Leakage in Fluorescence Angiography Secondary to Rhegmatogenous Retinal Detachment, A Case Report

Ataa Rajeh¹, Hassan Alhasid², Abdulrahman Alfakir³, Mohammad Askar⁴, Amal Kassom⁵, and Hashem Abu Serhan⁶

¹Ophthalmology Department, Jordan Finland Modern Hospital
²Dubai Hospital, Head of vitreoretinal and retinopathy of prematurity services
³Ophthalmology Department, Medical City Polyclinic
⁴Ophthalmology Department, Damascus University
⁵Faculty of Medicine, Damascus University
⁶Hamad Medical Corporation

November 1, 2022

Abstract
The detection of leakage in fluorescence angiography (FA) could delay the diagnosis of retinal detachments (RDs). We reported a case of RD in a seven-year-old boy with positive leakage on FA which confused the presentation. A thorough contact lens examination and scleral indentation are mandatory to reach the diagnosis easily.

Leakage in Fluorescence Angiography Secondary to Rhegmatogenous Retinal Detachment, A Case Report

- Contributing Authors:
1. Ataa Rajeh
Affiliation: Ophthalmology Department, Jordan Finland Modern Hospital, Amman, Jordan
Email: i.atarajeh@gmail.com

2. Hassan Alhasid
Affiliation: Dubai Hospital, Head of vitreoretinal and retinopathy of prematurity services
Email: drhasid@yahoo.com

3. Abdulrahman Alfakir
Affiliation: Ophthalmology Department, Medical City Polyclinic, Oman
Email: Abdurrahman.kh.f@hotmail.com

4. Mohammad Askar
Affiliation: Ophthalmology Department, Damascus University, Syria
Email: dr.m.askar@gmail.com

5. Amal Kassom
Abstract

The detection of leakage in fluorescence angiography (FA) could delay the diagnosis of retinal detachments (RDs). We reported a case of RD in a seven-year-old boy with positive leakage on FA which confused the presentation. A thorough contact lens examination and scleral indentation are mandatory to reach the diagnosis easily.

Key Clinical Message

The assessment and treatment of rhegmatogenous RD are very important to be done as early as possible to preserve better visual potential. The presence of leakage on FA in suspicious cases when no rhegmatogenous element could be detected could confuse and delay the diagnosis. This implies the importance of contact lens fundus examination with scleral indentation.

Keywords: Fluorescence angiography; leakage; retinal detachment; rhegmatogenous detachment; contact lens; fundus examination

Introduction

The detection and assessment of areas of leakage in fluorescence angiography (FA) images are crucial for both the diagnosis and management of different choroidal and retinal diseases. Leaking fluorescein may result from attenuated blood vessels such as retinal neovascularization (NVE), choroidal neovascularization (CNV), or through a weakened retinal pigment epithelium (RPE) that no longer prevents leakage of fluorescein from the choroid. (1) FFA leakage is characterized by early hyperfluorescence, increasing with time in both area and intensity, and blurring of the vessel’s margins. (1) It occurs as a result of two main mechanisms: dysfunction of existing vascular endothelial tight junctions as seen in diabetic retinopathy (DR), cystoid macular edema (CME), branch and central retinal vein occlusion or due to the primary absence of vascular endothelial tight junctions which seen in CNVs, some vascular disorders like Coats disease, or Behcet’s disease. (2,3)

We reported fluorescence leakage secondary to rhegmatogenous retinal detachment (RD) in a seven-year-old child and explained how this association made confusion to reach the diagnosis.

Case Presentation

A seven-year-old child presented to the clinic with a complaint of decreased vision in the right eye for nine days duration. No past history of photopsia or ocular trauma was present. Ophthalmic examination of the right eye showed the best-corrected visual acuity (BCVA) is 0.1, the presence of pigment cells in the
anterior vitreous, white without pressure temporal lesions, and shallow inferior RD reaching the macula. The left eye exam was unremarkable except for temporal white without pressure lesions. No retinal break or telangiectasia was detected by using a 90 Volk noncontact lens in fundus examination. Optical coherence tomography (OCT) for the right eye showed macula-off RD. (Fig-1) Even though the border of detachment was convex, the gravity dependency of fluid and the presence of smoothness or corrugations of the retinal surface cannot be judged well due to the shallowness of detachment. B scan-to rule out posterior scleritis-showed unremarkable findings. In addition, FFA was ordered since the causes of exudative retinal detachment including vasculitis, need to be excluded. The results showed retinal vascular leakage corresponding to the inferior area of detachment. (Fig-2) Hence, a vasculitis work-up was ordered which showed unremarkable findings.

Contact lens fundus examination showed inferior dialysis from 5.00 to 7.00 clockwise, which was managed with buckling surgery. (Fig-3) On follow-up examination, BCVA was improved to 0.4, the retina was flat and the leakage on repeating FFA after eight months was absent. (Fig-4) The patient was on regular follow-up for 2 years post-surgery with a stable examination.

Discussion

Rhegmatogenous RD affects approximately about 1 in 10000 of the population annually. Both eyes can be affected in about 10% of cases. It’s uncommon in children, ranging from 3% to 12% of all patients suffering from rhegmatogenous RD. (4). Tolentino FI et al preliminary’s study on 5 patients with rhegmatogenous RD reported the presence of leakage in FFA secondary to rhegmatogenous RD. The dye leakage was observed in longstanding RDs (months). In addition, persistent leakage of fluorescein from the capillaries of the optic disc and posterior pole retinal vessels several months after reattachment surgery was noted. (5). They also reported leakage in FFA along the edge of retinal tears. Their size varied, but most were one disc in diameter or larger. Subclinical RD around the tear was present in most of the cases. (5).

Although our case may be considered as a simple association between the rhegmatogenous retinal detachment and fluorescence leakage, we want to focus on the importance of being highly suspicious when no rhegmatogenous element is detected, and doing fundus exam with indentation and contact lens. Despite the presence of pigmented cells in the anterior vitreous in our patient, the presence of fluorescence leakage along vessels made confusion toward the possibility of vasculitis association.

Missed retinal breaks in rhegmatogenous retinal detachment are responsible for almost 65% of the cases of failed retinal detachment surgery, (6) leading to recurrent retinal detachments. (7) Contact lens fundus examination with sclera indentation is crucial to avoid missing retinal breaks.

Informed Consent:

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the editor of this journal.

Declarations

Ethics approval and consent to participate

The article describes a case report. Therefore, no additional permission from our Ethics Committee was required.

Availability of data and material

All data generated or analyzed during this study are included in this published article.

Competing interests

The authors declare that they have no competing interests.

Funding
This study was not funded.

Authors’ contributions
Ataa Rajeh, Hassan Alhasid, Abdulrahman Alfakir, Mohammad Askar, Amal Kassom, and Hashem Abu Serhan: Data Collection, Literature Search, Manuscript Preparation. All authors read and approved the final manuscript

Acknowledgments
Open Access funding is provided by the Qatar National Library.

References

Figure legends:
Fig-1: OCT of the right eye showing the detachment reached the macula.
Fig-2: Fluorescein angiography of the right eye showing fluorescein leakage in the inferior detached retina.
Fig-3: Right inferior retinal dialysis surrounded with cryotherapy marks after management with buckling surgery.
Fig-4: Fluorescein angiography of the right eye after buckling surgery showing disappearance of fluorescein leakage.