

INTRODUCTION

- Ocular siderosis is a rare clinical condition characterized by progressive deterioration of visual function.
- Ocular siderosis is caused by an induced synthetic reaction between ocular tissues and accumulation of iron due to retained intra-ocular foreign body (IOFB).
- The affection of full field electroretinogram (FF-ERG) in ocular siderosis is diagnostic and crucial both when an IOFB is detected or not detected.
- FF-ERG is an indicator for severity and progression of the siderosis.
- Studies have shown affection of b wave and rod specific responses in early stages of ocular siderosis, and the FF-ERG responses varies as the diseases progresses.

PURPOSE

- To describe the full field electroretinogram findings in fifteen eyes of ocular siderosis from a tertiary eye care centre.

METHODS

- This is a retrospective analysis of fifteen eyes of ocular siderosis.
- The study was conducted at a tertiary referral eye care centre and was approved by institutional review board.
- The full field electroretinogram was performed with metrovision system as per standard ISCEV protocol.
- FF – ERG responses were analysed as isolated rod specific, mixed rod cone, oscillatory potentials (OPs), photopic single flash and photopic flicker responses.

RESULTS

- There were 15 eyes of ocular siderosis with FF-ERG performed at initial presentation to the hospital.
- All the patients were male with history of penetrating injury with iron particles.
- The mean age of the patients at presentation was 36±11 years.
- During the FF-ERG test, the time of injury varied from as early as 2 months to 20 years.
- The location of the IOFB was retinal in 47% (7/15), ocular coats in 27% (4/15), pars plana in 13% (2/15) and iris in 13% (2/15) of the eyes.

Table 1 Summarises the full field electroretinogram responses from 15 eyes of ocular siderosis

Full field ERG responses	Affected eyes
Severe affection of ERG with extinguished rod specific, mixed rod cone, OPs and photopic single flash responses	53% (8/15) of the eyes
Isolated rod specific responses	Extinguished in 60% (9/15) of the eyes Subnormal in 33% (5/15) of eyes
Mixed rod cone responses	Extinguished in 53% (8/15) of the eyes Subnormal in 40% (6/15) of eyes.
Oscillatory potentials responses	Extinguished in 60% (9/15) of the eyes Subnormal in 20% (3/15) of eyes
Photopic single flash responses	Extinguished in 53% (8/15) of the eyes Subnormal in 40% (6/15) of eyes.
Photopic flicker ERG responses.	Affected in 80% (12/15) of the eyes

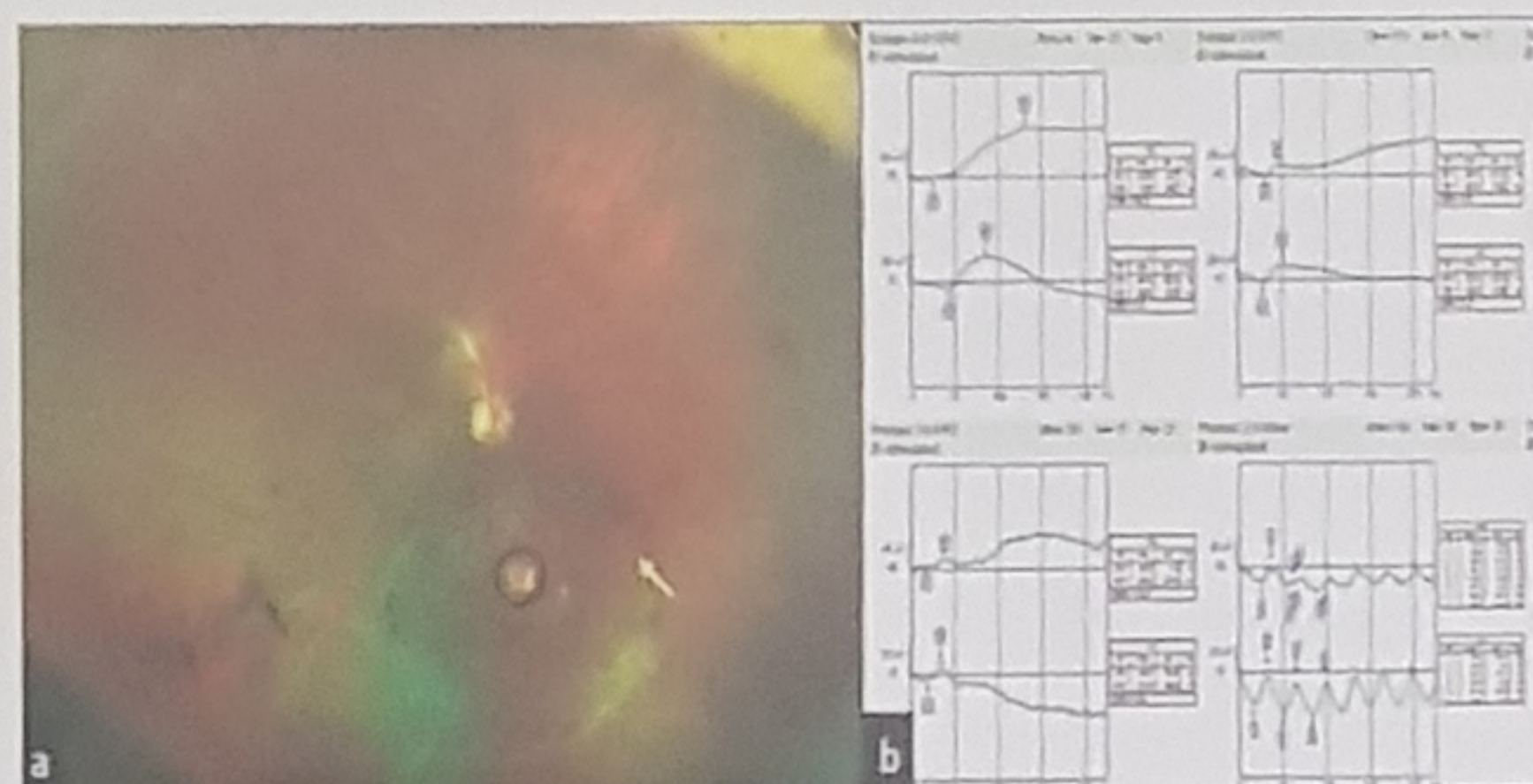


Figure 1: A 40-year-old male with history of injury at workplace to right eye with 20/50 vision, fundus(1a) showing pallor of optic disc, iron intraocular foreign body (Black circle) infero nasal to optic disc with surrounding pigmentation and demarcation (Yellow arrow). Fundus picture is also showing artefacts (Black arrow). Full field electroretinogram (1b) showing reduction in both b and a wave amplitude in the right eye with affection of both scotopic as well photopic responses.

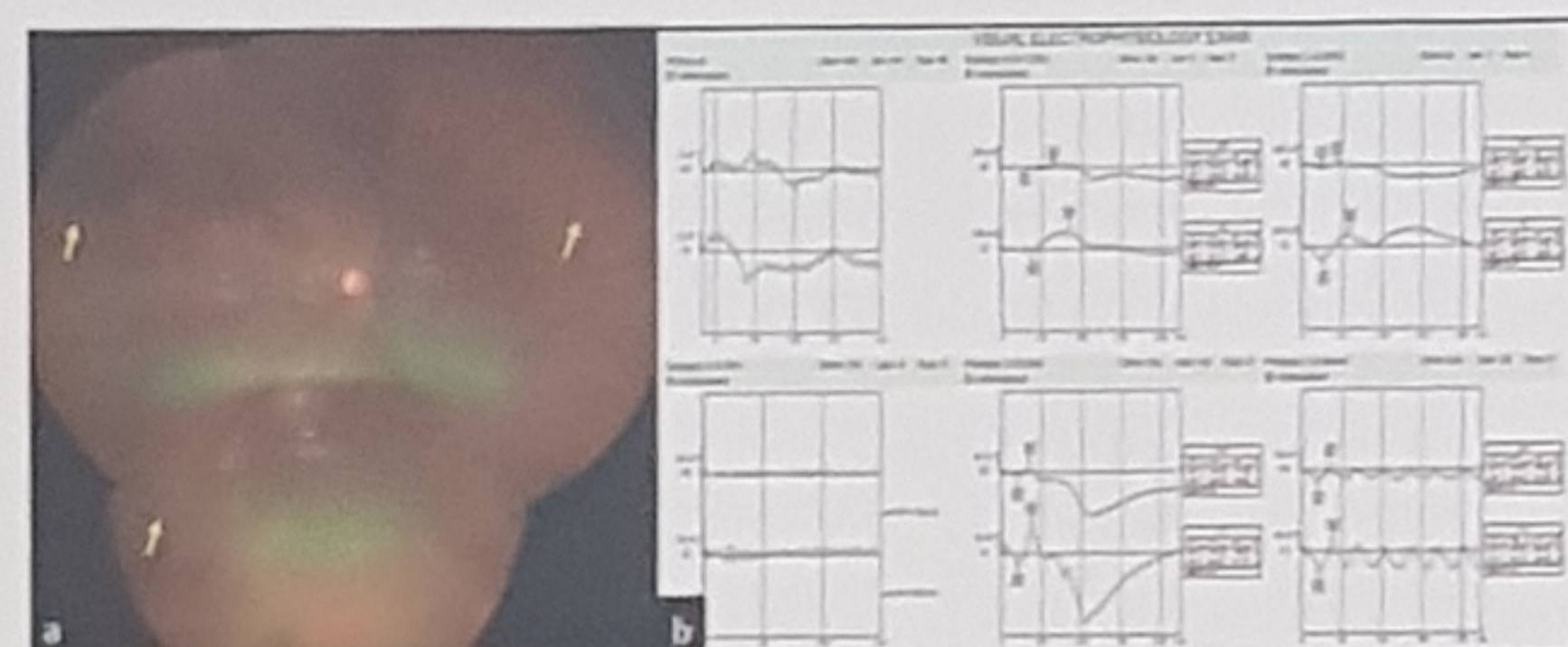


Figure 2: A 29-year-old male with history of injury to right eye while working in the agriculture fields with 20/40 vision, fundus(2a) showing mild vitreous haze and diffuse retinal pigment epithelial mottling (yellow arrows) throughout the fundus. Full field electroretinogram (2b) showing reduction in both b and a wave amplitude with reduced oscillatory potential and affection of both scotopic as well scotopic responses. *Intraoperatively iron foreign body was found near the inferior ora.

CONCLUSIONS

- Our study results of FF-ERG findings in ocular siderosis shows that both rod and cone specific responses are affected in ocular siderosis.
- It also highlights that both inner as well as outer retinal cells are affected in ocular siderosis depending on duration of ocular siderosis.
- Possible explanation for severe affection of FF-ERG in majority of our cases would-be presentation of patients at a later stage of the diseases as the study data is from a tertiary referral center.

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