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OCULAR DISEASE

CAVERNOUS SINUS THROMBOSIS



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INTRODUCTION

- This refers to clotting within the cavernous sinus, usually resulting from infection such as sinusitis, orbital or preseptal cellulitis or otitis. There is a high mortality rate: 20% treated and up to 100% untreated.



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Communications of cavernous sinus and sources of infection

1. Anteriorly, the *superior and inferior ophthalmic veins* drain in the sinus. These veins receive blood from *face, nose, paranasal sinuses and orbits*, Therefore, infection to cavernous sinus may spread from *infected facial wounds, squeezing of sty, furuncles, orbital cellulitis and sinusitis*.



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2. **Posteriorly**, the *superior and inferior petrosal sinuses* leave it to join the lateral sinus. Labyrinthine veins opening into the inferior petrosal sinuses bring infections from the middle ear. Mastoid emissary veins may spread infection from the mastoid air cells.



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3. **Superiorly**, the cavernous sinus communicates with veins of the **cerebrum** and may be infected from **meningitis and cerebral abscesses**.
4. **Inferiorly**, the sinus communicates with **pterygoid venous plexus**.

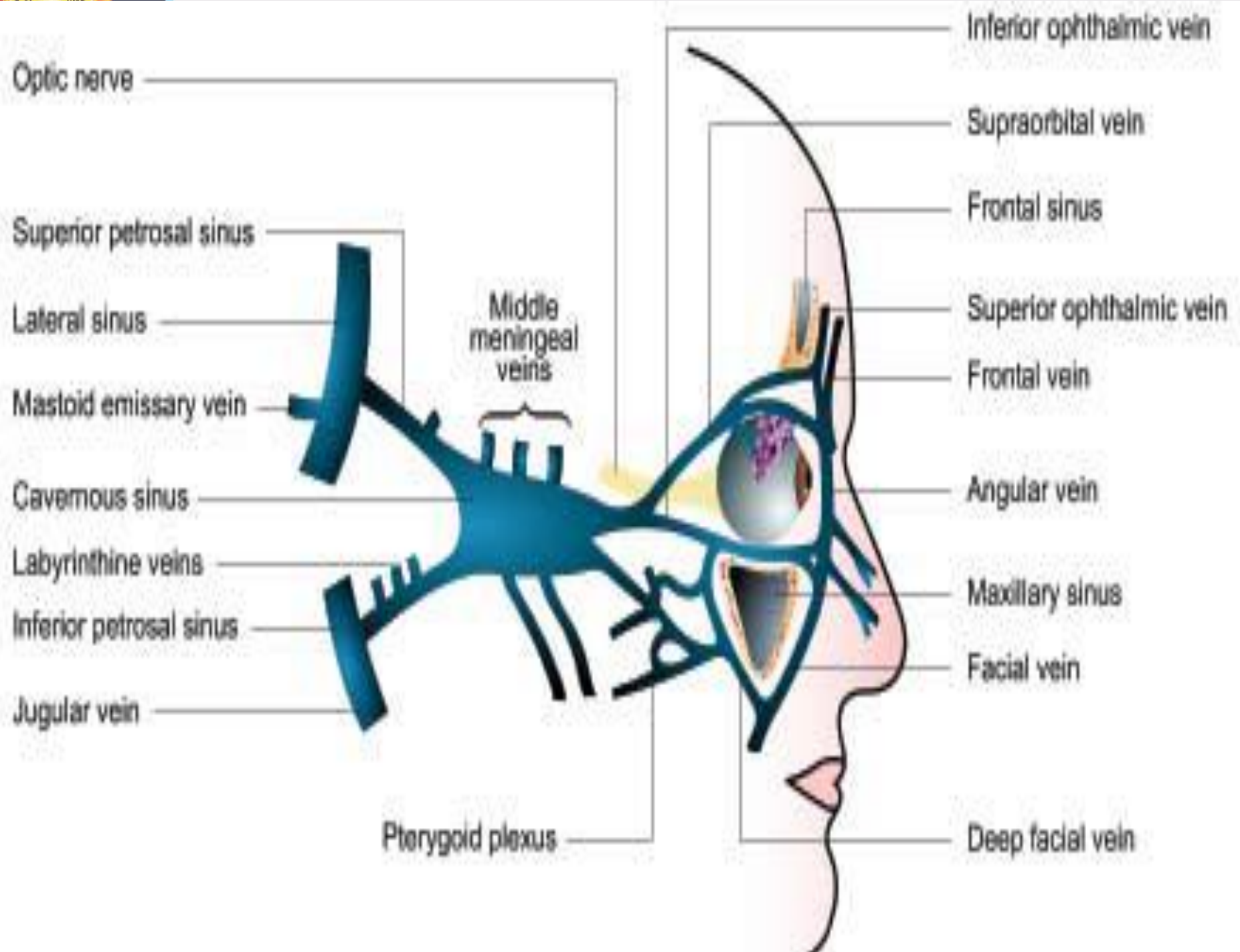


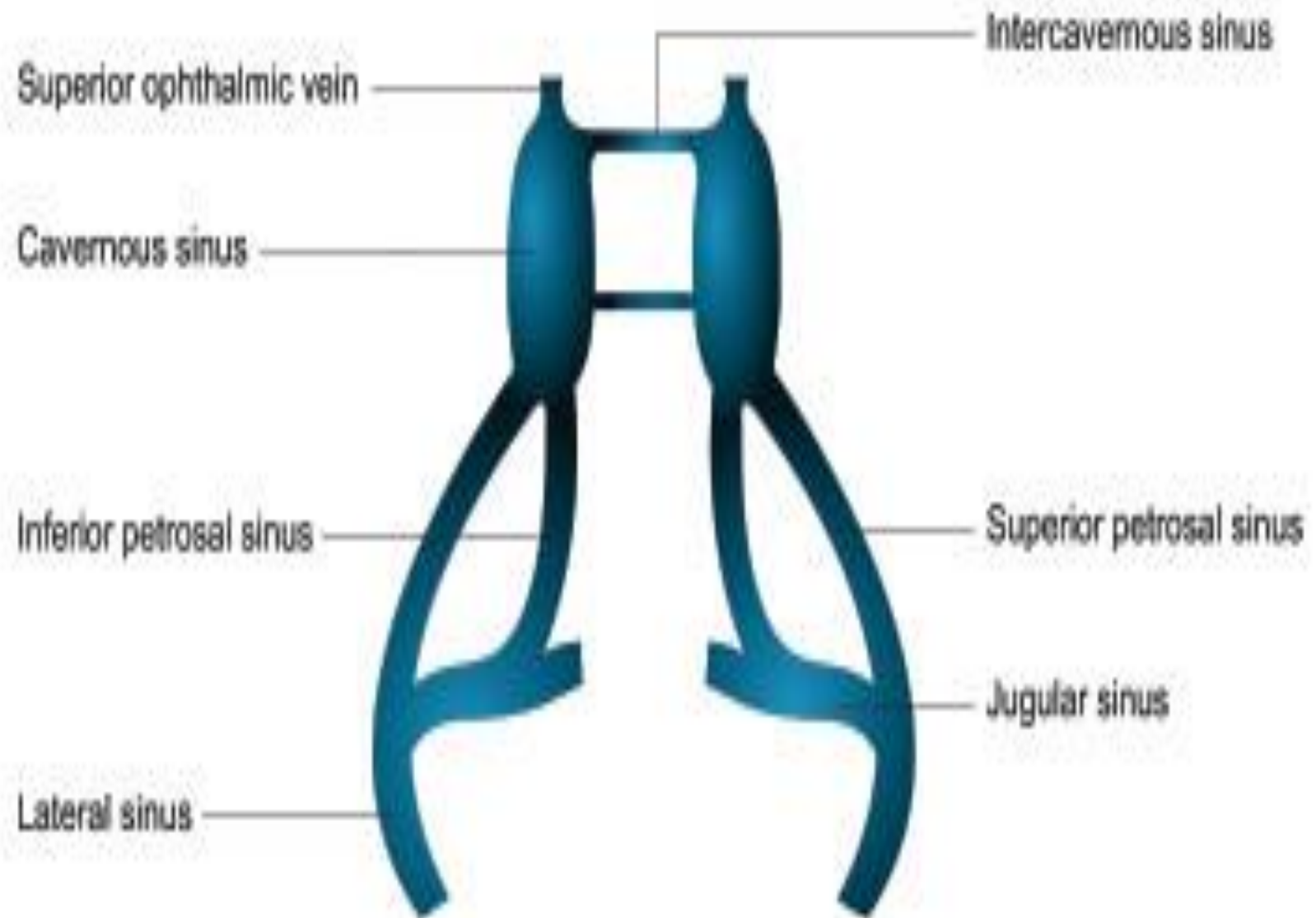
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5. Medially, *the two cavernous sinuses* are connected with each other by **transverse sinuses** which account for transfer of infection from one side to the other.





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Clinical picture

- Cavernous sinus thrombosis starts initially as a unilateral condition, which soon becomes bilateral in more than 50 percent of cases due to intercavernous communication. The condition is characterised by general and ocular features.



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- ***General features.*** Patient is seriously
 - ✓ ill having high grade fever with rigors,
 - ✓ Vomiting and
 - ✓ Headache.



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- ***Ocular features.***
- ***Severe pain*** in the eye and forehead on the affected side.
- ***Conjunctiva is swollen and congested.***
- ***Proptosis*** develops rapidly.
- ***Palsy of third, fourth and sixth cranial nerves*** occurs frequently.
- ***Oedema in mastoid region*** is a pathognomonic sign. It is due to back pressure in the mastoid emissary vein.



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- ***Fundus*** may be normal with *unimpaired vision* in early cases. In advanced cases, retinal veins show congestion and there may appear papilloedema.



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Complications

- At any stage, the hyperpyrexia and signs of meningitis or pulmonary infarction may precede death.



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Differential diagnosis

- The rapidly developing, acute inflammatory type of **proptosis** seen in cavernous sinus thrombosis needs to be differentiated from orbital cellulitis and panophthalmitis



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<i>Clinical features</i>	<i>Cavernous sinus thrombosis</i>	<i>Orbital cellulitis</i>	<i>Panophthalmitis</i>
1. Laterality	Initially unilateral, but soon becomes bilateral	Unilateral	Unilateral
2. Degree of proptosis	Moderate	Marked	Moderate
3. Vision	Not affected in early stage	Not affected in early stage	Complete loss of vision from the beginning
4. Cornea and anterior chamber	Clear in early stages	Clear in early stages	Hazy due to corneal oedema. Pus in the anterior chamber
5. Ocular movements	Complete limitation to palsy	Marked limitation	Painful and limited
6. Oedema in mastoid region	Present	Absent	Absent
7. General symptoms with fever, and prostrations	Marked	Mild	Mild



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Treatment

1. Antibiotics *are the sheet anchor of treatment.* Massive doses of modern potent broad spectrum antibiotics should be injected intravenously.

2. Analgesics and anti-inflammatory *drugs control pain and fever.*