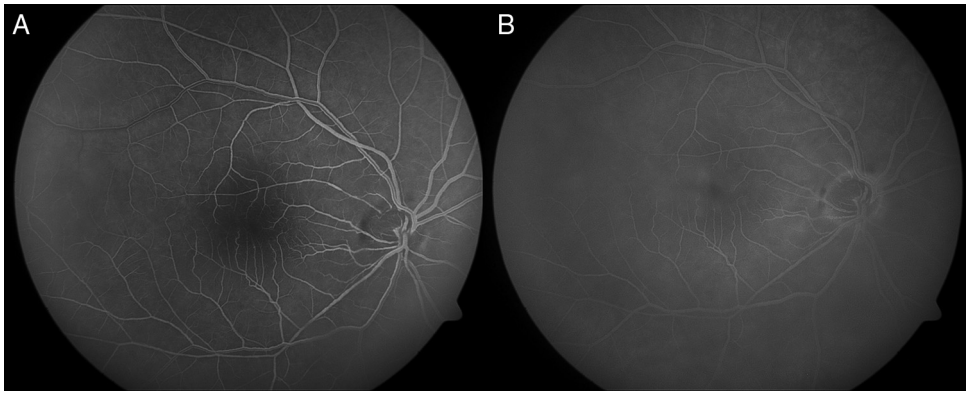

Fig. 2 – Fluorescein angiography. (A) Early times: delayed superior temporal vein filling. (B) Late times: discrete perimacular staining.