



# ***Clinical and radiological approach to Orbital Apex Syndrome***

***Prof. Dr. Ashraf Eldesouky  
Tanta University***

- Orbital apex syndrome (OAS) is a rare clinical entity that may be caused by several pathologic processes around the ON foramen and the SOF
- **The hallmarks of OAS are** optic neuropathy and ophthalmoplegia.



*ptosis*

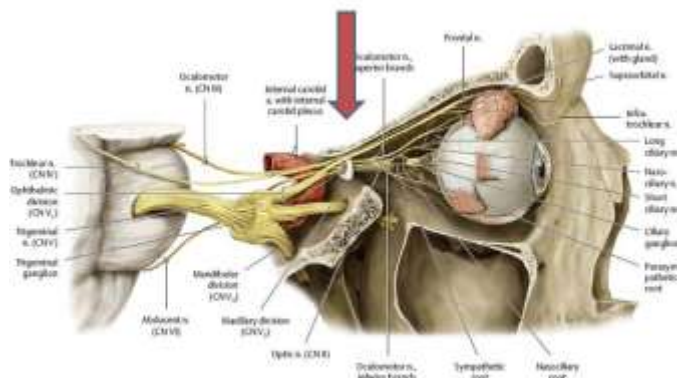


*Dilated non  
reactive pupil*

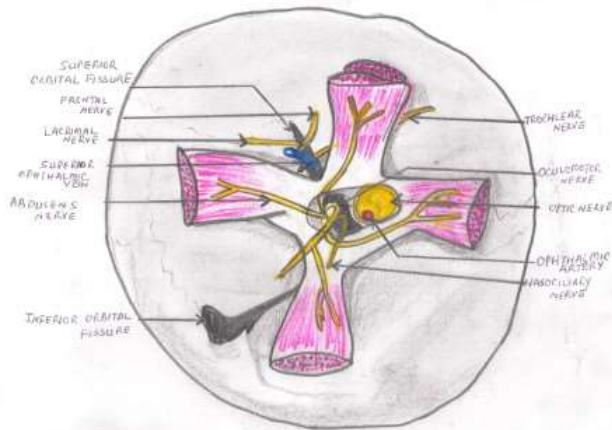


***Total ophthalmoplegia***

In an area of 1.0 cm diameter pass all the vital orbital structures so a small lesion can hit many of them



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## Clinical Presentation, Aetiology and Prognosis of Orbital Apex Syndrome

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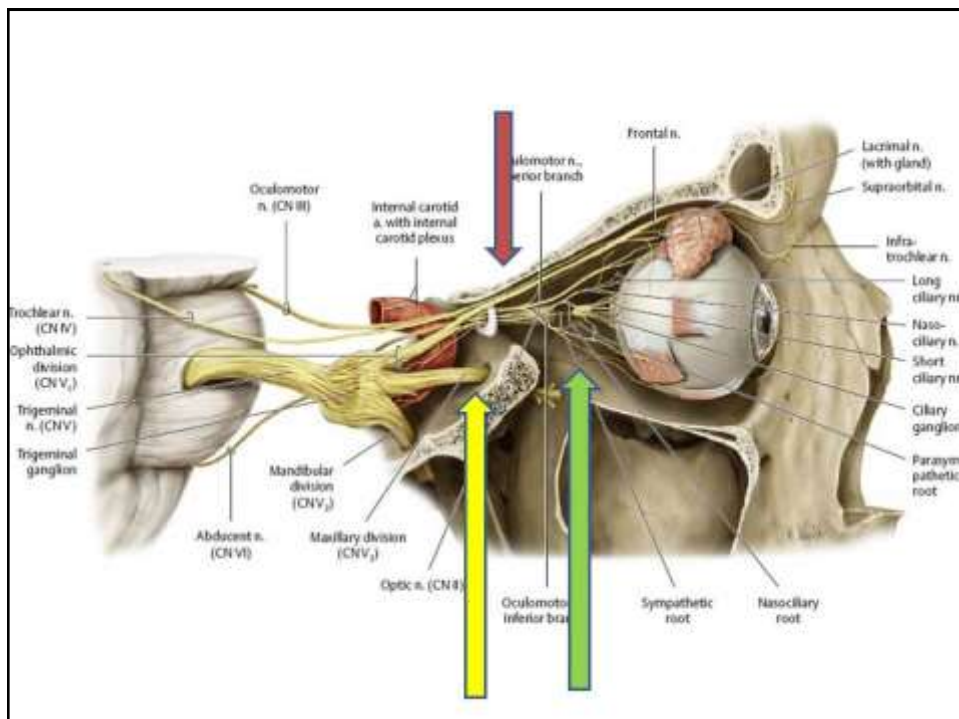
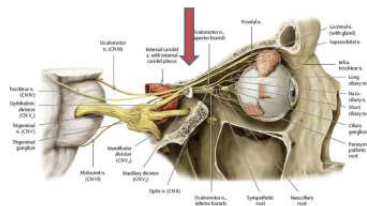
TABLE 2. Disease aetiology.

Etiology	No. of patients	Percent
Neoplasia	24	48
Inflammation	4	8
Infection	4	8
Trauma	4	8
Others	2	4
Vascularity	1	2
Undetermined	11	22
Total	50	100

Others: mucocele, chordoma.

## Orbital apex disorders

- OAS has been divided by the anatomic location of the lesion into 3 groups: **superior orbital fissure syndrome (SOFS)**, **orbital apex syndrome (OAS)**, and **cavernous sinus syndrome (CSS)**.



- SOFS affects mainly the cranial nerves (CNs) III, IV, and VI, and the ophthalmic division of CN V, Ophthalmoplegia without optic neuropathy.

- The syndrome occurs in both complete and incomplete forms as a complex of impaired function of the CNs that enter the orbit through the super fissure depending on the extent of involvement of these structures.

- It can therefore cause a combination of ophthalmoplegia, ptosis, proptosis, anaesthesia in the distribution of V1, and a fixed dilated pupil.

**Male patient aged 53 years**







Look at the pupil



## Orbital apex mass

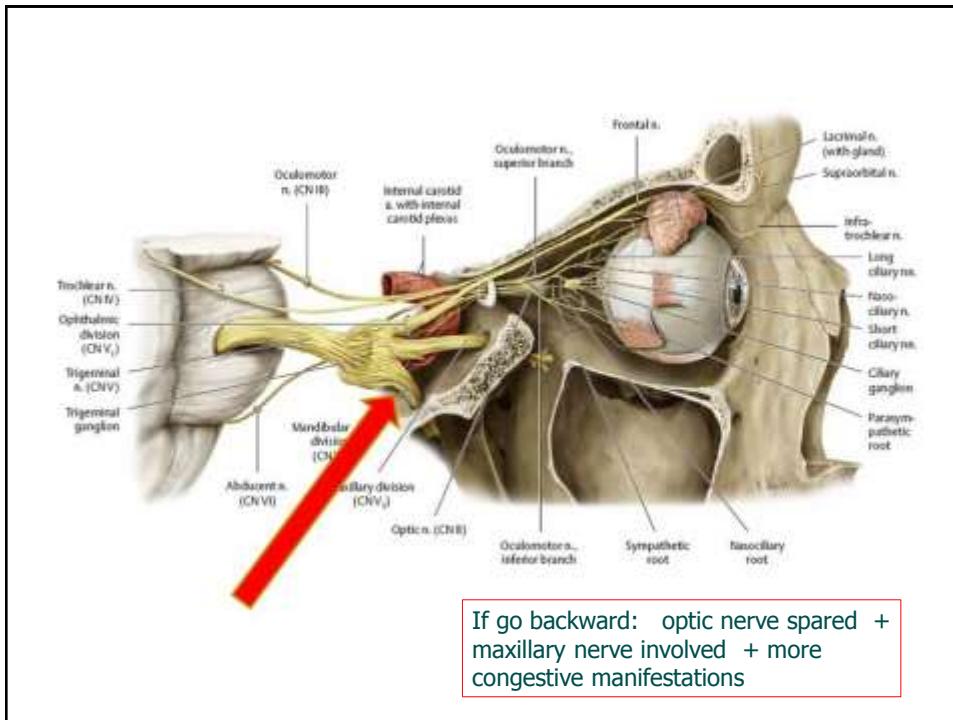




- SOF does not involve the optic nerve, with more severe proptosis than OAS or CSS.
- SOFS affects mainly the cranial nerves (CNs) III, IV, and VI, and the ophthalmic division of CN V without optic neuropathy.

**If the optic nerve is involved, it is considered true OAS.**





- **Cavernous sinus syndrome** also, does not involve the optic nerve. In addition to CNs III, IV, and VI, it may affect the maxillary division of CN V, the carotid ocular sympathetic nerve,

- Optic nerve not affected
- and usually presents with less severe proptosis than SOFS or OAS.
- More severe congestive manifestations



A key sign  
is the  
enlarged  
congested  
**SOV.**



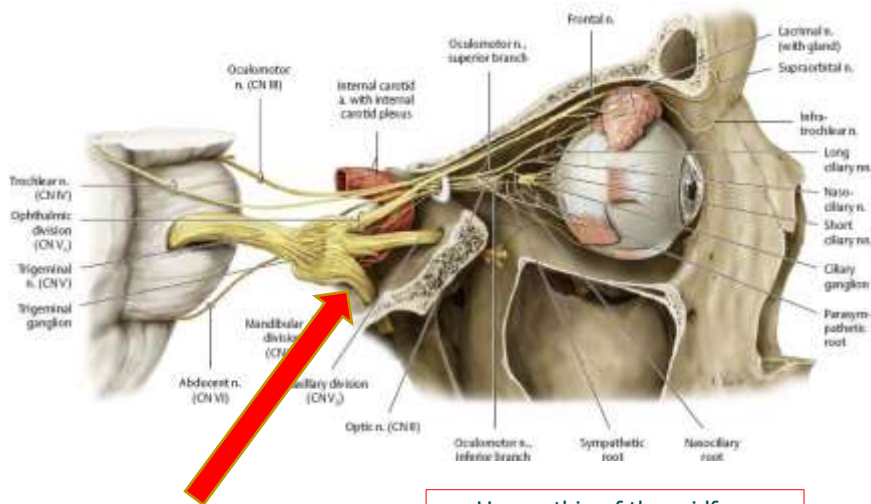
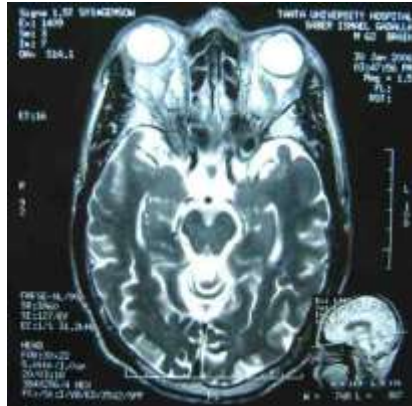
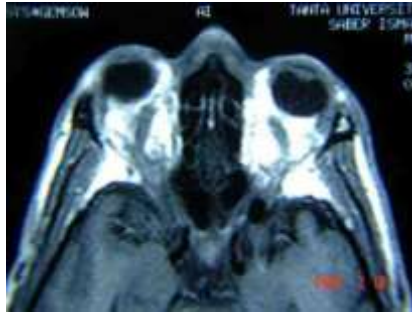
CCF





CST



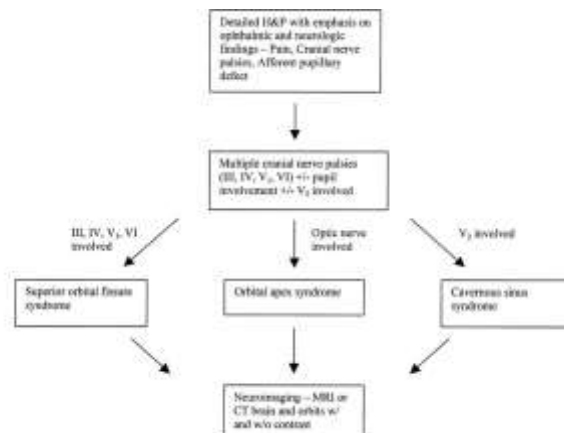


Hypoesthesia of the midface



Diagnosis of orbital apex syndrome

## 2 main questions; which syndrome ?





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which etiology?

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## Clinical Presentation, Aetiology and Prognosis of Orbital Apex Syndrome

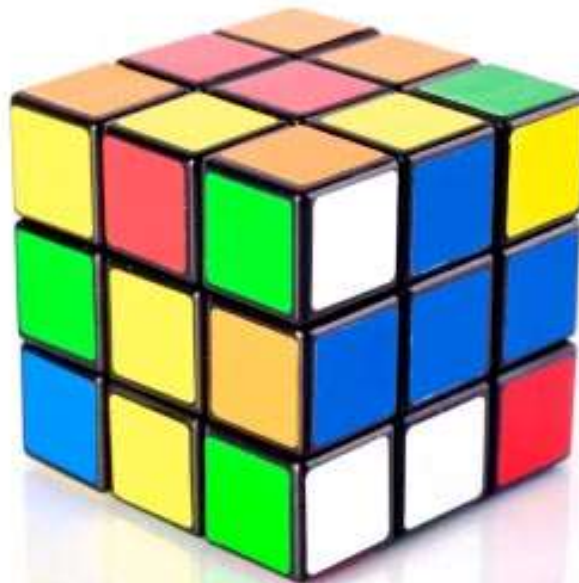
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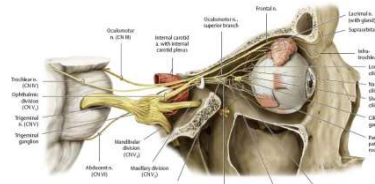
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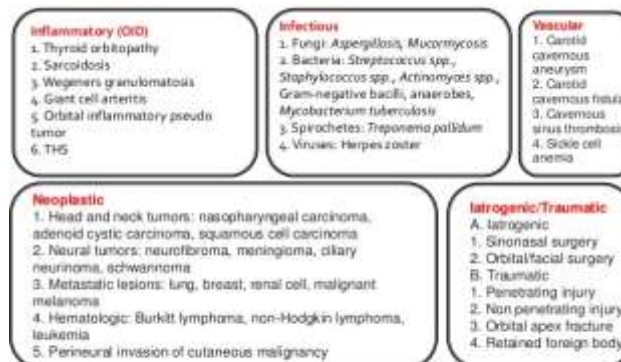


1. Is not III CN palsy (IV, VI, Visual function)
2. Is not SOF syndrome ( Optic N sparing)
3. Is not a cavernous sinus syndrome



A key sign is the involvement of **maxillary** Division of V CN hypoesthesia of mid face

## Step II which etiological group of OAS



### Expanded Etiology of Orbital Apex Syndrome

Sreenish and Ravi Parvathan, Orbital apex syndrome, Curr Opin Ophthalmol, 2002

## In neuroimaging

### Mass

- tumors
- Vascular
- Trauma FB

### No mass

- inflammation
- infection

## Orbital mass

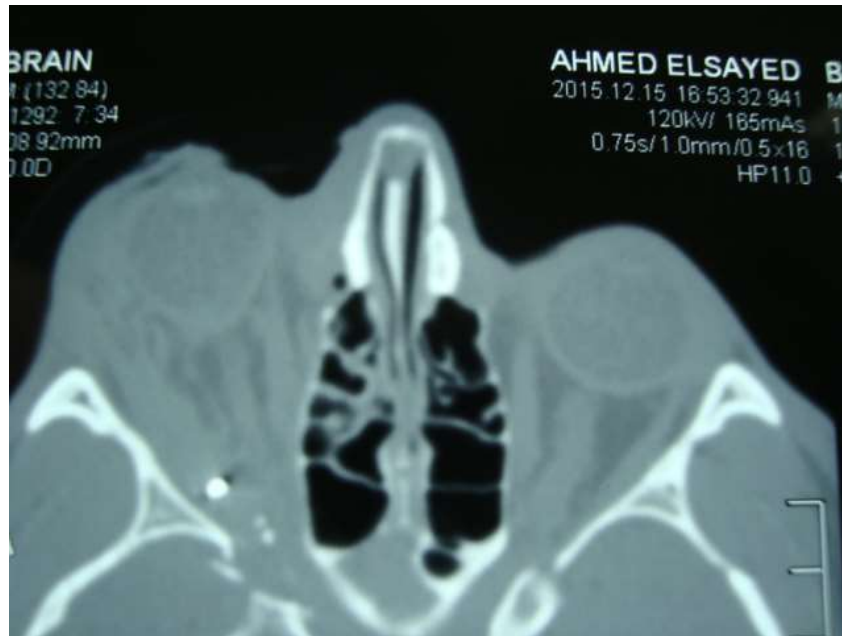
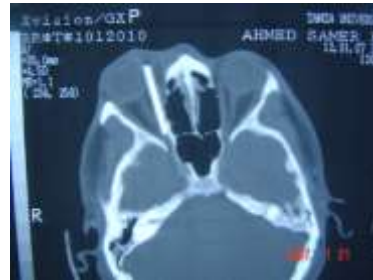
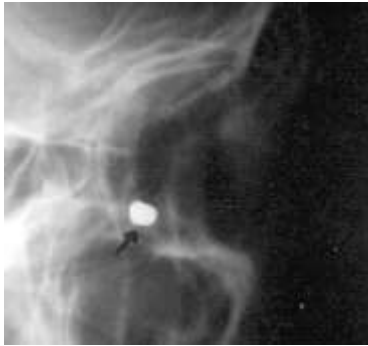
### History of trauma

- fracture
- hematoma
- FB
- CCF

### No History of trauma

- Sytemic disease
- Known primary neoplasia
- Signs suggestive for vascular etiology

## Apical FB



## Fracture roof with displaced bone fragment.











## In neuroimaging

No  
mass

- inflammation
- Infection
- vascula

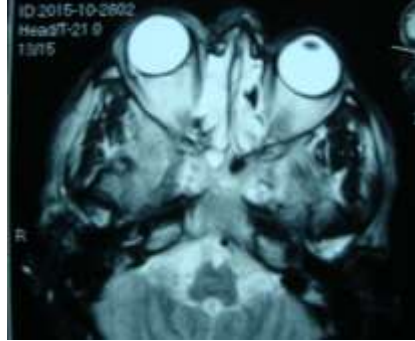
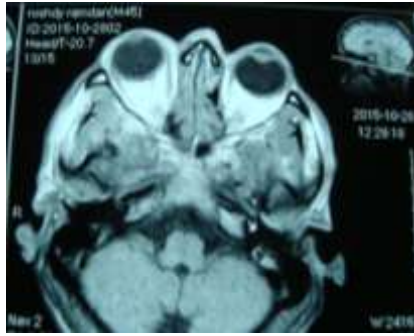
## Orbital Inflammation

Graves 50%	<ul style="list-style-type: none"><li>• Thyroid Eye Disease (TED)</li></ul>
Infection 45%	<ul style="list-style-type: none"><li>• Bacterial most common</li><li>• fungal</li></ul>
Idiopathic (Pseudotumour)	<ul style="list-style-type: none"><li>• Non Specific Orbital inflammation</li><li>• Systemic</li><li>• Local orbital</li></ul>

- The key to diagnosis of this group Is **pain**
- Sever episodic Tolosa Hunt
- No or minimal Fungal infection



Mucormycosis or CS Syndrome??

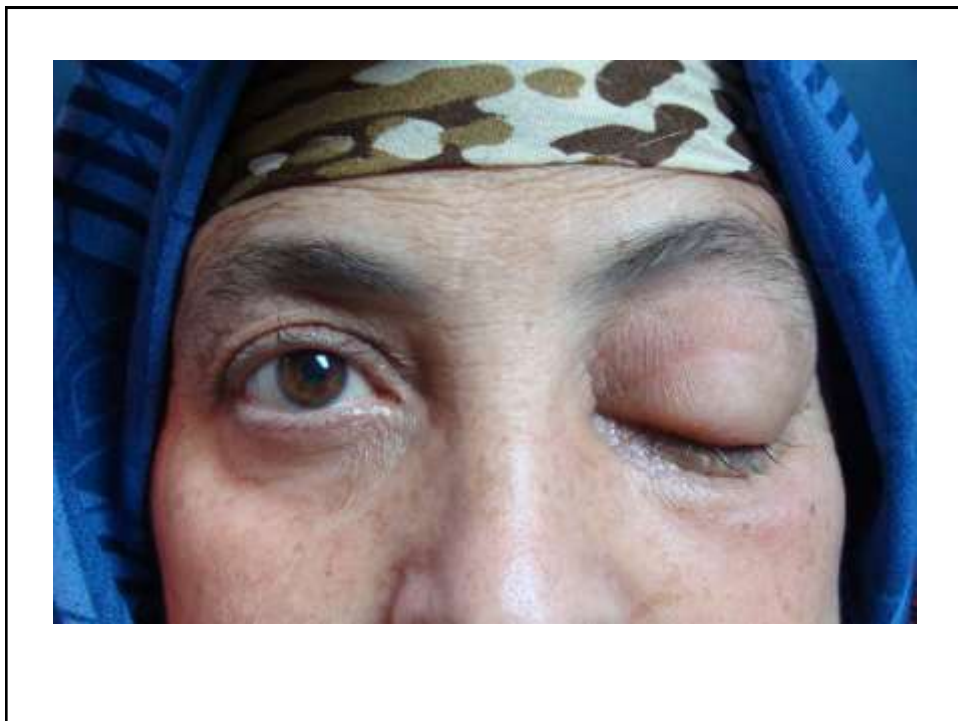
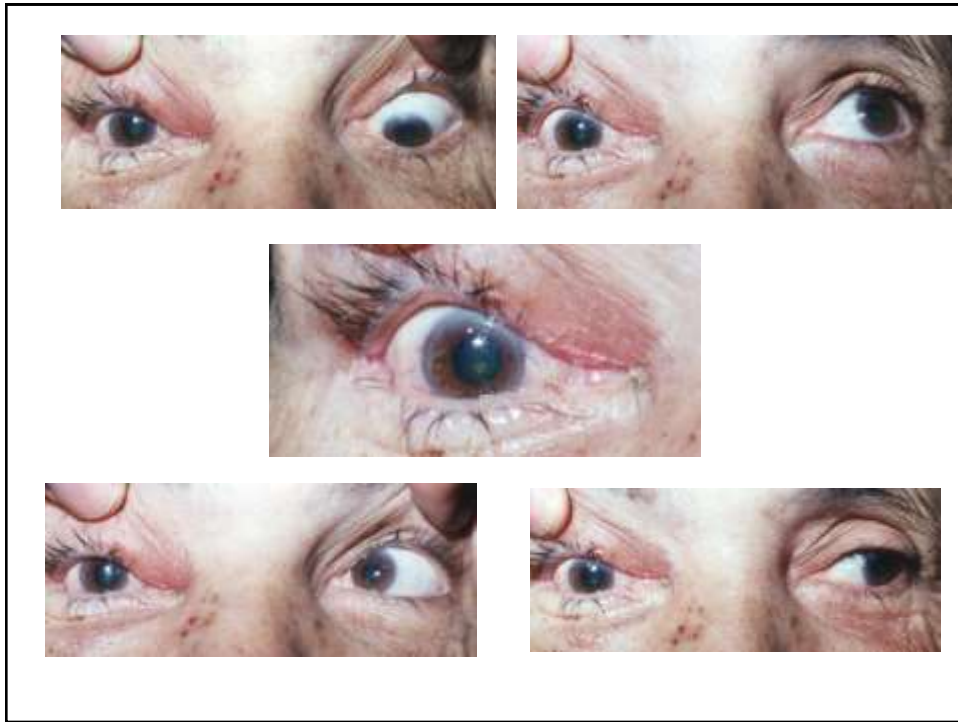


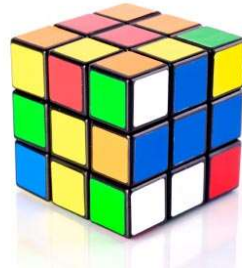
## Infections

- Most commonly fungal, less bacterial, much less viral HZ.

### Case No. 1







**Thank You  
And see you 2019**