Early diagnosis of retinopathy due to the chronic use of hydroxychloroquine: A case report

Heitor Tomé Rezende; Henrique Ferreira Pucci; Lucas Oliveira Cintra; Lucas Santos Barbosa; Laís Lauria Neves; Romulo Piloni-Parreira, Natália Andrade Mendonça , Vinicius Ferreira Kniggendorf

INTRODUCTION

Chloroquine was discovered in 1934 by Hans Andersag and it is an aromatic compound of 4-aminoquinolones (1). Antimalarials have been widely used in the treatment of Systemic Lupus Erythematosus and Rheumatoid Arthritis. Once the diagnosis is established, there is a tendency to use them continuously and chronically in rheumatology practice. Other forms of use are in the treatment of extraintestinal amebiasis and, mainly for the prophylaxis and fight against Plasmodium (2). In addition, despite controversial studies, dermatologists have been using the medication on a large scale to treat autoimmune conditions that cause baldness, such as in cases of Alopecia Areata.

Hydroxychloroquine, in turn, is a more modern medicine and a more soluble derivative of chloroquine, and therefore it is a more expensive medicine and ends up having a more favorable safety profile, with fewer side effects.

Chloroquine and hydroxychloroquine may have adverse reactions in: gastrointestinal tract, hematological, neurological, neuromuscular, dermatological and cardiological systems. The most common adverse effects are muscle problems, loss of appetite, diarrhea, and rashes. Among others, one of the most serious adverse effects is related to vision, from retinopathy to the use of medication. Retinal toxicity has been reported between 0.5 and 3.5% in patients using therapeutic doses of hydroxychloroquine and 10-25% in patients using chloroquine in continuous form (3).

CASE REPORT

Female patient with history of Systemic Lupus Erythematosus (SLE), using hydroxychloroquine sulfate – for about 20 years. On examination, she had corrected visual acuity of 20/20 AO, intraocular pressure (IOP) of 15 and 16 mmHg, biomicroscopy without alterations, and optic nerve with enlarged cup AO. Examinations for investigation of glaucoma were requested. Optic nerve OCT was normal, but visual field (CV) exams 24-2 showed decreased foveal sensitivity. She was referred to the retina sector to investigate the cause of central loss. Fundoscopy was within normal limits. Autofluorescence, fluorescein angiography, CV 10-2 and OCT of the macula were requested for drug toxicity screenning. Autofluorescence and angiography were within normal limits, with no signs of toxicity. However, CV 10-2 showed foveal scotomas. The OCT of the macula showed a thinning of the outer nuclear layer in both eyes and the left eye showed an involvement of ellipsoid zone with atrophy of retinal layers temporal to the fovea. A multifocal electroretinogram (ERG) was requested, which showed a decrease in central amplitude, suggestive of retinal toxicity by hydroxychloroquine. As a conduct, it was suggested to suspend the medication and maintain periodic follow-up in the glaucoma and retina sectors.

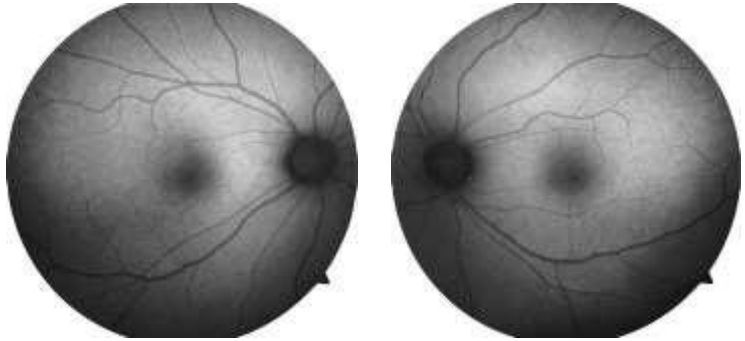


FIGURE 1: Autofluorescence: Normal AO

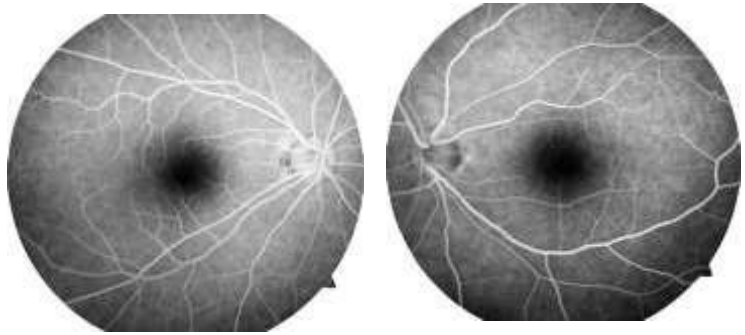
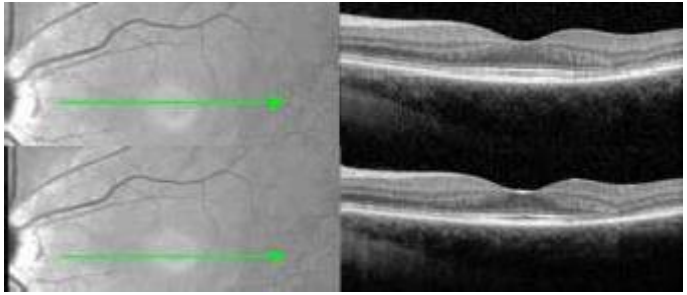


FIGURE 2: Fluorescein angiography: Normal AO

A



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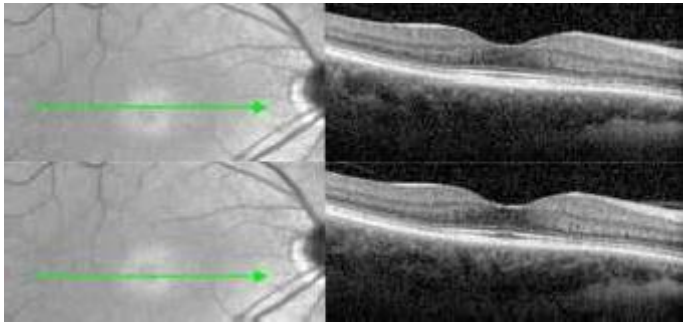


FIGURE 3.A AND 3.B: OCT of the macula showed a thinning of the outer nuclear layer in both eyes and the left eye showed an involvement of ellipsoid zone with atrophy of retinal layers temporal to the fovea

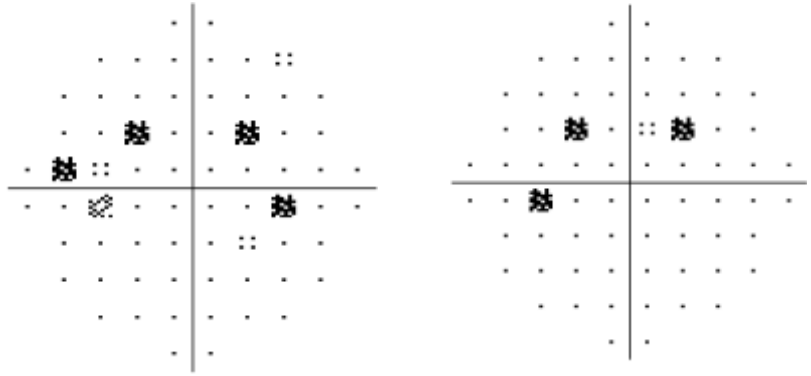
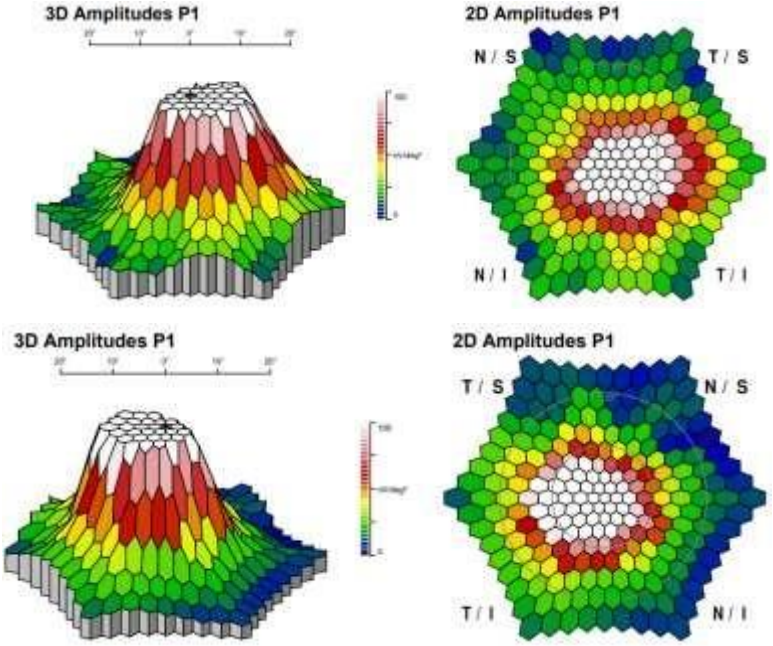


FIGURE 4: CV 10-2 showed foveal scotomas

DISCUSSION

Chloroquine, used for decades as an antimalarial, and its less toxic analogue, hydroxychloroquine, are widely used in the treatment of rheumatic diseases such as lupus (4). Retinopathy is an important side effect of drug use, the main risk factors being dose (>5 mg/kg) and time of use (> 5 years) (5). Retinal toxicity at recommended doses varies according to the period of use. The 5-year toxicity rate is less than 1% and up to 10 years of use, this number is less than 2%. Patients with chronic use for more than 20 years, the toxicity rate rises to 20%. The damage mechanism is still not fully understood, but it is known that the drug adheres to melanin and is deposited in the retina altering cellular metabolism and leading to degradation of photoreceptors (6).

FIGURE 5: A multifocal electroretinogram (ERG): decrease in central amplitude



Fundoscopy examination is not sufficient for the correct evaluation of patients, since in initial cases they may be within normal limits. Therefore, using more modern screening methods, it is possible to detect early stages of retinopathy. Screening is recommended after 5 years of use, with specific tests, such as campimetry, OCT and electroretinogram, and if retinopathy is evidenced, the use of the drug should be suspended, due to the toxicity not being reversible and still not being treated.

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