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**Intraocular foreign bodies : A major
public health problem**

Pr. GHEDJATI Nadir

Associate Professor in Ophthalmology

Faculty of Medicine Ouargla - Algeria

Introduction

- Intraocular foreign bodies (IOFB) = Major public health problem
 - Frequency,
 - Gravity,
 - Difficult and costly management.
- Young man in full period of professional activity.
- Serious social and medico-legal consequences.
- If the IOFB is toxic, it should be removed as soon as possible.
- However, if the IOFB is inert, it may be managed conservatively with regular monitoring [1].

IOFB Research

- Systematic in front of any ocular wound.

- **Anterior segment : 2/3**

- Cornea.
- Anterior chamber.
- Iris.
- Iridocorneal angle.
- Lens.

- **Anterior segment : 1/3**

- Intravitreal +++.
- Intraretinal.
- Subretinal.

Initial lesional assessment

Ophthalmological examination

- **Initial visual acuity +++ :**
(diagnostic, prognosis, medico-legal).
- **Slit lamp examination :**
(bilateral, comparative, soft).
 - Ocular appendages.
 - Anterior segment.
 - Iridocorneal angle.
 - Intraocular pressure.
 - Fundus : non contact exam +++.



Initial lesional assessment

Radiological assessment

Orbital Radiography



Oculo-orbital Scan



Ocular echography



Treatment

Choice of anesthesia :

- **General anesthesia** : complexe and long surgery.
- **Topic anesthesia** : cooperative patient, limited anterior lesions.
- **Loco-regional anesthesia (peri-bulbar)** : contraindicated.

Treatment

Psychological preparation

- Explain as much as possible to the patient :
 - The known lesional assessment.
 - The planned treatment.
- Remain very reserved about the prognosis.
- In case of major ocular damage :
 - Immediate enucleation is possible.
 - **BUT** ; the sacrifice of an eye should as much as possible be carried out second.

Treatment

Basics of surgical treatment

- Urgently : priority = ocular seal restoration.
- Extraction or not of the IOFB :
 - Localisation, nature, number, diameter.
 - Tissue damages.

Case Presentation

Patient : M. L

- A 34-year-old man.
- No known medical illness.
- Workplace accident.
- Upon arrival at the hospital :
 - Left eyelid injury.
 - No other injury

Ophthalmological examination (Left eye)

- Visual acuity : 10/10
- Anterior segment :
 - Transfixing eyelid injury.
 - Skin substance loss.
 - Temporal conjunctival injury.
 - Subconjunctival hemorrhage.
 - Orbital fat issue.

- Fundus examination : difficult.

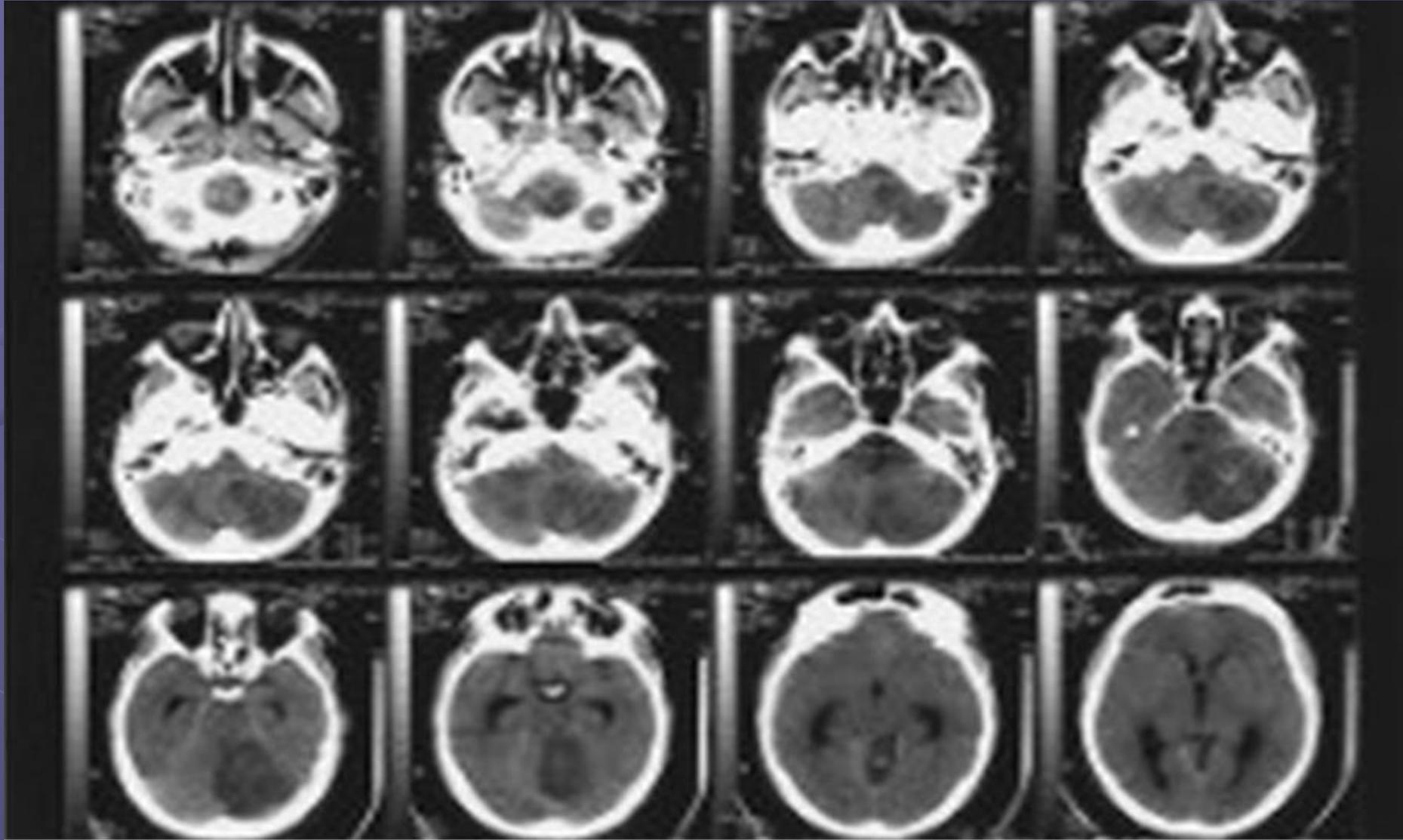
| | |
|---------------------------|-------|
| M R T V F U E N C X O Z D | 10/10 |
| D L V A T B K U E R S N | 9/10 |
| R C Y H O F M E S P A | 8/10 |
| E X A T Z H D W N | 7/10 |
| Y O E L K S F D I | 6/10 |
| O X P H B Z D | 5/10 |
| N L T A V R | 4/10 |
| O H S U E | 3/10 |
| M C F | 2/10 |
| Z U | 1/10 |

Orbital radiography

- No radiopaque FB
- No orbital fracture.



Oculo-orbital scan : Normal



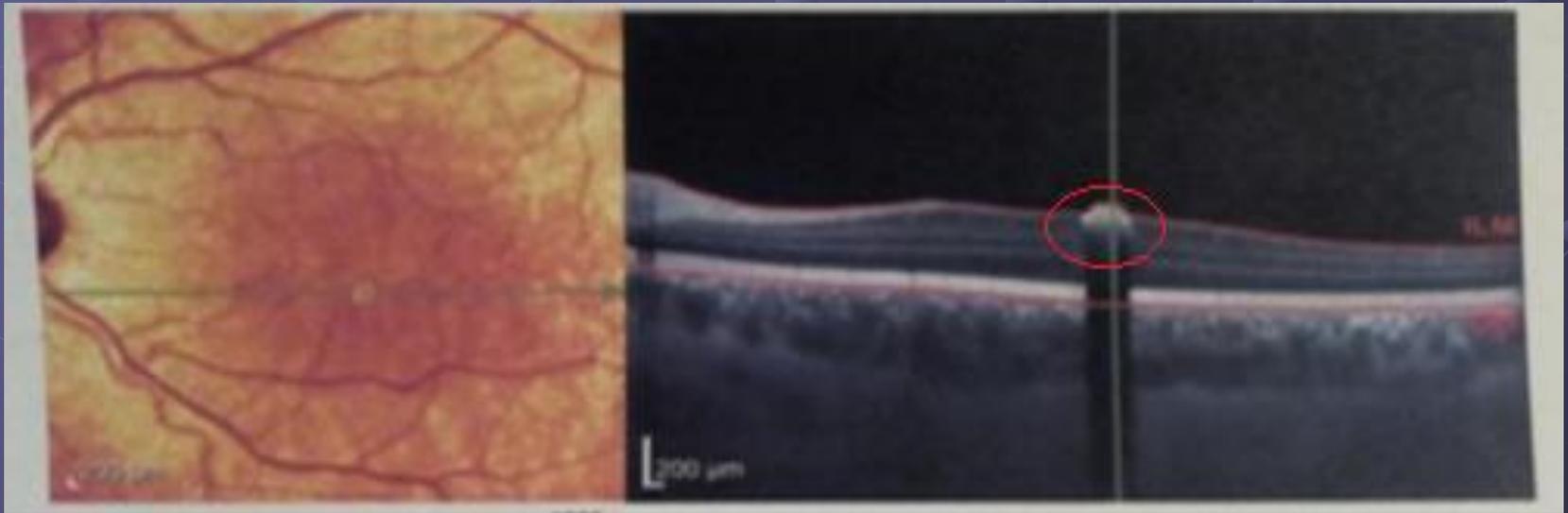
Fundus examination : 1 day postoperative (surgical exploration)

- Small preretinal brownish formation, measuring 0,2 mm and located $\frac{1}{2}$ papillary diameter from the center of the fovea.
- Without retinal alteration in front of.
- Without peripheral retinal alteration.

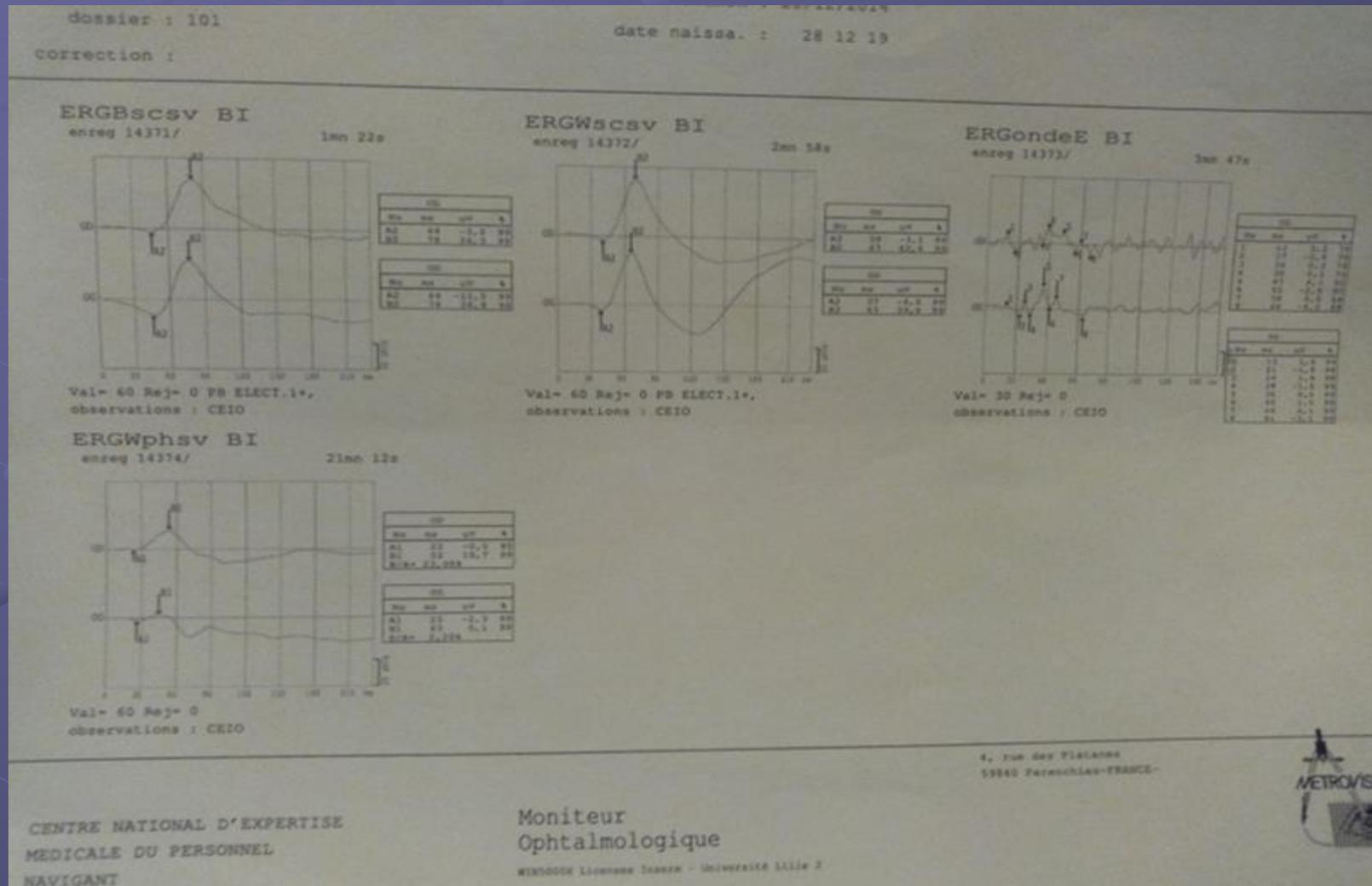


Optical coherence tomography (OCT)

- Small infra-millimeter hyperreflective formation.
- Retinal intrusion limited to the fiber optic layer.
- Posterior shadow cone.



ERG : normal in both eyes



Treatment protocol

- Corticosteroids, Antibiotics : topic and systemic.
- Surgical abstention (IOFB) +++



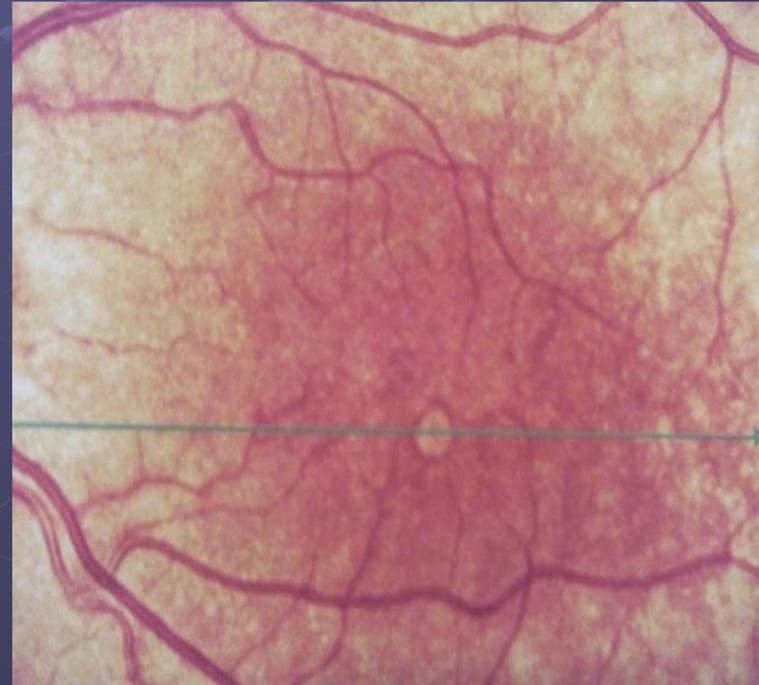
Follow-up

● 1 month later :

- Visual acuity : 10/10 P2.
- Fundus : unchanged appearance.
(no active inflammation)

● 1 year later :

- Visual acuity : 10/10 R2.
- Fundus : unchanged appearance.
(no sign of inflammation)



Discussion

- Intraocular foreign bodies (IOFBs) can be broadly classified as composed of organic and inorganic materials, with the latter including metals, glass, and plastics. They are also classified as inert or toxic [2].
- Following direct mechanical damage, caused by the passage of the foreign body through the ocular tissue, any subsequent complications are influenced by the composition of the IOFB [3].

Discussion

- Compared with inert IOFBs such as glass, higher rates of endophthalmitis have been observed in patients with organic IOFBs, and higher rates of metallosis in patients with metallic IOFBs [4].
- Other complications include secondary glaucoma, retinal detachment, proliferative vitreoretinopathy, and sympathetic ophthalmia [5].

Discussion

- The present patient was treated conservatively, because of many reasons :
 - Patient vision remained good : 10/10 R2.
 - There was no sign of inflammation : Inert.
 - IOFB size : infra-millimeter.
 - IOFB location : juxta-foveolar.
 - The rest of the retina was normal.

Conclusion

- The decision to remove a missed retained IOFB is complex and depends on multiple factors, including surgical difficulty and the composition, size, and location of the retained foreign body.
- Removal should be weighed against the possible serious complications of intraocular surgery.
- If removal is surgically difficult, or the retained material is inert, patients can be managed conservatively with regular monitoring.

Thanks for your attention



References

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3. Dhoble PY, Velis GB, Sivakaumar P. Encapsulated metallic intraocular foreign body of long duration presenting with cystoid macular edema and normal full-field electroretinogram. Oman J Ophthalmol. 2019, 12 : 50-52.
4. Loporchio D, Mukkamala L, Gorukanti K, Zarbin M, Langer P, Bhagat N. Intraocular foreign bodies : a review. Surv Ophthalmol. 2016, 61 : 582-596.
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