Multimodal Imaging Dengue Maculopathy

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Purpose: in countries with a high prevalence of dengue, ocular involvement should be part of clinical reasoning, and multimodal imaging should always be considered as a useful tool in the evaluation of Dengue Maculopathy.

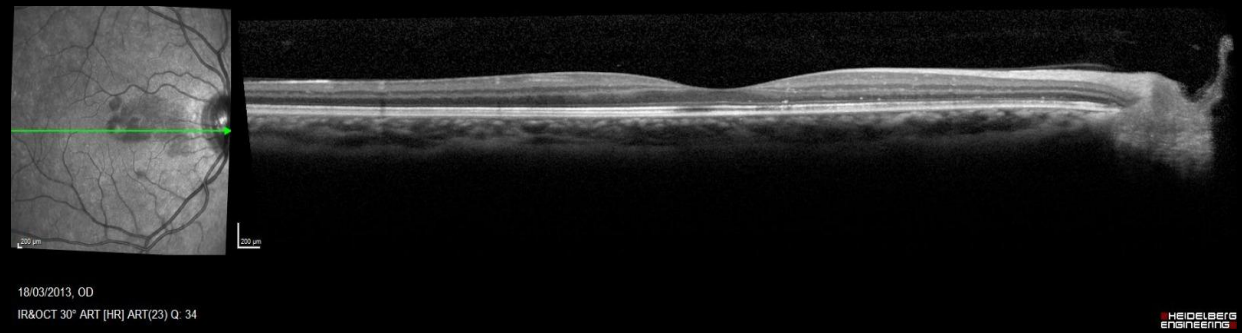
Methods: case report along with literature review.

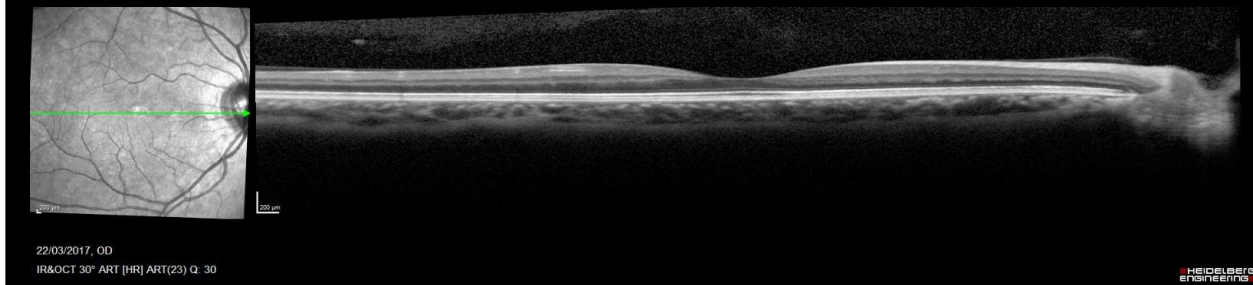
Case Report 1

KRC, 33-year-old, female with serologic confirmation of dengue fever and hospitalization.

Visual acuity (VA) of 20/400 OD and 20/200 OS.

Seven days after hospital discharge, the patient presented with VA of 20/40 and 20/25.

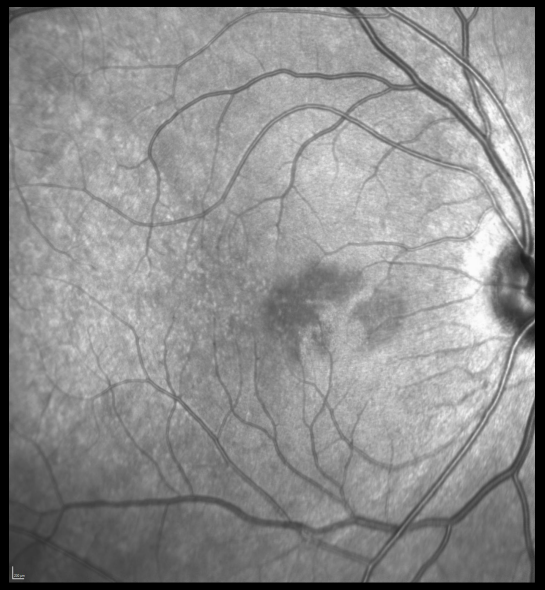


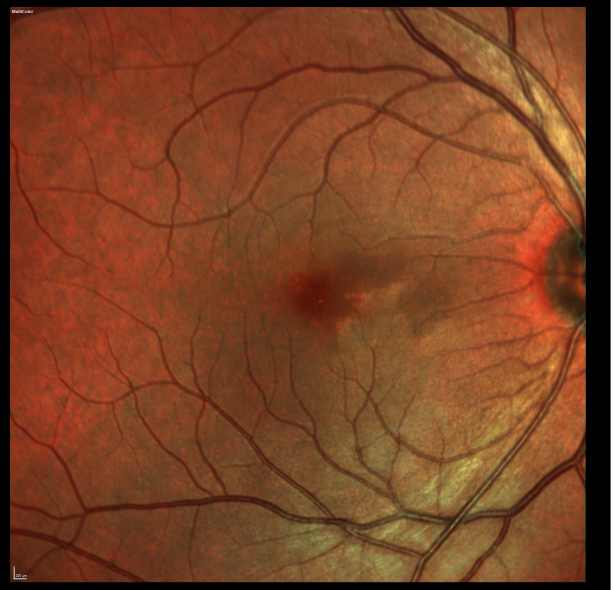


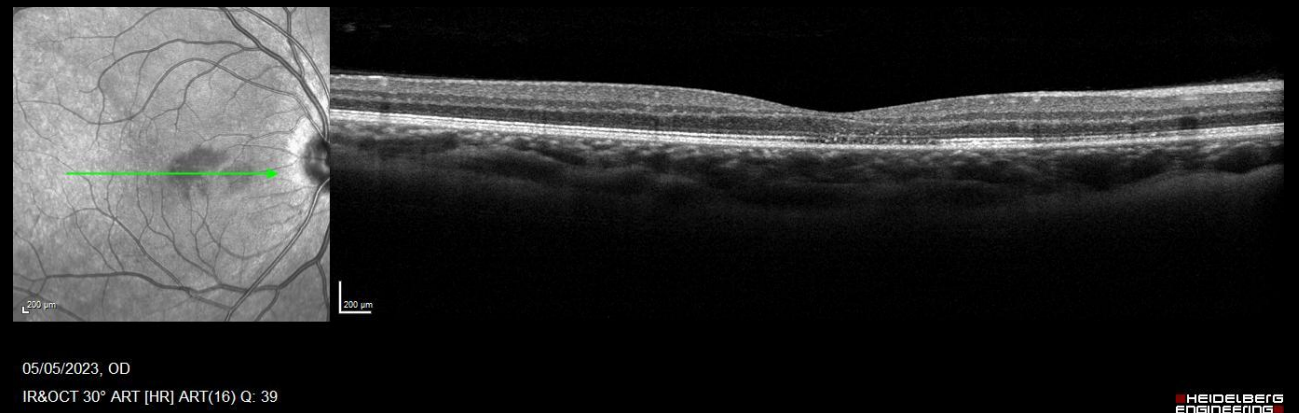
Case Report 2

ATAO, 33-year-old female presented reporting a worsening bilateral vision, along with fever and malaise for 7 days with a positive IgM serological exam for Dengue fever.

Visual acuity was 20/32 OD, 20/20 OS.







In both cases:

Slit-lamp exam was unremarkable

No relative afferent pupillary defect

Color fundus: mottling of the fovea without hemorrhage
Infrared: hyporeflective area in both eyes
OCT: discontinuities in the ellipsoid zone, with intact RPE.

Symptoms and presentation

The Dengue Fever is a highly prevalent disease in Brazil and in other South-American countries.

According to literature, Dengue maculopathy appears to be serotype and geography related.

Symptoms of maculopathy were observed to start at a mean of 6.9 days after the onset of fever. The patients presented with blurred vision, scotomata and floaters.

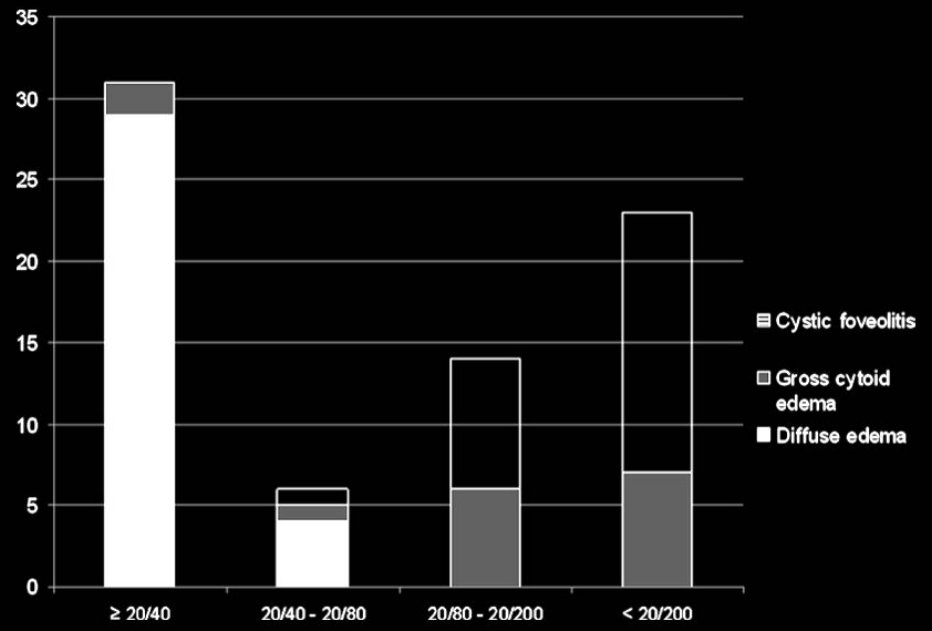


Fig. 6. The visual acuity at presentation of the various patterns of dengue-related maculopathy.

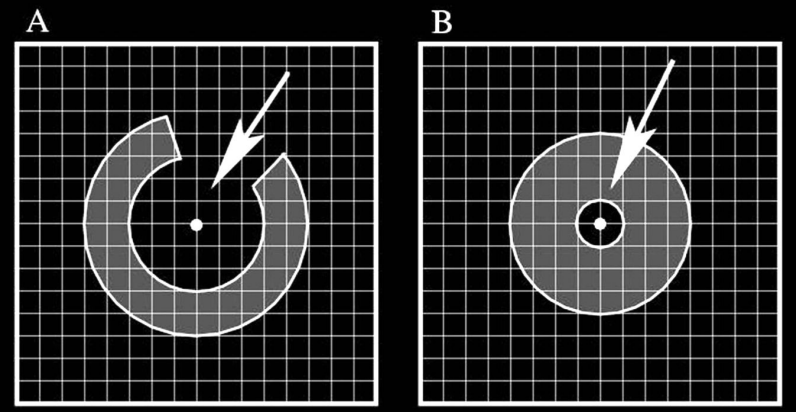


Fig. 8. Amsler grid charting from two patients. Patient A was left with a residual "doughnut-shaped" relative scotoma surrounding a central 6° of 20/20 Snellen vision. Patient B had a central 2° of 20/20 vision surrounded by a ring scotoma. Solid arrows point to the area of clear vision.

(Teoh SC et al., 2010)

Pathophysiology

The pathophysiology of ocular Dengue suggest an immune-mediated mechanism: transient decrease in levels of C4 and correlation to the thrombocytopenia NADIR.

Macular edema was the most common finding in symptomatic patients.

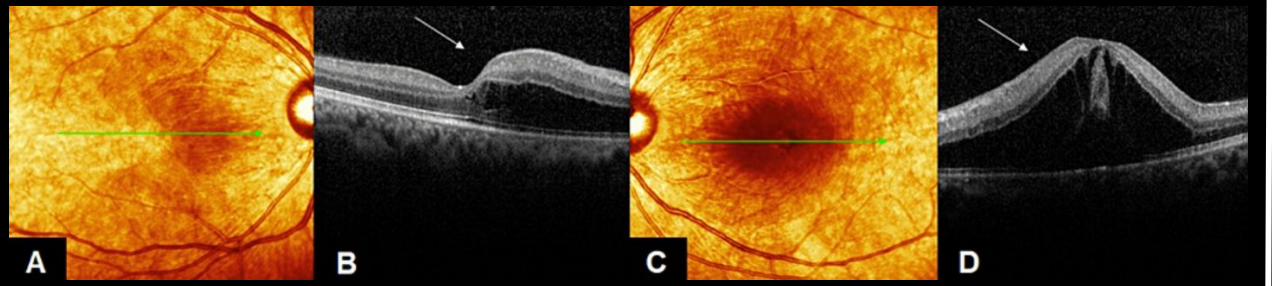


Figure 2: both eye OCT macula at day 3 of dengue fever
(A, B): OCT of RE showed diffuse edema (arrow), (C, D): OCT of LE showed marked subretinal fluid collection (arrow)

There is no known effective treatment for dengue maculopathy, however, topical or systemic steroids can be used.

References

1. Akanda M, Gangaputra S, Kodati S, Melamud A, Sen HN. Multimodal Imaging in Dengue-Fever-Associated Maculopathy. Ocul Immunol Inflamm. 2018;26(5):671-676. doi: 10.1080/09273948.2017.1351571. Epub 2017 Oct 5. PMID: 28980843; PMCID: PMC6195119.
2. Bacsal KE, Chee SP, Cheng CL, Flores JV. Dengue-associated maculopathy. Arch Ophthalmol. 2007 Apr;125(4):501-10. doi: 10.1001/archopht.125.4.501. PMID: 17420370.
3. Boletim Epidemiológico – Secretaria de Vigilância em Saúde e Ambiente – Ministério da Saúde. Volume 54, 25 de outubro de 2023.
4. Dengue – Diagnóstico e Manejo Clínico: Adulto e Criança - Secretaria de Vigilância em Saúde – Departamento de Vigilância das Doenças Transmissíveis. 4ª edição, Brasília, 2013.
5. Govinda Raju D, Ramli N, Ramayaj R. A Case Report of Dengue-Associated Maculopathy With Literature Review. Cureus. 2023 Mar 9;15(3):e35937. doi: 10.7759/cureus.35937. PMID: 37038576; PMCID: PMC10082618.

Thank you!