المؤتمر السنوي الدولي للجمعية الرمدية المصرية
INTERNATIONAL CONGRESS OF THE
EGYPTIAN OPHTHALMOLOGICAL SOCIETY
EOS 2023

HOW TO MANAGE A CASE OF OAS

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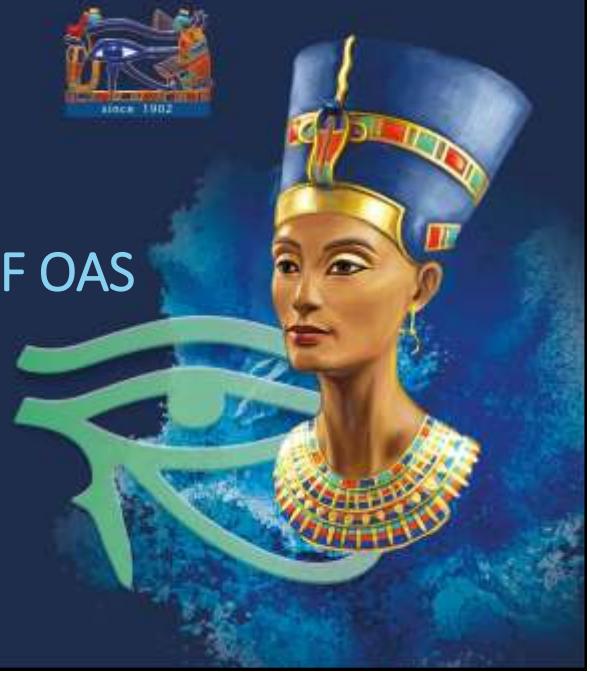
Tanta University



orbital apex syndrome

Orbital apex syndrome (OAS); IS a rare clinical entity that may be caused by several pathologies around the ON foramen and the SOF

- **The hallmarks of OAS are**

optic neuropathy and ophthalmoplegia.

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A 60 year old diabetic man presented with no PL vision and complete ptosis

Dilated pupil , non reactive direct and consensual…….

Impaired ocular motility in all directions = ophthalmoplegia

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Loss of corneal reflex

Loss of sensation over the forehead

Ophthalmic division of **V** CN

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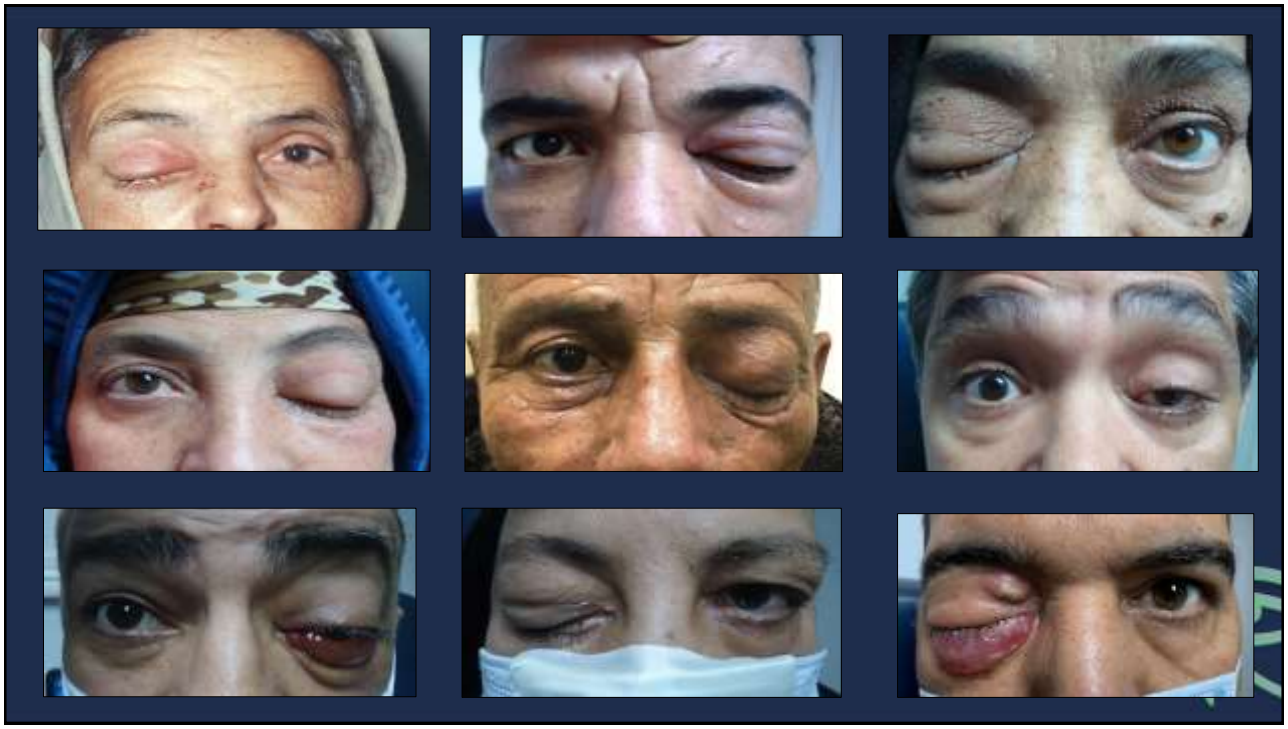
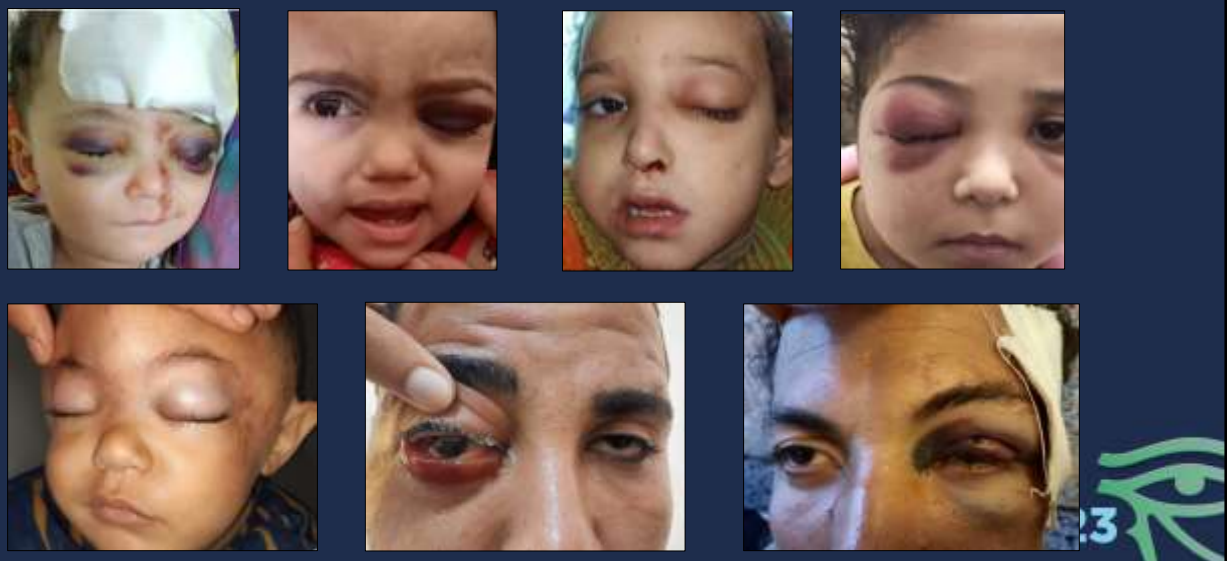
- Orbital Apex syndrome is characterized by involvement of the following cranial nerves (C.N)
  - Optic nerve (II C.N) ..... vision loss
  - Oculomotor nerve (III C.N)
  - Trochlear nerve (IV C.N)
  - Abducens nerve (VI C.N)

  Ophthalmoplegia
  - The first division of the trigeminal nerve (ophthalmic division of V C.N) ..... Impaired sensation, lost corneal reflex

- In most published studies and in many well known centers OAS is described as a rare clinical entity.
- In 2021 with the era of POST COVID-19 black fungus we had a gush of OAS cases.



In Tanta U. Hospital as a trauma referral center

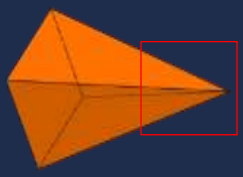


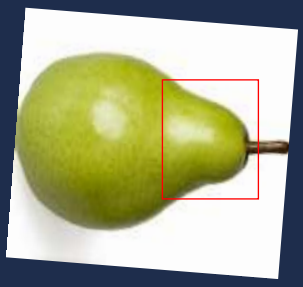
So it is not rare and added

- Some of its etiologies are life threatening
- Many of its etiologies are sight threatening
- It has a long list of possible etiologies, the clinical pictures of most of them are almost the same.
- The ttt of some of these etiologies is absolutely contraindicated or even fatal in others;
  - Steroids the main ttt of many cases of OAS is absolutely contraindicated in orbital apex infections specially fungal.

- ***To know What is the OAS***
- ***We have to know What is the orbital apex***

- The human orbit is A pear shape with the stalk directed posteriorly. Or a quadrangular pyramid with the apex directed posteriorly. The orbital apex is its most posterior part. About 1.5 cm in length and 1.0 cm in diameter.

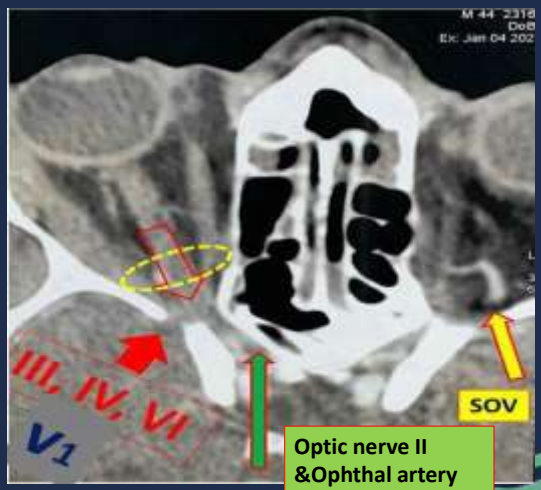


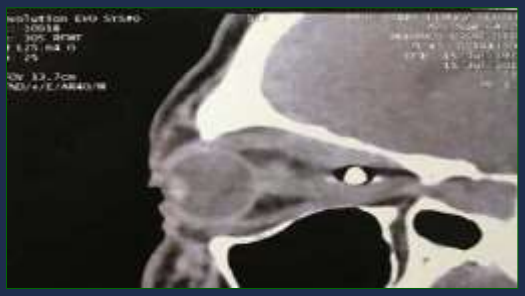


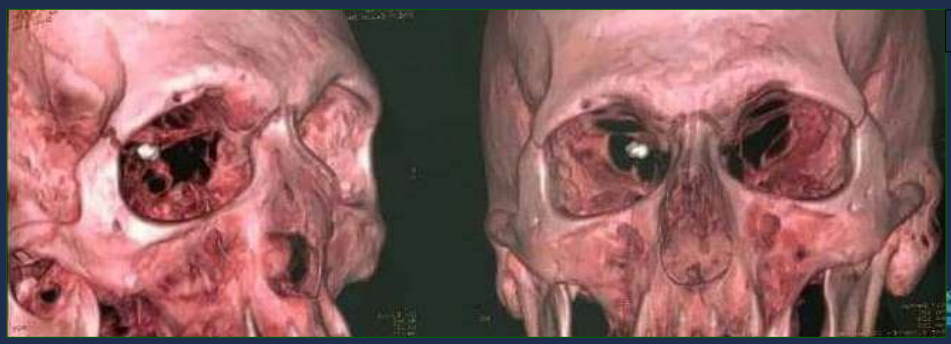
+ levator

- Inf Oblique

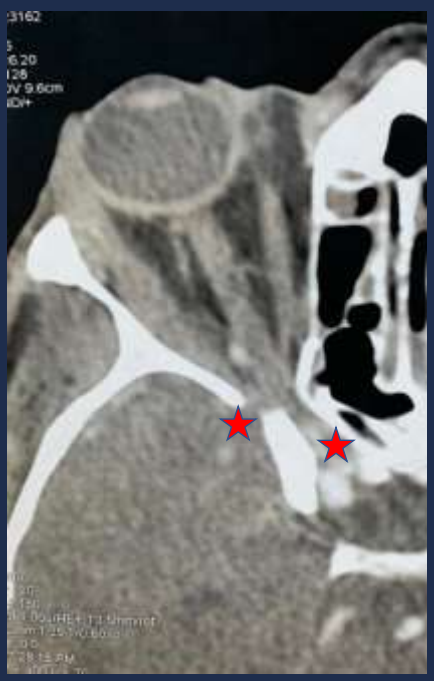
1. *Through this very narrow tunnel (about 1.0 cm diameter), pass all the nerves and vessels of the eye and orbit. **So any lesion in this area whatever small can hit many or even all of them**.*







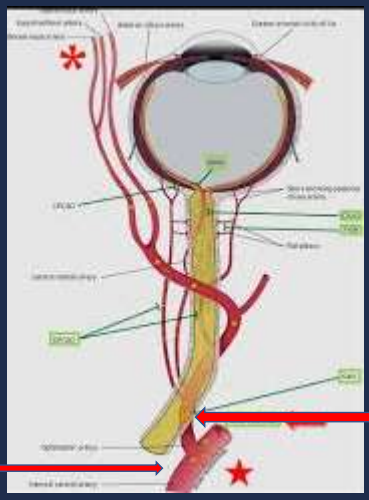
About 0.6 cm



2. Is the connection to the middle crania fossa through the optic N foramen and SOF. Through this apex many pathologies can easily spread to the brain and vice versa.

Blood supply is very peculiar

At the optic N foramen



Blood supply to whole eye and orbit and terminate as CRA

Ophthalmic artery

Internal carotid artery

Vascular occlusion in this area can lead to extensive damage of acute onset

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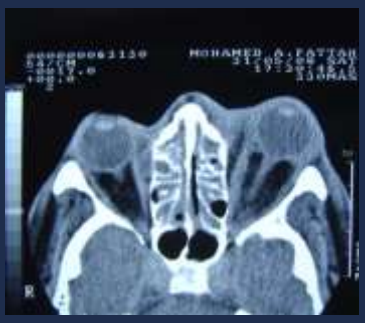

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Inflammatory (OID)
1. Thyroid orbitopathy
2. Sarcoidosis
3. Wegeners granulomatosis
4. Giant cell arteritis
5. Orbital inflammatory pseudo tumor
6. THS

Infectious
1. Fungi: *Aspergillosis, Mucormycosis*
2. Bacteria: *Streptococcus spp., Staphylococcus spp., Actinomyces spp.,* Gram-negative bacilli, anaerobes, *Mycobacterium tuberculosis*
3. Spirochetes: *Treponema pallidum*
4. Viruses: Herpes zoster

Vascular
1. Carotid cavernous aneurysm
2. Carotid cavernous fistula
3. Cavernous sinus thrombosis
4. Sickle cell anemia

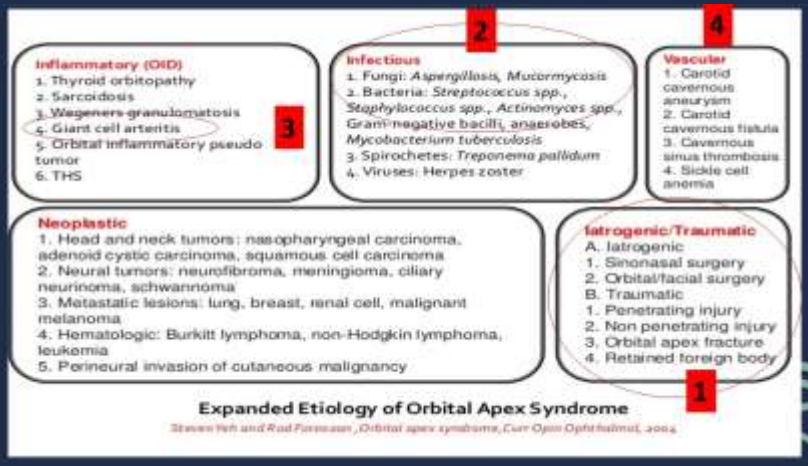
Neoplastic
1. Head and neck tumors: nasopharyngeal carcinoma, adenoid cystic carcinoma, squamous cell carcinoma
2. Neural tumors: neurofibroma, meningioma, ciliary neurinoma, schwannoma
3. Metastatic lesions: lung, breast, renal cell, malignant melanoma
4. Hematologic: Burkitt lymphoma, non-Hodgkin lymphoma, leukemia
5. Perineural invasion of cutaneous malignancy

Iatrogenic/Traumatic
A. Iatrogenic
1. Sinonasal surgery
2. Orbital/facial surgery
B. Traumatic
1. Penetrating injury
2. Non penetrating injury
3. Orbital apex fracture
4. Retained foreign body

Expanded Etiology of Orbital Apex Syndrome

Steven Yeh and Rod Foroozan ,Orbital apex syndrome,Curr Opin Ophthalmol, 2004

As ophthalmologist we are the first station of the patient.



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Stage 1: detection of emergencies

1. Is it traumatic may cause loss of vision in a short time
2. If not traumatic is it bacterial infection may cause fatal brain infection
3. If not bacterial infection, is it fungal infection may cause fatal brain infection
4. If not is it GCA may cause loss of vision the other eye or myocardial infarctions
5. If not GCA is it a vascular lesion

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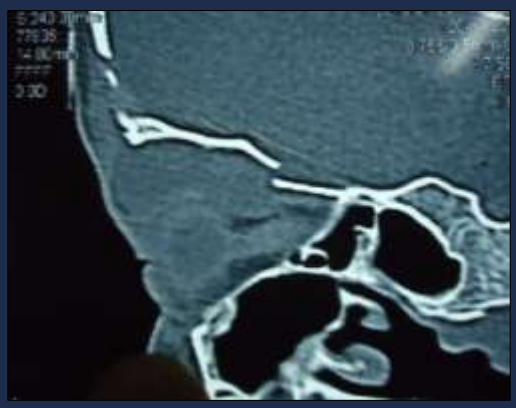
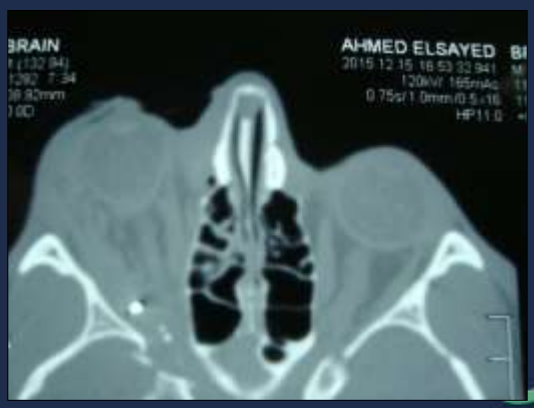
1. Trauma





Displaced bone fragments

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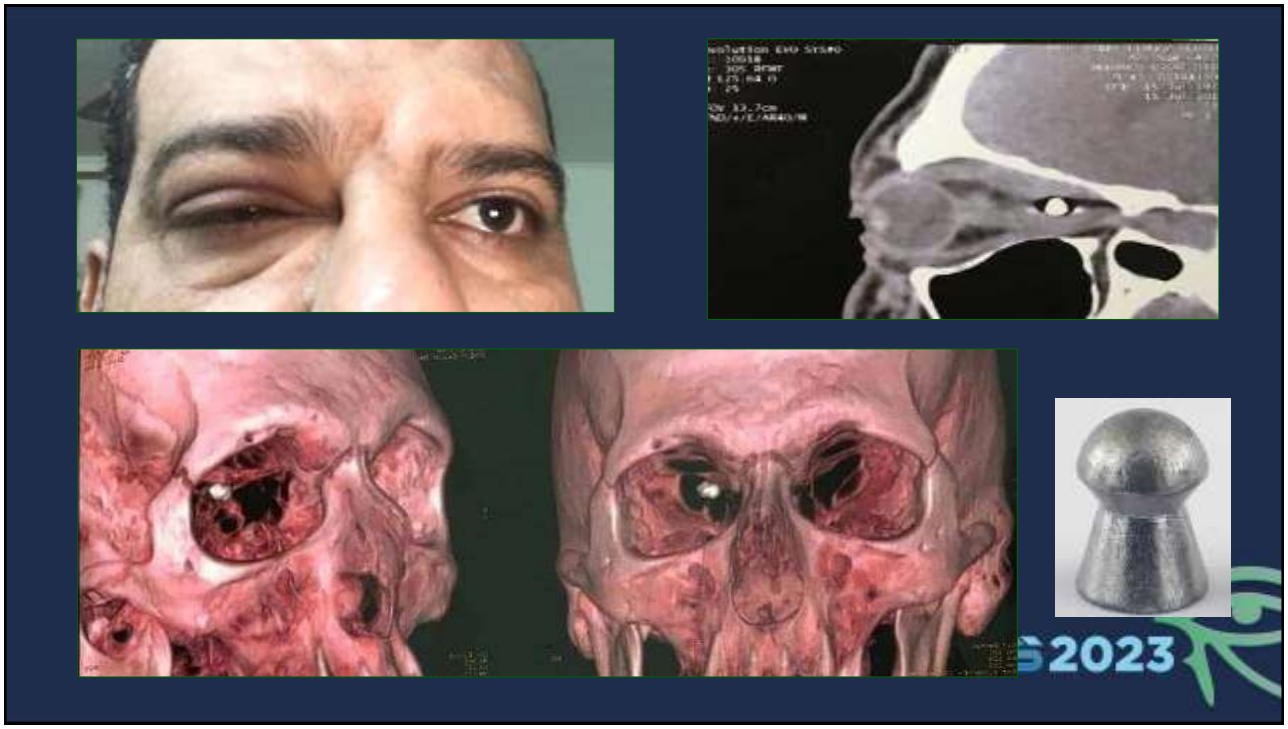
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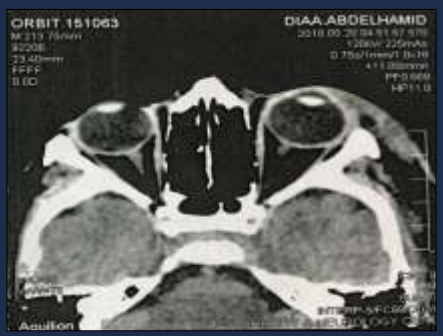
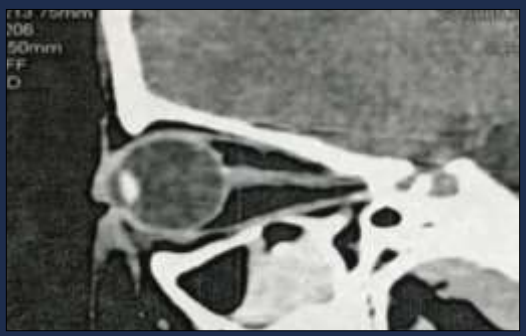
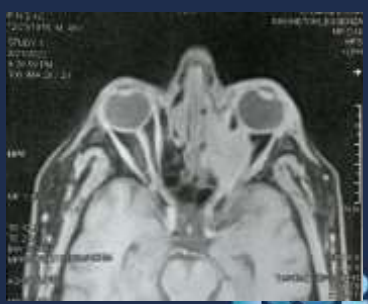

ORBIT 151063
DIAA ABDELHAMID



- Cases with no PL vision, nothing can be done
- Cases with reasonable vision:
  - Compression of the optic n must be ttt within maximum 60 min in most published studies.
  - If no detectable lesion high dose steroids.

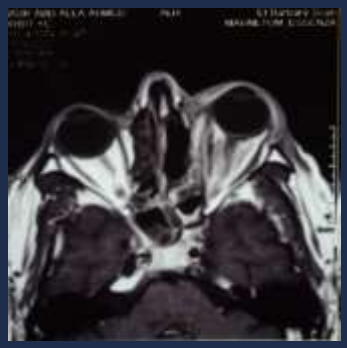
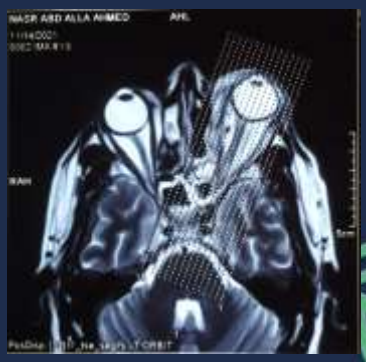
2. Fungal infections

- High tendency to rapidly progress to brain infections meningitis and brain abscess.
- Corticosteroids are contraindicated in this group







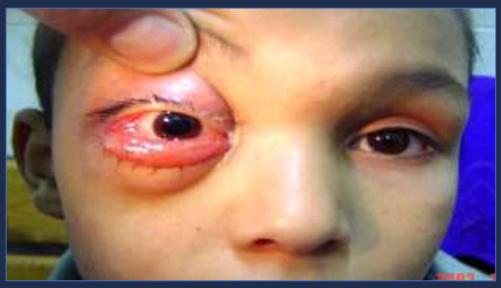
mucormycosis

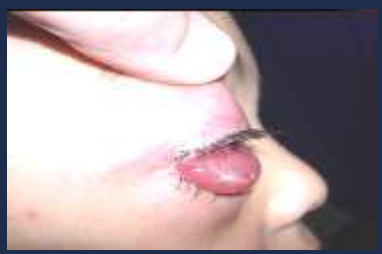
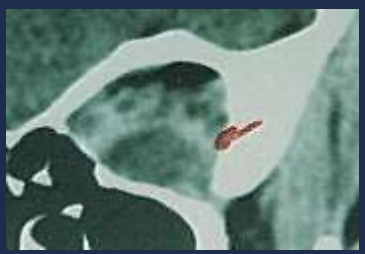
3. Bacterial orbital infections

May spread to CST

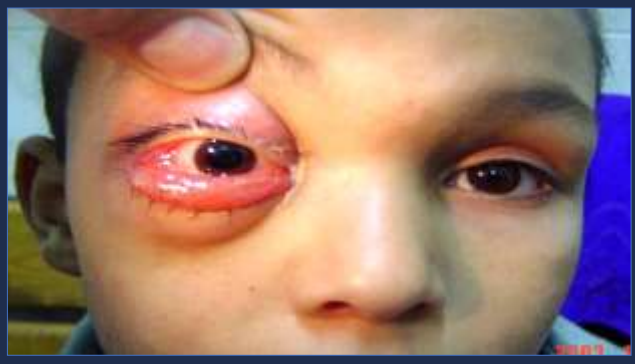



3. Orbital abscess



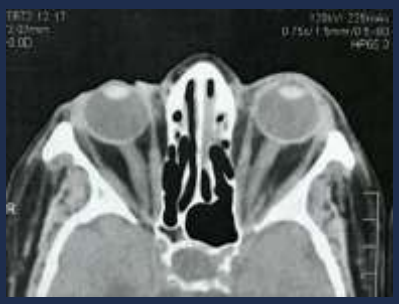

Development of OAS in a case of orbital cellulitis indicates progression to orbital abscess. The clue is dilated non reactive pupil.

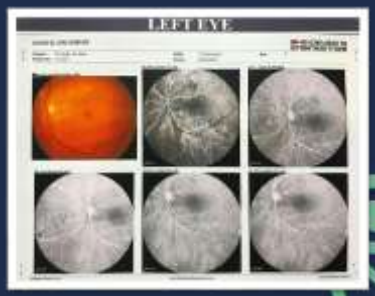


4. GCA

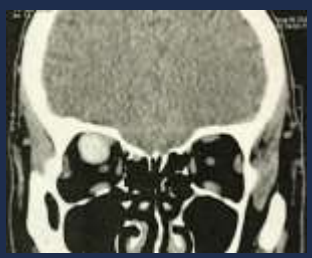
- Ophthalmoplegia, in episodes and incomplete usually reversible
- Optic neuropathy; ischemic arteritic anterior or posterior….. Irreversible vision loss
  - Vision loss in one eye followed by the other
  - Brain and myocardial affections
- If yes immediate high dose corticosteroids
- Confirm with lab tests CBC, CRP, ANKA, temporal artery biopsy

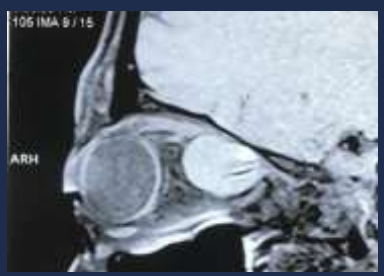


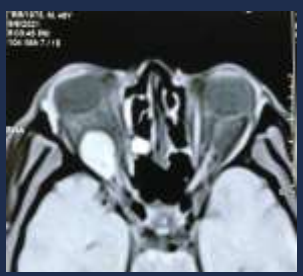





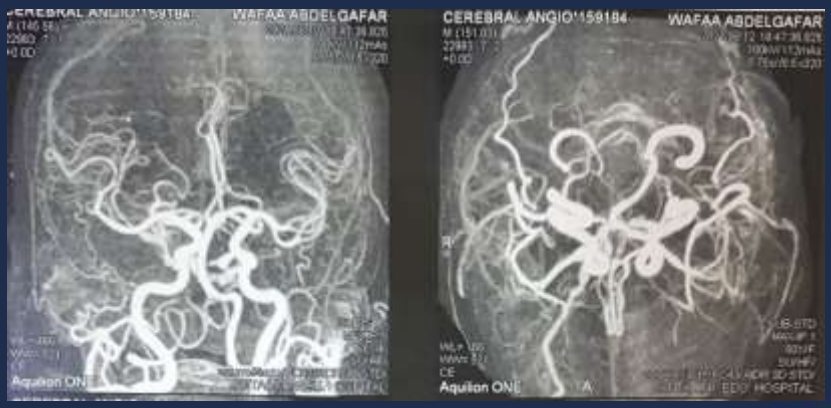
A case of orbital varix; imagine if we miss-diagnose as a tumor and you tried to remove?????






To confirm



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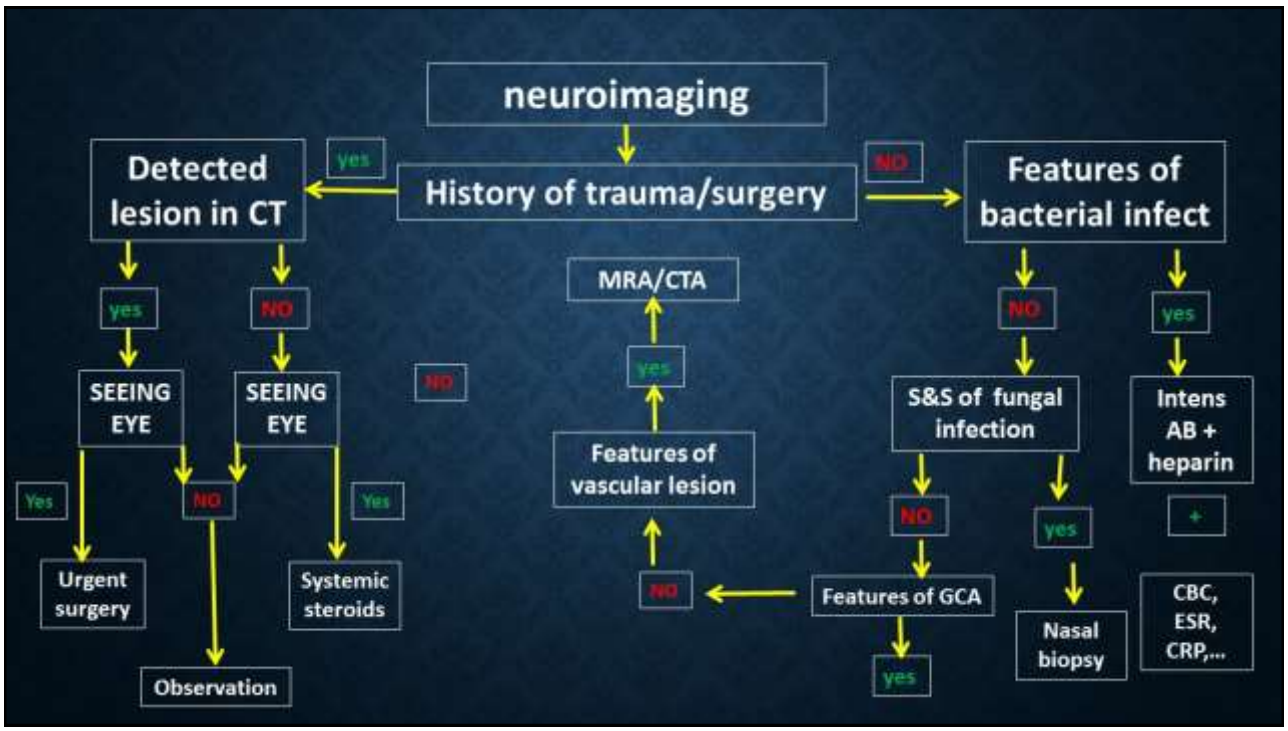
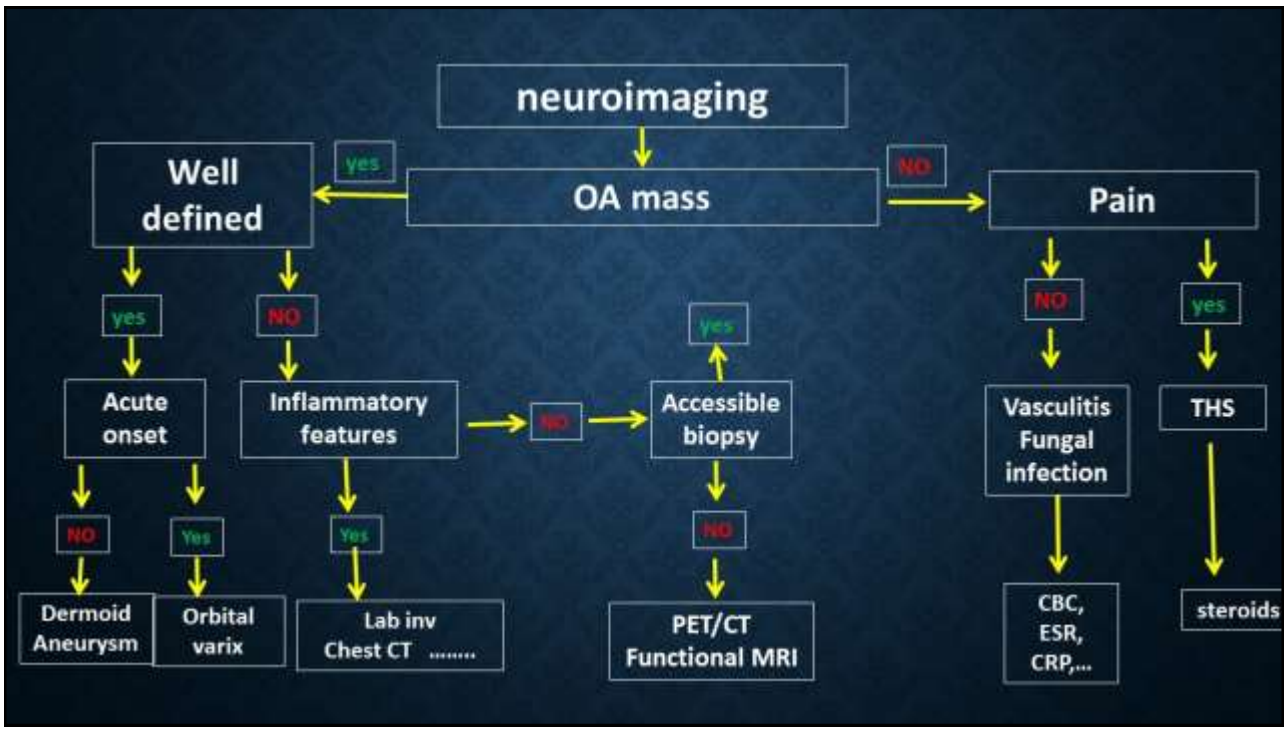


- *Second stage is detection and verification of less urgent etiologies.*
- *Based mainly on presence or absence of an orbital apex mass in neuro imaging*








THS

Characteristic recurrent pain

No apical mass

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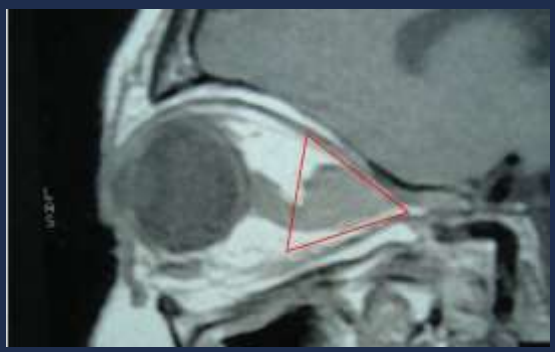
IF THERE IS A MASS

1. VASCULAR (VARIX)
2. INFLAMMATORY
3. NEOPLASTIC
   1. BENIGN
   2. MALIGNANT PRIMARY OR SECONDAY



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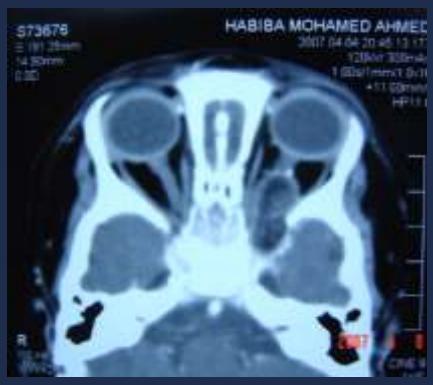
- *Well localized apical mass; dermoid or Vascular lesions*



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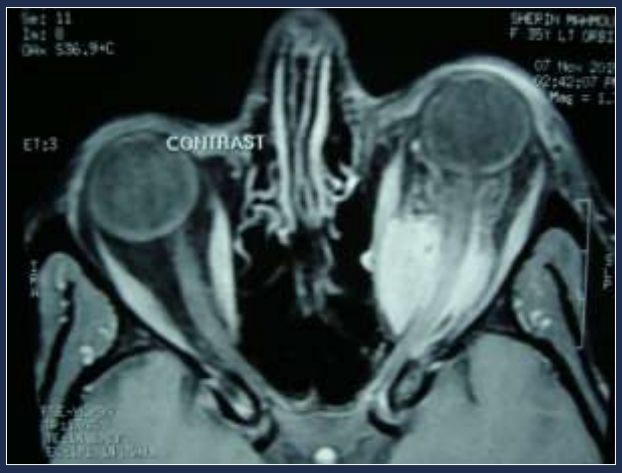
Ill defined, infiltrative, apical mass



1. NEOPLASTIC
   1. MALIGNANT PRIMARY OR SECONDAY
   2. BENIGN
2. INFLAMMATORY

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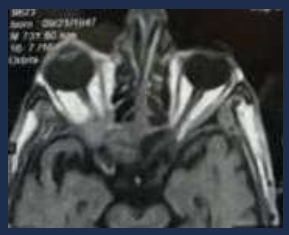


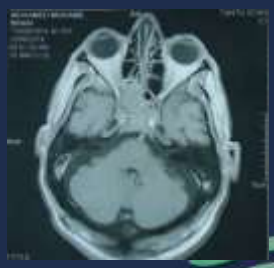

Biopsy in this area very risky or even impossible

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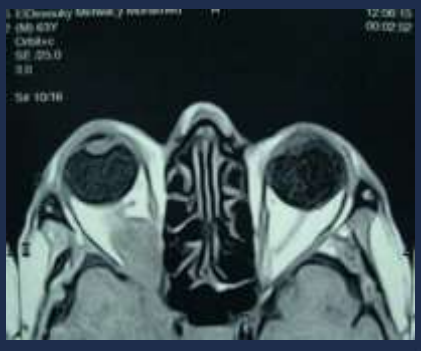
2. *Is it a malignancy*

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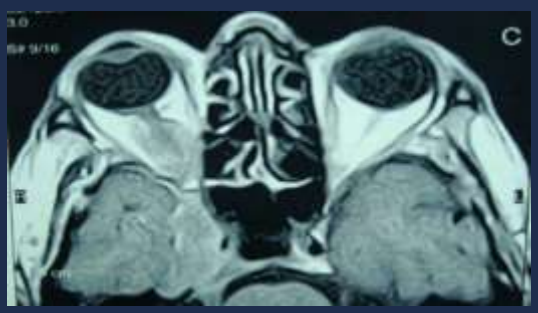
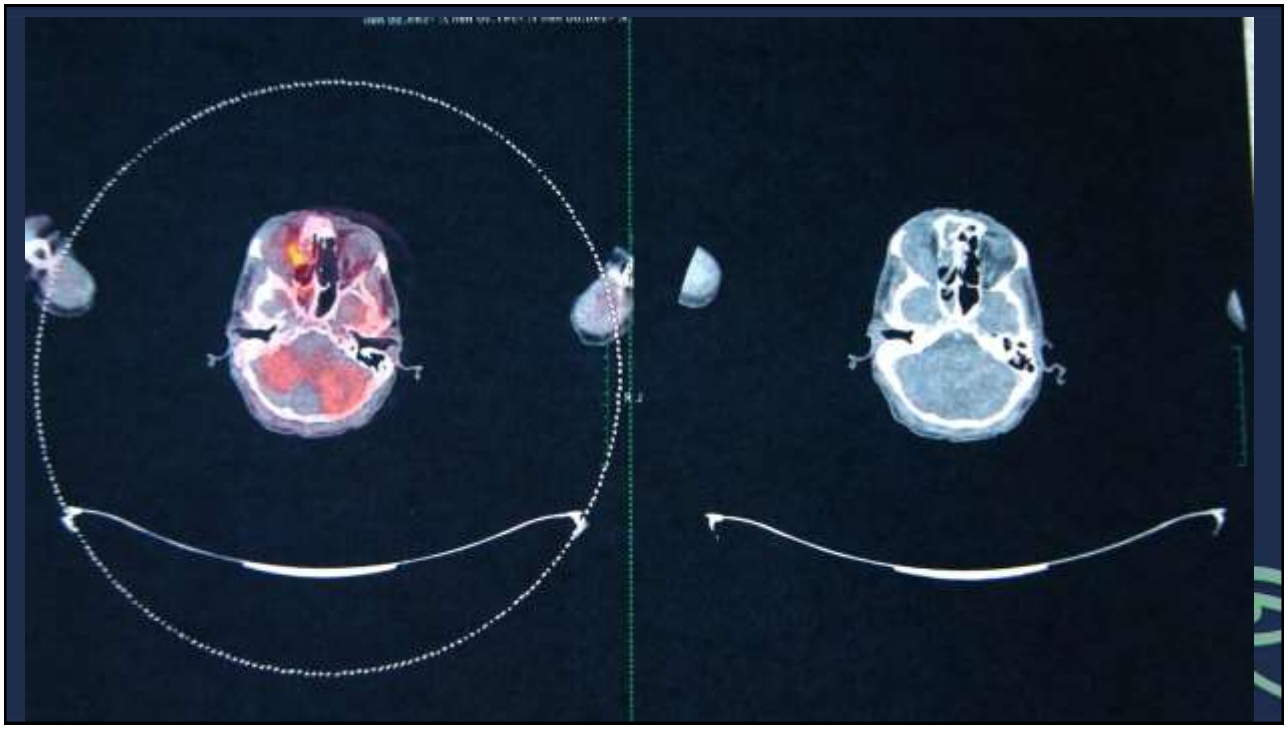
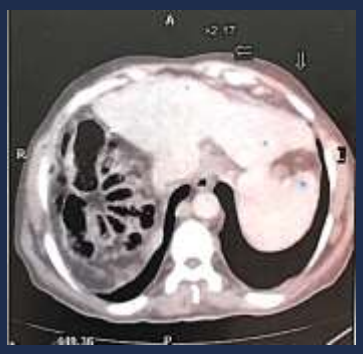
- *PET/CT to DD benign or malignant and primary or metastatic.*

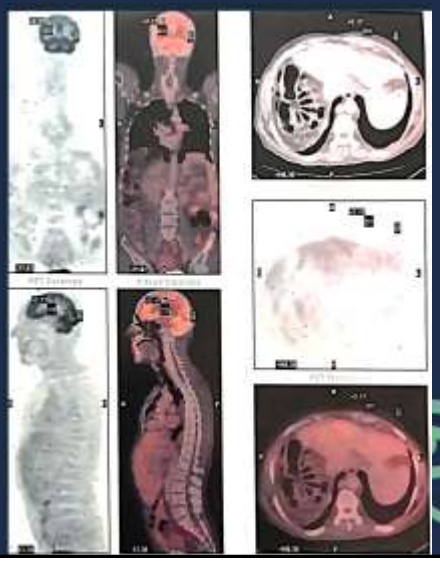




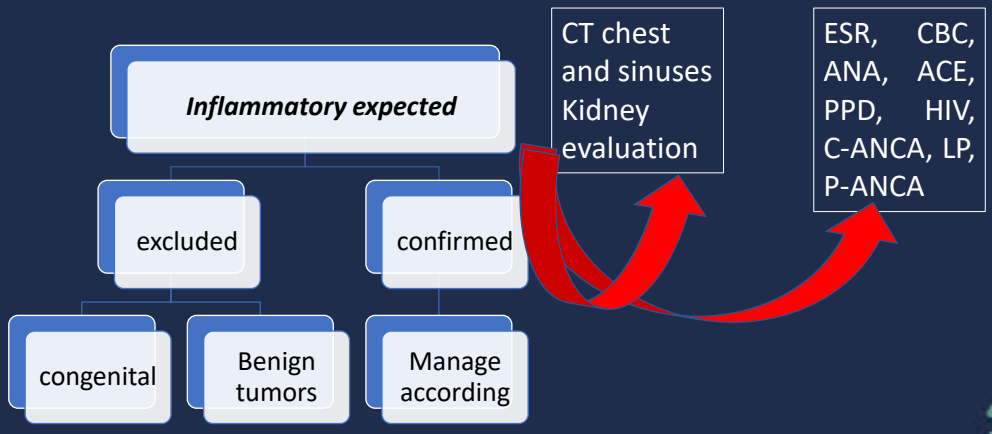
We can also DD primary from metastatic

- Whole body ***PET/CT***





If not malignancy;



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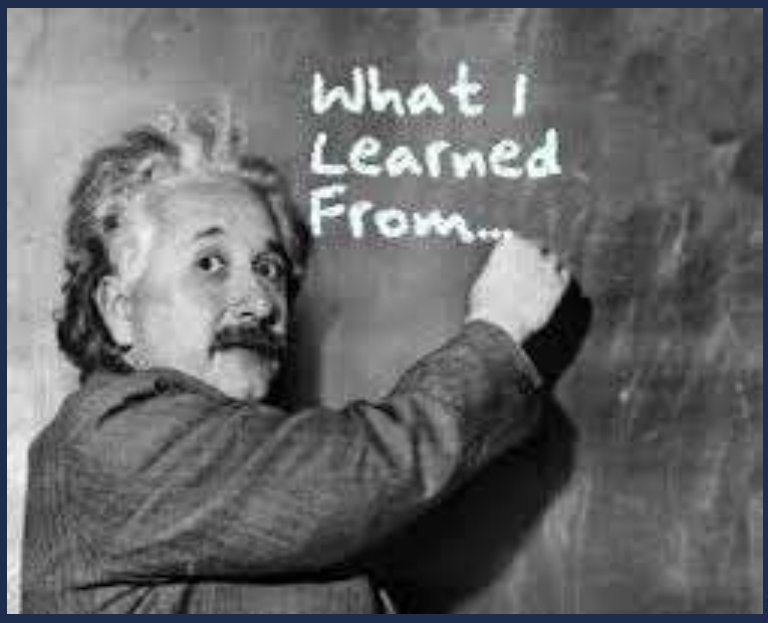

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- Early proper diagnosis of OAS may be life and/or sight saving
- Good history taking; trauma, mode of onset, pain
- Make your diagnosis in 2 stages
  - Stage I exclude emergencies
  - Stage II search for the less urgent etiologies
- PET/CT is a very valuable diagnostic tool
- Don't use steroids in this area before you reach a final diagnosis and don't use it as a therapeutic test.

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THANK YOU

See you next year

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INTERNATIONAL CONGRESS OF THE

EGYPTIAN OPHTHALMOLOGICAL SOCIETY

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24-26 APRIL 2024

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