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MATRIC No.: 17/MHS01/206

DEPARTMENT: MEDICINE AND SURGERY

COURSE: GROSS ANATOMY OF THE HEAD AND NECK (ANA301)

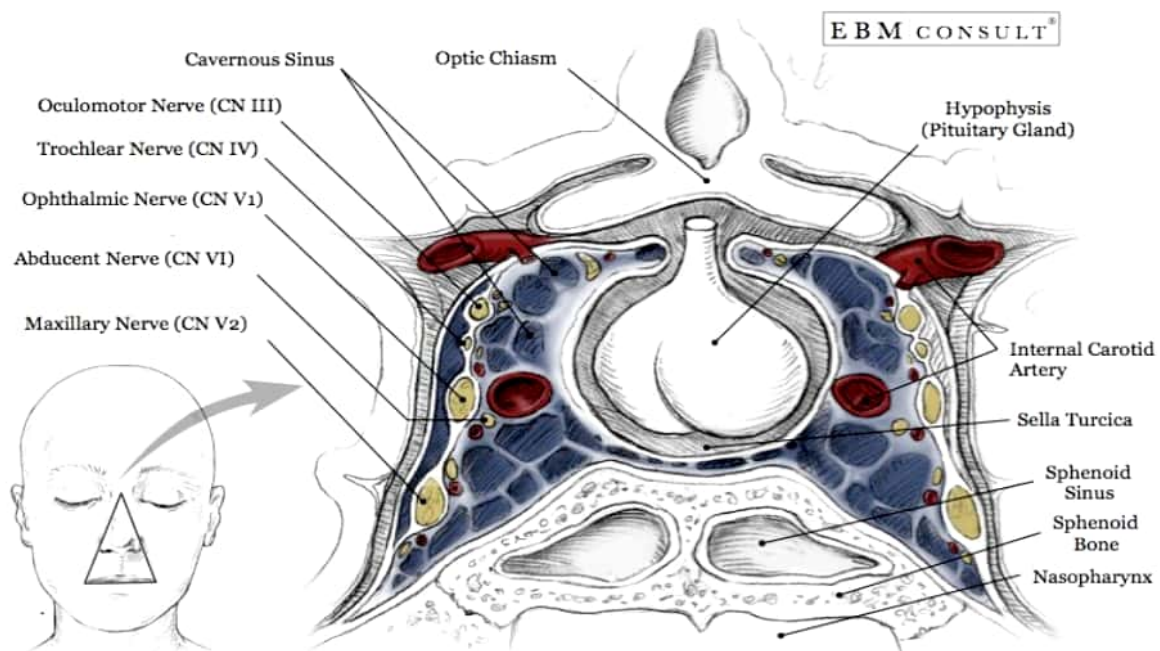
DATE: 28th APRIL, 2020.

ASSIGNMENT

1. Write an essay on the cavernous sinus.
2. Discuss the walls of the nose.

ANSWERS

1. CARVANOUS SINUS



This is located within the human head and is one of the paired Dural Venous Sinuses creating a cavity called the Lateral Sellar Compartment

bordered by the temporal bone and sphenoid bone, lateral to the sella turcica.

Functions of the cavernous sinus

- Facilitates heat exchange between arterial and venous blood as they transverse each other.

Blood Supply

The cavernous sinus is made up of very thin walled veins that make up a venous plexus. The cavernous sinus receives venous blood from the following;

- Superior Middle Cerebral Vein
- Superior and Inferior Ophthalmic Veins
- Sphenoparietal Sinus

Venous blood drains posteroinferiorly to eventually empty into the Pytergoid Plexuses.

Contents

Apart from the blood which passes through a venous sinus, several anatomical structures, including some cranial nerves and their branches also pass through the sinus. The structures include;

- Internal Carotid Arteries and its small branches
- Carotid Plexus of Sympathetic Nerve
- Abducens Nerve (CNVI)
- Maxillary Nerve (CNV₂)
- Oculomotor Nerve (CNIII)
- Ophthalmic Nerve (CNV₁)
- Trochlear Nerve (CNIV)

A mnemonic exists to remember the contents of the sinus; O TOM CAT (OTOM are the lateral wall contents from superior to inferior; CAT are the horizontal contents from medial to lateral).

Fat

Fatty deposits maybe present within the cavernous sinus, especially in obese patients or in those who are taking corticosteroids.

Clinical Correlates

- **Cavernous Sinus Thrombosis**

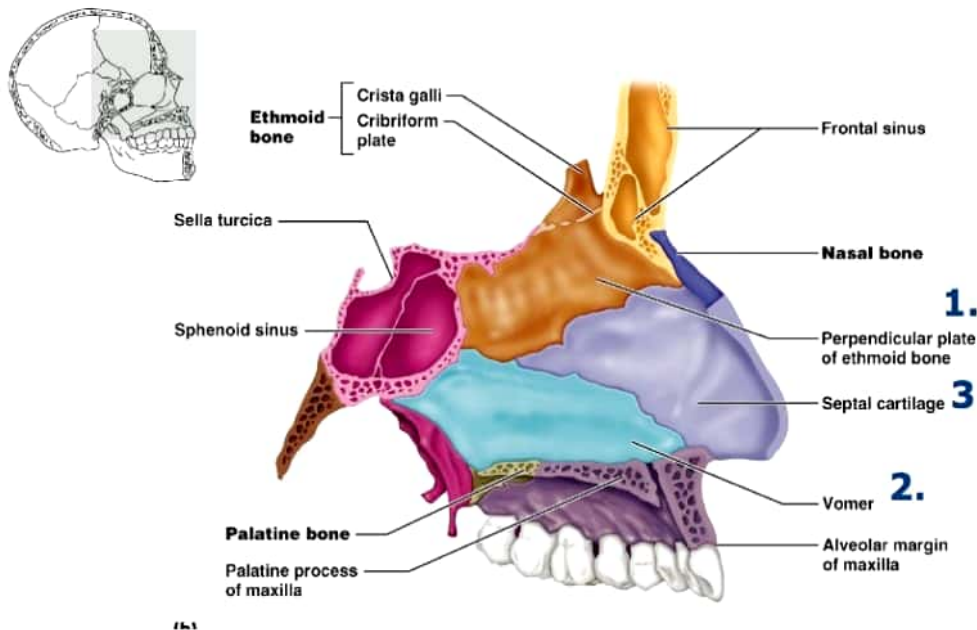
The veins of the face drain blood into the cavernous sinus via the superior ophthalmic vein. As such, infections of the face particularly those involving the danger triangle (orbits, nasal sinuses and superior part of the face) can cause a cavernous sinus thrombosis. Patients presenting with cavernous sinus thrombosis will usually complain of a headache, a cranial nerve deficit involving CNIII, IV, V₁, V₂, and/or VI and unilateral eye swelling that progresses to bilateral eye swelling.

2. **WALLS OF THE NOSE**

The nose includes the external nose on the face and the nasal cavity, which extends posteriorly from it. The nose functions in smell and provides filtered, warm, moist air for inspiration.

The nasal cavity is divided into right and left halves by the Nasal Septum. Each half has a floor, roof and medial and lateral walls.

LATERAL WALL



The lateral wall is formed by several bones;

- Nasal
- Medial surface of the lacrimal and maxillary bones
- Ethmoid bone
- Perpendicular bone plate of palatine
- The medial plate of the pterygoid process of the sphenoid bone
- Inferior nasal concha

The lateral wall has three medially projecting inferiorly curved bones called **NASAL CONCHAE**. There are three nasal conchae;

- Middle Concha
- Superior Concha
- Inferior Concha

The middle and superior conchae are part of the ethmoid bone. The inferior concha is a separate bone. There is a normal variant called supreme concha. When the conchae are covered by mucosa, they are called **Turbinates**. The turbinates augment the surface area of the nasal

cavity to aid in its functions of humidifying the air. The turbinates create for channels, three of these channels are termed **Meatuses** (¹superior meatus is located inferior to the superior turbinate and superior to the middle turbinate, ²middle meatus is located inferior to the middle turbinate and superior to the inferior turbinate, ³inferior meatus is located inferior to the inferior turbinate and superior to the floor of the nasal cavity.) and the fourth is **Sphenoethmoidal Recess** (located superior to the superior turbinate and inferior to the nasal cavity roof, which is the drainage site of the sphenoid sinus).

MEDIAL WALL or NASAL SEPTUM

This wall comprises of the septal cartilage (which is destroyed in a dried skull), perpendicular plate of the ethmoid bone and the vomer. It is usually deviated to one side. The lowest part of the septum (the **COLUMELLA**) is membranous and mobile.

