Orbital Vein

The orbital veins are critical vascular structures that drain blood from the orbit (the cavity housing the eye) and its surrounding structures. They play an important role in the venous circulation of the eye and connect to both intracranial and extracranial venous systems.

Types of Orbital Veins

The orbital venous system comprises two main veins:

1. Superior Ophthalmic Vein

1. **Origin:** Formed by the union of the supraorbital vein and angular vein at the anterior part of the orbit.
2. **Course:**
    1. Travels posteriorly through the superior part of the orbit.
    2. Passes through the **superior orbital fissure** into the cavernous sinus.
3. **Drainage:**
    1. Receives tributaries from the ethmoidal veins, lacrimal vein, central retinal vein, and superior orbital structures.
    2. Drains into the **cavernous sinus**.

2. Inferior Ophthalmic Vein

1. **Origin:** Begins at the anterior part of the orbit.
2. **Course:**
    1. Divides into two branches:
        1. **One branch:** Drains into the cavernous sinus through the superior orbital fissure.
        2. **Another branch:** Joins the pterygoid venous plexus via the inferior orbital fissure.
3. **Drainage:**
    1. Receives tributaries from the lower orbital structures, including the inferior rectus and oblique muscles.

Clinical Significance

1. **Communication with Intracranial Venous Structures:**
    1. The orbital veins communicate directly with the **cavernous sinus**, allowing potential spread of infections from the face to the brain (e.g., through the “danger triangle” of the face).
2. **Cavernous Sinus Thrombosis:**
    1. Infections in the orbital venous system may lead to thrombosis of the cavernous sinus, presenting with symptoms such as proptosis, ophthalmoplegia, and severe headache.
3. **Pathological Conditions:**

1. Disorders such as arteriovenous malformations or venous occlusion can affect orbital veins, leading to vision changes, congestion, or increased intraocular pressure.

Imaging

1. **CT or MRI:** Useful in assessing pathologies affecting the orbital veins, such as thrombosis or vascular malformations.
2. **Doppler Ultrasound:** Non-invasive technique to evaluate venous blood flow in cases of suspected obstruction.

Summary

The orbital veins (superior and inferior ophthalmic veins) are essential for venous drainage of the orbit. Their connections to the cavernous sinus and extracranial venous systems make them anatomically significant for both normal physiology and pathological conditions.