A Case of Hydroxychloroquine Retinopathy

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INTRODUCTION

Hydroxychloroquine retinopathy is a rare side effect that can cause irreversible vision loss even after the discontinuation of the drug. The American Academy of Ophthalmology[1] (AAO) and The Royal College of Ophthalmologists[2] (RCO) periodically update their recommendations for dosing, screening, and monitoring of toxicity with hydroxychloroquine treatment.

OBJECTIVE

The goal of this study was to report a case of hydroxychloroquine retinopathy in a patient who received a daily dose of hydroxychloroquine of 400 mg which was within the 2011 recommendations by the American Academy of Ophthalmology but exceeds the 2016 updated guidelines (5.0mg/kg real body weight).

CASE REPORT

A 61-year-old female with a history of bilateral cataract surgery was started on hydroxychloroquine 400 mg once daily (6.8 mg/kg/day) for seropositive rheumatoid arthritis. This dosage was within safety recommendations of the time. Four years after the initiation of therapy the patient began to experience a progressive decline in visual acuity and bilateral superior scotomas were seen on visual field testing. The patient's hydroxychloroquine dose was subsequently adjusted to 400 mg five times a week (4.8 mg/kg/day).

After seven years of hydroxychloroquine therapy, the characteristic bull's eye lesions of hydroxychloroquine retinopathy were visualized bilaterally on fundoscopy. Her central visual fields illustrated a complete ring scotoma on the right and a partial ring on the left. Optical coherence tomography showed thinning of the macular area bilaterally (229 to 196 microns on the right, 233 to 213 microns on the left). As a result, the patient's hydroxychloroquine therapy was discontinued and her vision remained stable a year later.

TIMELINE

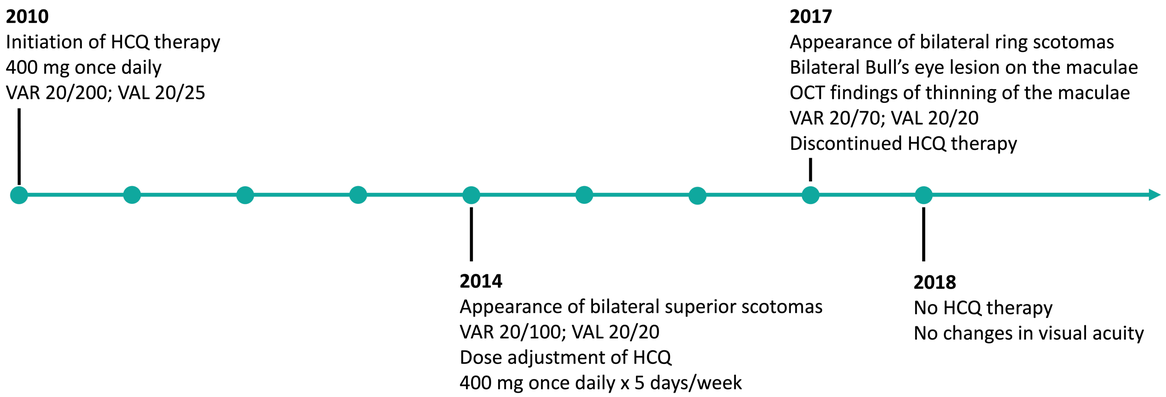


Figure 1. Bull's eye lesion on the left macula

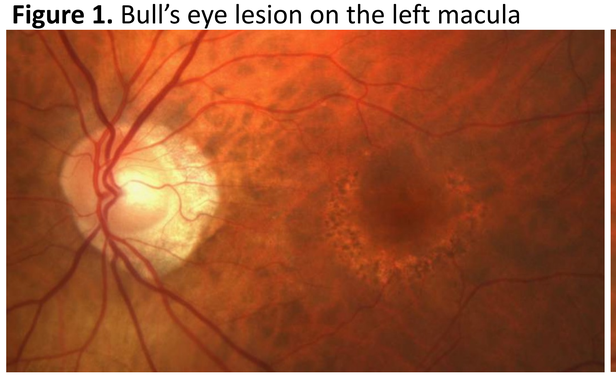
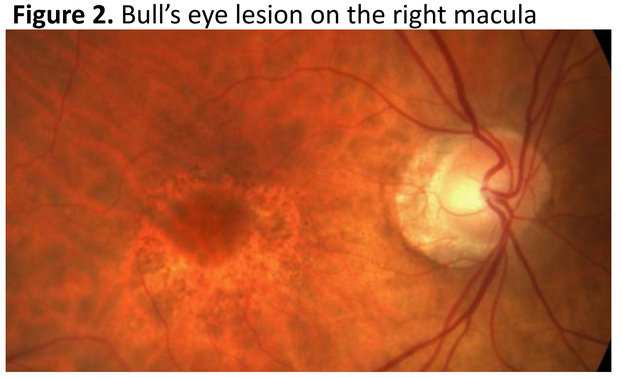


Figure 2. Bull's eye lesion on the right macula



AAO[1] & RCO[2] GUIDELINES FOR HCQ RETINOPATHY SCREENING
DOSE:
• ≤ 5.0 mg/kg actual body weight/day[1,2]
SCREENING SCHEDULE:
• Baseline fundus exam within first year of hydroxychloroquine initiation[1]
• Annual screening after five years of exposure [1,2]
• Patients with additional risk factors* can begin annual screening earlier[1,2]
SCREENING TESTS:
• Automated visual fields[1,2]
• Spectral-domain optical coherence tomography (SD-OCT)[1,2]
• Fundus autofluorescence[2]

*ADDITIONAL RISK FACTORS
Daily doses of HCQ >5.0mg/kg actual body weight
Prolonged use
Decreased renal function in CKD
Concurrent tamoxifen use
Pre-existing retinal or macular disease

CONCLUSION

The updated 2016 guidelines by the American Academy of Ophthalmology and the updated 2020 guidelines by the Royal College of Ophthalmologists emphasize recommended dosing based on real weight with a safety threshold of 5.0 mg/kg/day. This revision reflects the importance of a high daily dosage relative to weight as a major risk factor for hydroxychloroquine toxicity. Proper dosing and screening to detect early disease are critical for ensuring safe and effective use of the drug.

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REFERENCES

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2. Hydroxychloroquine and chloroquine retinopathy: recommendations on monitoring. Published by The Royal College of Ophthalmologists, 2020.

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