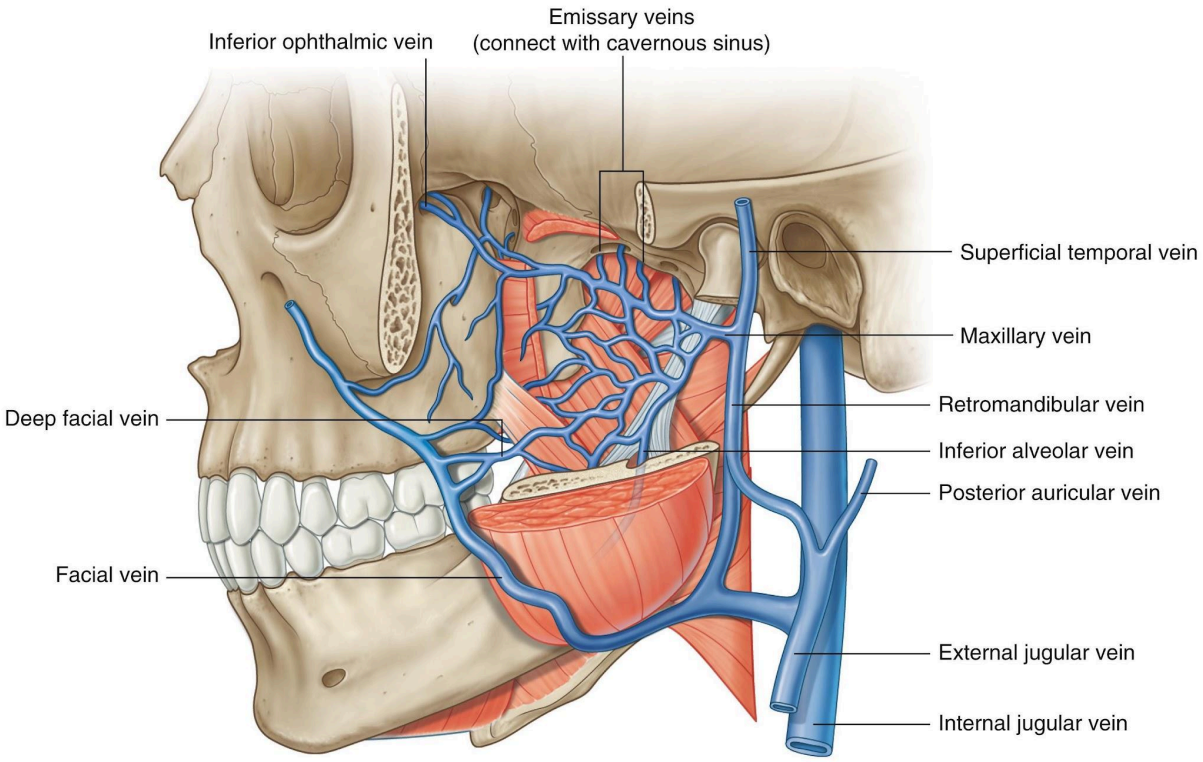
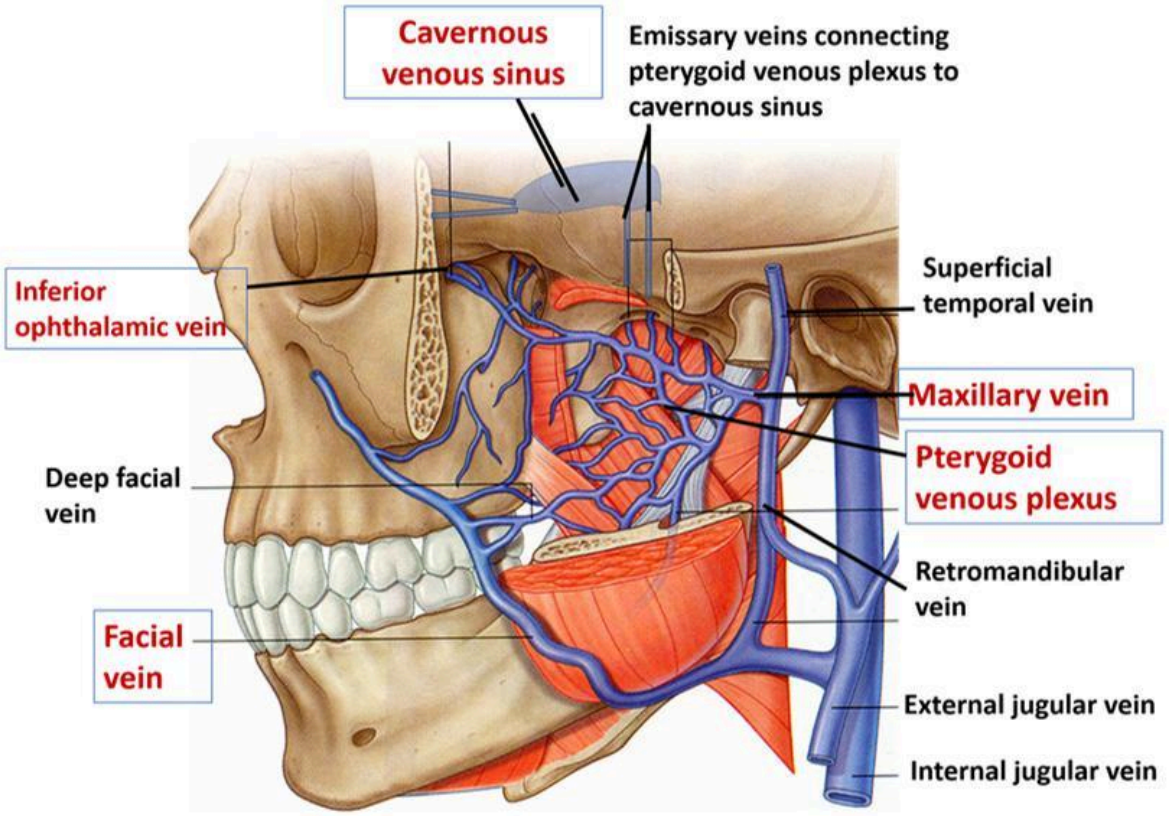
Surgical importance of the deep facial vein

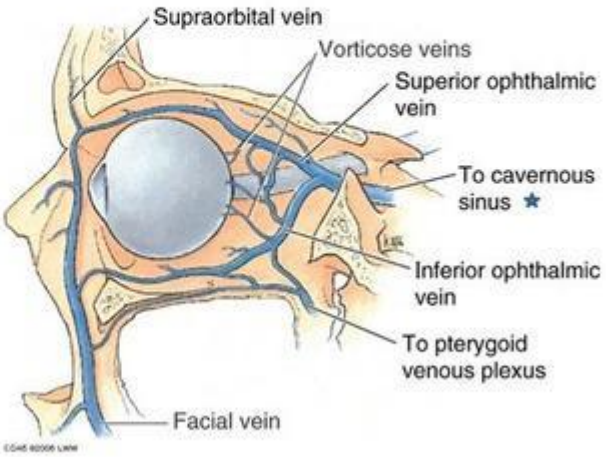
The **deep facial vein** is clinically important because it connects the **facial venous system with the pterygoid venous plexus**, providing a potential route for the spread of infection from the face to deep spaces and the cranial cavity.

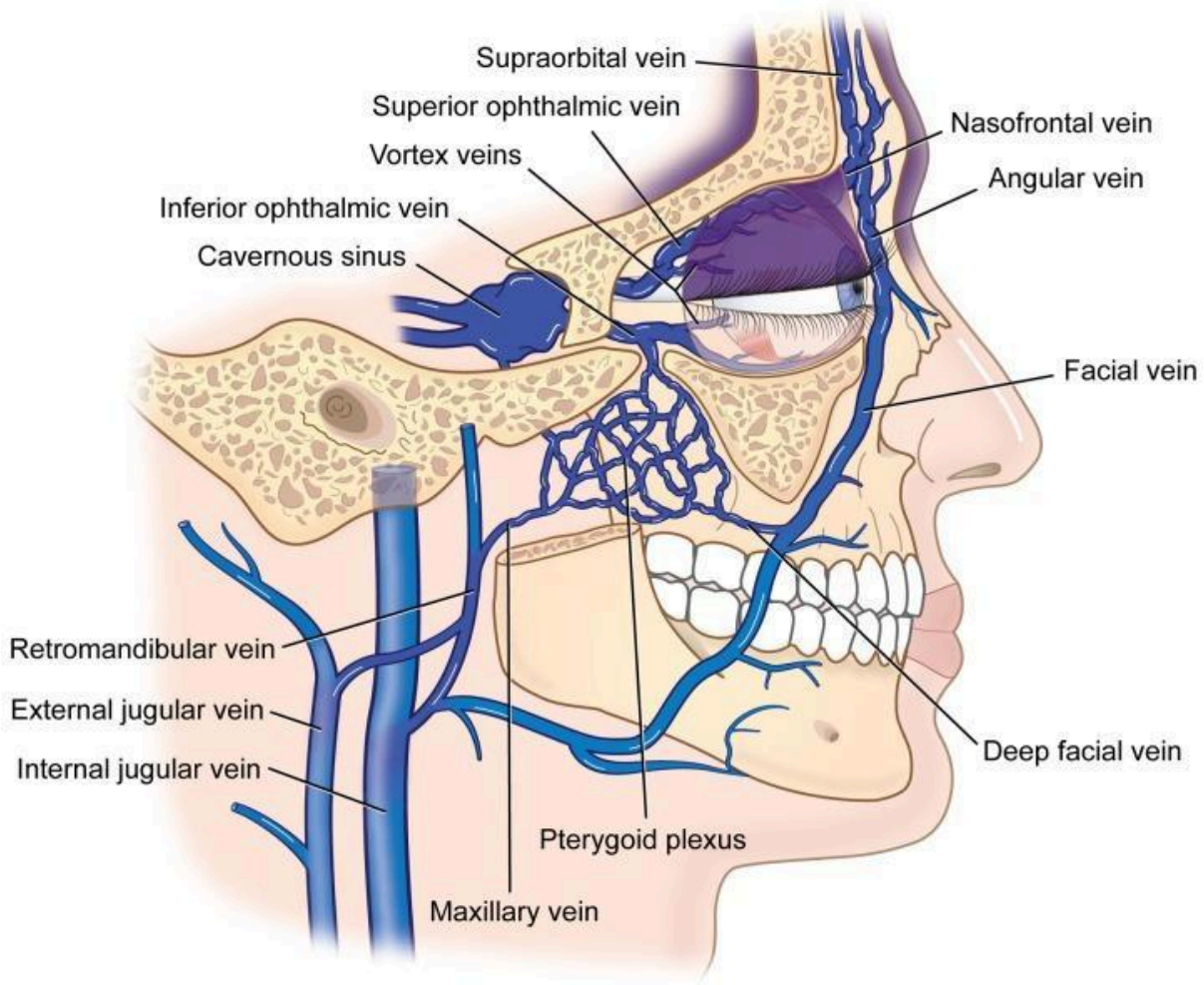




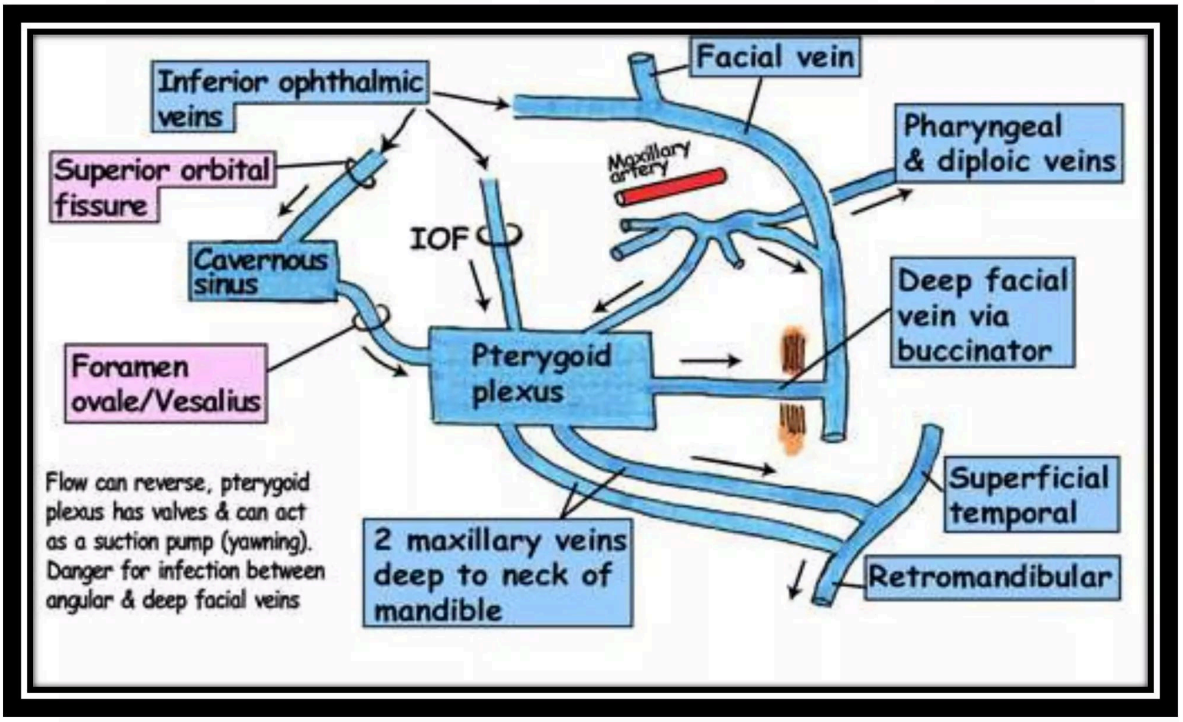
Danger Triangle of Face

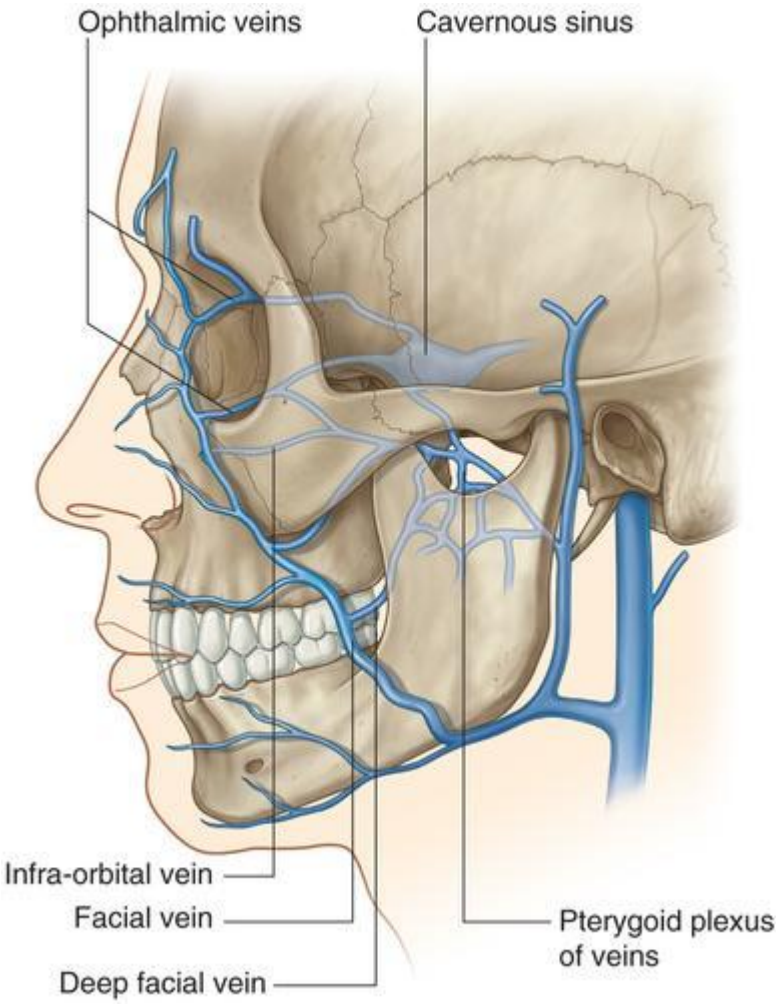





Supraorbital vein
Superior ophthalmic vein
Vortex veins
Inferior ophthalmic vein
Cavernous sinus
Nasofrontal vein
Angular vein
Facial vein
Retromandibular vein
External jugular vein
Internal jugular vein
Pterygoid plexus
Maxillary vein
Deep facial vein

Venous connections of cavernous sinus





1. Course and connections

The deep facial vein accompanies the **facial artery and its branches in the deeper tissues of the face**.

It passes posteriorly from the facial venous system to the:

Deep facial vein → pterygoid venous plexus

The pterygoid plexus communicates with the **cavernous sinus** through emissary veins passing through foramina at the skull base.

Thus, an important potential pathway is:

Facial veins → deep facial vein → pterygoid venous plexus → emissary veins → cavernous sinus

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2. Surgical importance

A. Spread of infection

The facial veins are relatively **valveless**, allowing blood—and therefore infection—to potentially travel in either direction.

An infection in the **upper lip, nose or deep facial tissues** may spread through:

Deep facial vein → pterygoid plexus → cavernous sinus

This can result in **cavernous sinus thrombosis**.

Therefore, manipulation of infected lesions in the central face should be undertaken carefully.

B. Deep facial infections

Infection may extend from the superficial face into:

- Buccal space
- Infratemporal region
- Pterygoid venous plexus
- Cavernous sinus

This is particularly relevant during surgery for **odontogenic infections**, facial abscesses and deep facial-space infections.

C. Dental and maxillofacial surgery

The pterygoid plexus lies close to the **maxillary artery and pterygoid muscles**.

During procedures involving:

- Maxillary teeth
- Infratemporal fossa
- Pterygoid muscles
- Deep facial spaces

the venous connections may be encountered.

Injury to the pterygoid plexus or deep facial veins can produce **significant bleeding**, because the plexus is extensive and communicates freely with other venous channels.

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3. Relation to the "dangerous area" of the face

The central face, particularly the region around the **nose and upper lip**, has venous connections with intracranial structures.

Two important pathways are:

1. Facial/angular vein → ophthalmic veins → cavernous sinus

and

2. Facial vein → deep facial vein → pterygoid plexus → emissary veins → cavernous sinus

Thus, infection from the face can potentially reach the cavernous sinus without passing through a conventional valved venous system.

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4. Important surgical principle

> **Do not regard the deep facial vein merely as a local draining vein; its connection with the pterygoid venous plexus creates a potential intracranial route for spread of infection and an important source of bleeding during deep facial and maxillofacial surgery.**

Viva answer

Deep facial vein is surgically important because it connects the facial venous system with the pterygoid venous plexus. Since these veins are essentially valveless, infection from the face can spread retrogradely through the pterygoid plexus and emissary veins to the cavernous sinus, producing cavernous sinus thrombosis. The pterygoid plexus may also bleed significantly when injured during maxillofacial or infratemporal surgery.