

NZEI IJEOMA NMESOMACHUKWU A.

17/MHS01/215

ANATOMY ASSIGNMENT 2

17/11/2015

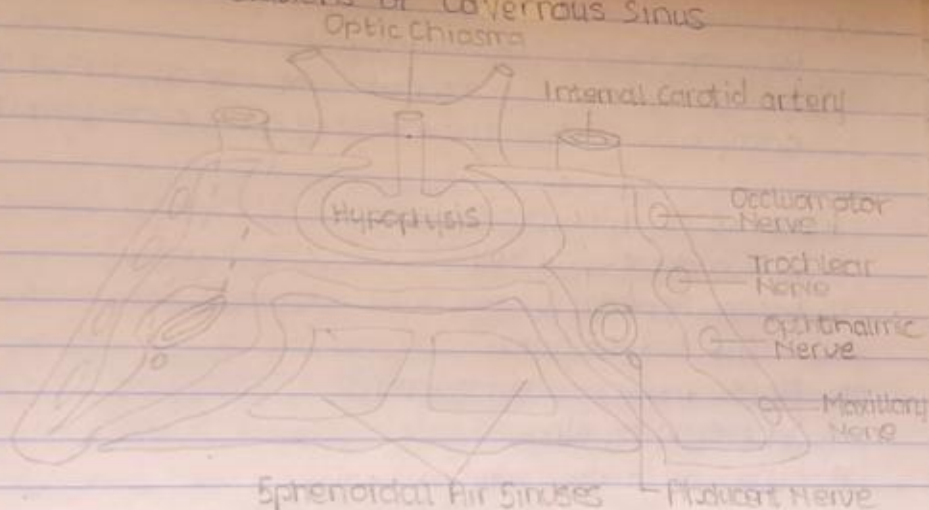
ANATOMY ASSIGNMENT

1. Write an essay on cavernous sinus.

These venous sinuses are located in the middle cranial fossa on the side of the body of the sphenoid bone. The name cavernous is derived from the trabeculated or spongy appearance of the interior of the sinus. Each sinus extends from the medial end of the superior orbital fissure to the apex of the petrous temporal bone. It is two centimeter long and one centimeter wide.

The sinus presents a roof, floor, lateral and medial walls. The meningeal layer of dura mater forms the roof and lateral wall and endosteal layer forms the floor and medial wall of the sinus.

Relations of Cavernous Sinus



Close Relations of Cavernous Sinus

1. Four nerves travel in the lateral wall of the sinus. From above downwards, they are:

- i) Oculomotor nerve
- ii) Trochlear nerve
- iii) Ophthalmic division of trigeminal nerve
- iv) Maxillary division of trigeminal nerve

2. Following two structures closely related to the floor are separated from the interior of the sinus by endothelium

- i) The internal carotid artery surrounded by sympathetic plexus

17/MHS01/215

passes forwards through the sinus in close contact with the floor (the artery produces a groove on the body of the sphenoid bone)
ii) The olfactory nerve passes forwards in the inferolateral relation to the internal carotid artery.

3. The internal carotid artery comes out of the sinus by piercing its roof.

4. The medial relations of the sinus are

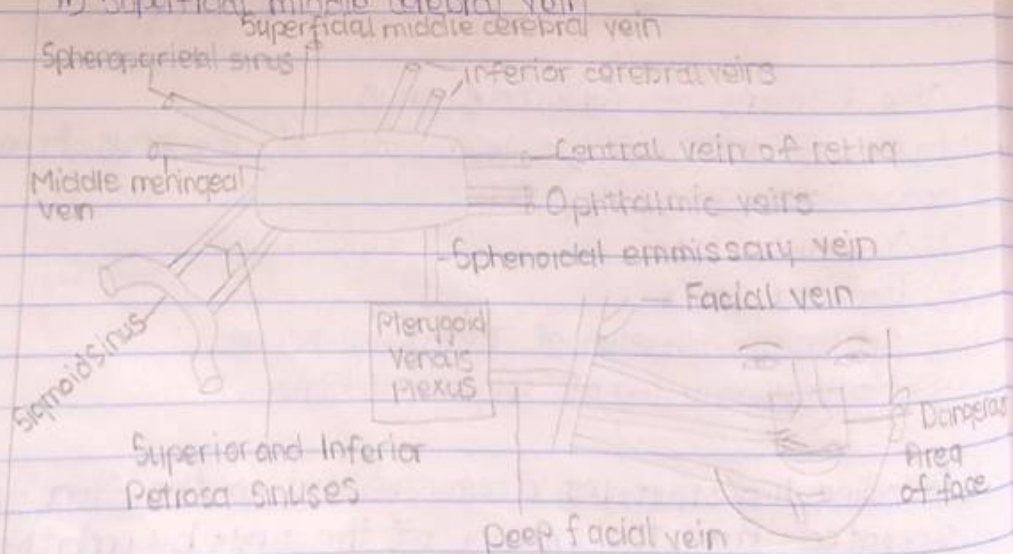
- i) Sphenoid air sinus in the body of sphenoid bone inferomedially
- ii) Hypophysis cerebri.

Relations of Cavernous Sinus to Surrounding Structures.

- i) The trigeminal ganglion and mandibular division of trigeminal nerve are related posteriorly.
- ii) The optic chiasma and internal carotid artery (after the artery emerges from the roof of the sinus) are present above.

Tributaries of Cavernous Sinus

- i) Superior ophthalmic Vein
- ii) Inferior ophthalmic Vein
- iii) Central Vein of retina
- iv) Middle meningeal sinus (vein)
- v) Sphenoparietal sinus
- vi) Superficial middle cerebral vein



14/11/2015

Draining Channels

- i) The superior petrosal sinus drains the cavernous sinus into the junction of transverse and sigmoid sinus.
- ii) The inferior petrosal sinus empties into the internal jugular vein after coming out of cranium through the jugular foramen.

Communications

- i) The cavernous sinus communicates with the pterygoid venous plexus (in the ^{infra}temporal fossa) by an emissary vein passing through either the foramen ovale or the emissary sphenoidal foramen or foramen. This route communicates cavernous sinus with ^{the} dangerous area of the face.
- ii) The superior orbital veins connect with the facial vein.
- iii) The right and left cavernous sinuses interconnect by intercavernous sinuses.

CLINICAL ANATOMY

1. Cavernous sinus thrombosis occurs usually from an infection (for example an infected pimple) on the dangerous area of the face (which consists of the areas from the corner of the mouth to the bridge of the nose, including the nose and maxilla).

The symptoms and signs of cavernous sinus thrombosis are due to the involvement of the structures in close relation.

• Blood clot typically forms when an infection starts on the face or head and it moves into the cavernous sinus. The body then creates a clot to try to stop the infection from spreading. However the clot can restrict the flow of blood from the brain, potentially damaging the brain and eyes or nerves.

Carotid - Cavernous Sinus fistula is an abnormal communication between the internal carotid artery and cavernous sinus caused by a tear in the artery wall, either traumatic or spontaneous. The sinus communicates directly with

17/11/2021

The veins of the orbit, so arterial pressure can be transmitted to the ophthalmic veins, which may become pulsatile. If arterial pressure is reduced because of this leak, a decrease in perfusion to ocular tissue will occur.

2. Discuss the walls of the nose

The nasal cavity proper presents floor, roof, lateral wall and medial wall (or nasal septum).

1. FLOOR

The floor is formed by the mucous membrane (mucosa) covering the superior surface of the hard palate (composed of palatine process of maxilla and horizontal process of palatine bone).

2. ROOF

The roof is the narrowest wall of nasal cavity. It lies at the junction of the lateral and medial walls. It has anterior sloping part, middle horizontal part and posterior sloping part.

- i. The anterior sloping part is formed by the nasal cartilages, nasal bones, and nasal part of frontal bone.
- ii. The middle horizontal part is formed by the cribriform plate of the ethmoid.
- iii. The posterior sloping part is formed by lower surface of body of the sphenoid.

3. LATERAL WALL

This wall is highly irregular. It is characterized by conchae or turbinates and meatuses.

The conchae are the bony shelf like elevations and the meatuses are the spaces between the conchae. They increase the surface area of the nasal cavity.

Nasal Conchae

The conchae (turbinates) are the inferomedial bony projections from the lateral wall of the nasal cavity.

17/MHSOI/215

They are three

- i The superior concha - The smallest and is located in the posterior part of nasal cavity. It is a projection from the ethmoid bone.
- ii The middle concha is a projection from ethmoid bone.
- iii The inferior concha is an independent bone.

Nasal Meatuses.

They are the spaces enclosed by the conchae.

They are three

- i Inferior Meatus

It lies between the nasal floor and inferior concha. It runs along the entire length of the lateral wall. It receives the opening of the nasolacrimal duct in its anterior part. The mucous membrane at this orifice is usually raised to form a lacrimal fold, which acts as a valve (of Hasner) preventing air and nasal secretions being blown up ^{into} the duct. The inferior meatus provides an approach for draining out the pus from the maxillary sinus.

- ii Middle meatus

It is the space between the middle and inferior conchae. It receives openings of four paranasal sinuses (middle ethmoidal, anterior ethmoidal, frontal and maxillary). It continues anteriorly into a space called atrium of the middle meatus, which is limited above by upper nasal (an insignificant mucosal ridge).

- iii Superior Meatus

This space is present between the superior and middle conchae. It is limited to only the posterior third of the lateral wall. The posterior ethmoidal sinus opens into it.

In addition to the above 3 spaces the lateral wall is characterized by a fourth space called sphenoidal recess above the superior concha. It is very narrow

and receives the opening of the sphenoidal sinus.

4. Nasal Septum

It is partly bony and partly cartilaginous. The perpendicular plate of the ethmoid bone forms the posterior superior part of the septum and the vomer forms the posterior inferior part. The septal cartilage bridges the gap anteriorly.

The other bones which make minor contributions to the periphery of the septum

- i. Nasal spine of frontal Bone.
- ii. Crest of Nasal bone
- iii. Rostrum of sphenoid bone
- iv. Crest of maxilla
- v. Crest of palatine bone

The posterior free margin of the septum is formed by the free margin of the vomer which separates the posterior nasal apertures or choanae.

The skeletal nasal septum is covered with mucoperichondrium and mucoperiosteum except where it forms the medial wall of the vestibule (this part is covered by skin). This part of the septum is mobile and is called the columella.