

## **Dangerous area of face:**

Dangerous area of face comprises of upper lip, lower part of nose and adjacent area. This area has been so named because boils, infections of the nose and injuries around the nose, especially those that become infected can readily spread to cavernous sinus resulting in cavernous sinus thrombosis (CST). CST is generally a fulminant process with high rates of morbidity and mortality. Fortunately, the incidence of CST has been decreased greatly with the advent of effective antimicrobial agents.

## **Anatomical Considerations:**

**Anterior facial vein** begins at the side of root of nose through the union of supra-orbital and frontal veins. The vein drains upper lip, septum of nose and adjacent areas. The anterior facial vein communicates with the cavernous sinus through the ophthalmic veins. It also communicates with cavernous sinus via deep facial vein which connects the pterygoid plexus with anterior facial vein.

## **Key points:**

- Anterior facial vein has no valves and it makes possible bidirectional blood flow in the vein.
- It lies amongst muscles which by contraction may displace the clot in the vein.
- This area (dangerous area of face) is lacking in deep fascia, which acts as barrier to the spread of inflammation and the infective processes have ready access to muscles.
- The highly anastomotic and valve less venous system allows retrograde spread of infection to the cavernous sinus via the superior and inferior ophthalmic veins.
- Any forceful squeezing, manipulation of furuncle, infection or abscesses in this area may push up the infection towards the cavernous sinus.
- Nasal septal abscesses that may follow trauma or surgery should be carefully incised avoiding any injury to the adjoining healthy area. If the healthy tissue is incised in the neighborhood of infection, the infection may reach the veins and result in clot formation. This clot in turn may be

pushed up through the valve less veins by movements of the facial muscles to the cavernous sinus.

- The adequate management of facial furuncle to prevent spread of infection to cavernous sinus is of paramount importance. Staphylococcal infection of a hair follicle is the usual cause. A furuncle is a deep seated, firm, tender nodule that enlarges, becomes erythematous, painful and fluctuant after several days. This localized infection, may develop into an abscess. The treatment comprises moist heat initially; most strains of staphylococci are sensitive to clindamycin and doxycycline. Surgical incision and drainage is required when fluctuation is palpable. Systemic treatment with antibiotics is indicated for systemic symptoms or extensive cellulites.
- CST is characterized by severe headaches, neck stiffness, altered consciousness levels and epileptic fits. Clinically there is high grade fever, rigors, headaches, a reduced conscious level, and signs of cerebral irritation. An ophthalmoplegia results from paralysis of cranial nerves that travel within CS viz III, IV and VI and ophthalmic and maxillary nerves. The eyes are proptosed with considerable swelling in the area.
- The mainstay of therapy is early and aggressive antibiotic administration. Although *S aureus* is the usual cause, broad-spectrum coverage for gram-positive, gram-negative, and anaerobic organisms should be instituted pending the outcome of cultures. IV antibiotics are recommended for a minimum of 3-4 weeks.
- Corticosteroids may help to reduce inflammation and edema and should be considered as an adjunctive therapy. They should be instituted after antibiotic coverage. When the course of CST leads to pituitary insufficiency, however, corticosteroids definitely are indicated to prevent adrenal crisis. Dexamethasone or hydrocortisone should be considered. Surgery on the cavernous sinus is technically difficult and has never been shown to be helpful. The primary source of infection should be drained, if feasible (eg, sphenoid sinusitis, facial abscess).