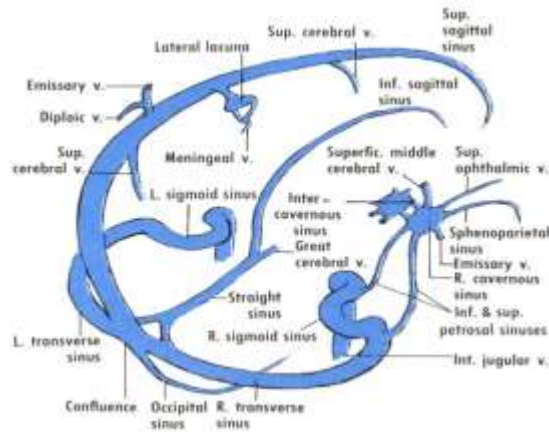


CLASSIFY THE DURAL VENOUS SINUSES. DESCRIBE IN DETAIL THE POSITION, FORMATION, CONTENTS, RELATIONS, TRIBUTARIES AND CONNECTIONS AND APPLIED ANATOMY OF CAVERNOUS SINUS? (SE)

The dural venous sinuses are venous spaces, present between the layers of duramater filled with venous blood.



Features:

- Lie between layers of dura mater
- Have no smooth muscle in their walls
- Lined by endothelium only
- Are devoid of valves in their lumen
- Receive venous blood and CSF
- Receive valve less emissary veins which regulate the blood flow

Classification of dural venous sinuses

Dural venous are classified as paired and unpaired

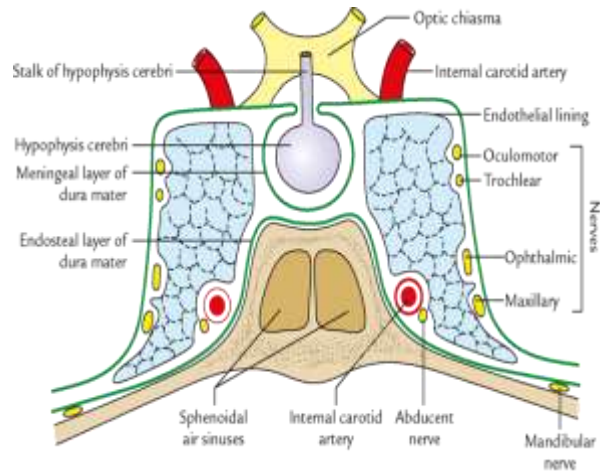
Paired venous sinuses	Unpaired venous sinuses
Superior sagittal	Superior sagittal
Inferior sagittal	Inferior sagittal
Spheno parietal	straight
petrosquamous	occipital
Cavernous	Anterior intercavernous
Tranverse sinus	Posterior intercavernous
Sigmoid	Basilar venous plexus
Middle meningeal	

CAVERNOUS SINUS

a. Relations

Superior

- Optic chiasma
- Optic tract
- Internal carotid artery
- Anterior perforated substance



Inferior

Foramen lacerum
Junction of body and greater wing of sphenoid

Medial

Pituitary gland
Sphenoid air sinus

Lateral

Temporal lobe of cerebral hemisphere
Cavum trigeminale containing trigeminal ganglion

Anterior

Superior orbital fissure
Apex of the orbit

Posterior

Crus cerebri of midbrain
Apex of petrous temporal bone

b. Tributaries

From orbit

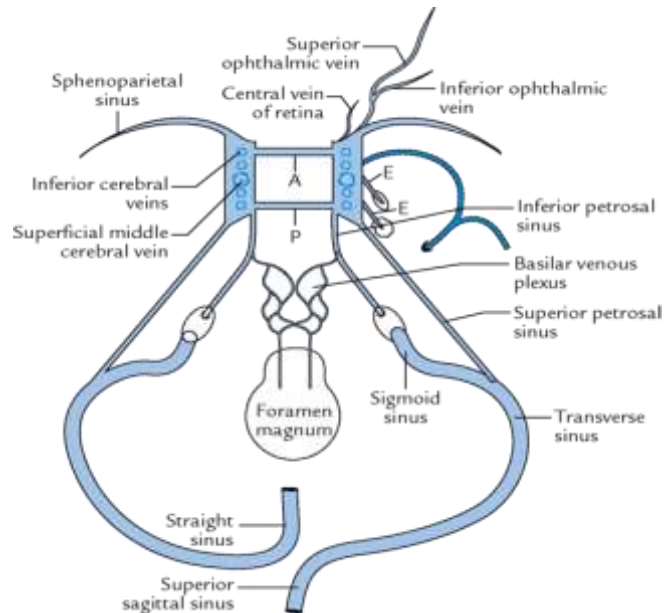
Superior ophthalmic vein
Inferior ophthalmic vein
Central vein of retina

meninges

Sphenoparietal sinus
Anterior trunk of middle meningeal vein

From brain

Superficial middle cerebral vein
Inferior cerebral vein



Communications

The cavernous sinus communicate with the

Transverse sinus via

superior petrosal sinus

Internal jugular vein via

inferior petrosal sinus

Pterygoid venous plexus via

emissary vein which pass through foramen ovale, foramen lacerum, and emissary sphenoidal foramen

Facial vein via

Superior ophthalmic vein-angular vein-facial vein

Emissary veins-pterygoid venous plexus-deep facial vein-facial vein

Opposite cavernous sinus via

anterior and posterior intercavernous sinus

Superior sagittal sinus via

superficial middle cerebral vein and superior anastomotic vein

Internal vertebral venous plexus via

basilar venous plexus

Applied anatomy

Infection

Infection in dangerous area of face may extend to cavernous sinus through facial and ophthalmic vein leading to cavernous sinus thrombosis. Important sign of this condition is exophthalmos due to congestion of orbital veins.

other signs of this thrombosis are

Severe pain in eye and forehead due to involvement of ophthalmic nerve

Ophthalmoplegia due to involvement of 3rd 4th and 6th cranial nerve

Due to intercavernous sinuses the disease soon becomes bilateral

SHORT ESSAYS

FALX CEREBRI (SE)

Falx cerebri is large sickle shaped fold of dura mater that separates the cerebral hemispheres

It has Two ends. Two margins and Two surfaces

Two Ends

Anterior end-is narrow attached to crista galli.

Posterior end-is broad. attached to the upper surface of the tentorium cerebelli.

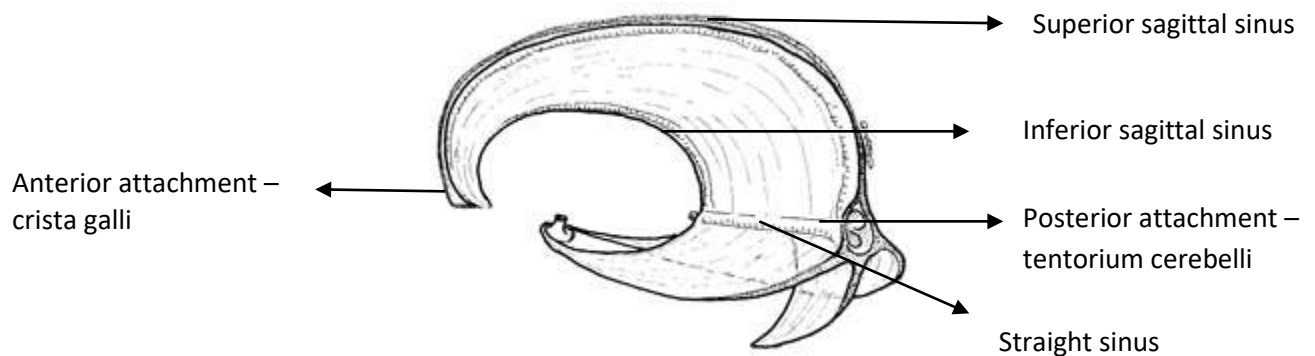
Two margins

upper margin -convex,attached to the lips of sagittal sulcus.

Lower margin -concave,and is free.

Two surfaces-

right & left ,related to medial surface of the corresponding cerebral Hemisphere.



Three important sinuses are related to this fold.

Superior sagittal sinus lies along the upper margin

Inferior sagittal sinus lies along the lower margin

Straight sinus lies along the line of attachment of the falx cerebri to tentorium cerebelli.

CAVERNOUS SINUS-SITUATION, TRIBUTARIES, AND STRUCTURES WITH IN (SE)

Cavernous sinus is one of the paired dural venous sinuses

Situation

The cavernous sinus is situated in the middle cranial fossa, alongside the body of the sphenoid and sella turcica.

Tributaries From orbit

Superior ophthalmic vein

Inferior ophthalmic vein

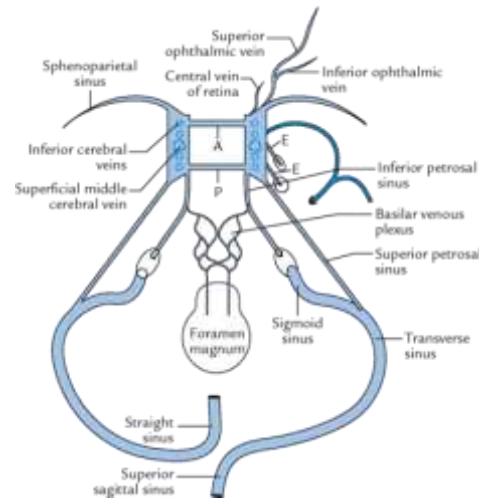
Central vein of retina

From meninges

Sphenoparietal sinus
Anterior trunk of middle meninges

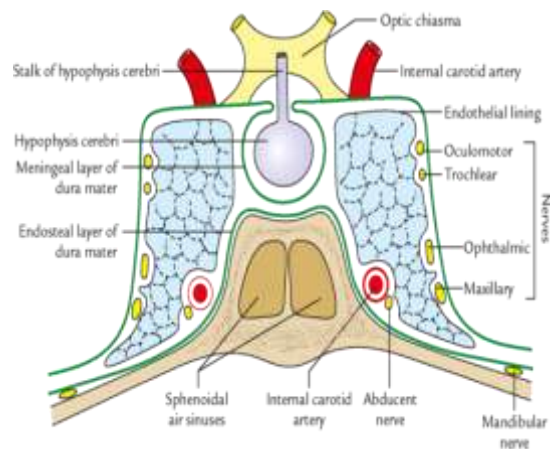
From brain.

Superficial middle cerebral vein
Inferior cerebral vein



Structures within

In the lateral wall of the sinus
oculomotor nerve
trochlear nerve
ophthalmic nerve
maxillary nerve



Contents passing through the cavernous sinus
internal carotid artery surrounded by sympathetic plexus of nerves
abducent nerve

SUPERIOR SAGITTAL SINUS (SE)

Situation

It lies between the two layers of the falx cerebri along the convexity of its attached border.

Features.

Triangular in cross section.
Communicates with venous lacunae on each side.
Arachnoid granulations project into its lumen.

Tributaries

Superior cerebral veins
Parietal emissary veins.
Small vein from nasal cavity.
Veins from frontal air sinus.

Applied aspect

Thrombosis of superior sagittal sinus: the spread of infection from nose, scalp and diploe to the superior sagittal sinus may cause its thrombosis

MIDDLE MENINGEAL ARTERY (SA)

Branch of first part of maxillary artery.

Given in the infratemporal fossa.

Passes between loop formed by two roots of auriculotemporal nerve.

It enters the cranial cavity through foramen spinosum.

In the middle cranial fossa divides into frontal and parietal branches

BRANCHES

Ganglionic branches to trigeminal ganglion

Petrosal branch to the greater petrosal nerve

Superior tympanic branch to tensor tympani

Temporal branches to temporal fossa.

Anastomotic branch for lacrimal artery.

FALX CEREBRI (SA)

It is a large sickled shaped fold of dura mater.

Attachments

Anterior end is attached to crista galli,

posterior end is attached to the upper end of the tentorium cerebelli

venous sinuses present in falx cerebri

Three important sinuses are related to this fold.

The superior sagittal sinus lies along the upper margin

The inferior sagittal sinus lies along the lower margin

The straight sinus lies along the line of attachment of the falx to tentorium cerebelli

NAME PAIRED DURAL VENOUS SINUSES (SA)

Cavernous sinus

Superior petrosal sinus

Inferior petrosal sinus

Transverse sinus

Sigmoid sinus

Sphenoparietal sinus

Petrosquamous sinus

Middle meningeal sinus

RELATIONS OF CAVERNOUS SINUS (SA)

Medial

Pituitary gland

Sphenoid air sinus

Lateral

Temporal lobe of cerebral hemisphere

Cavum trigeminale containing trigeminal ganglion

CAVERNOUS SINUS-TRIBUTARIES OF CAVERNOUS SINUS (SA)

From orbit

- Superior ophthalmic vein
- Inferior ophthalmic vein
- Central vein of retina

From meninges

- Sphenoparietal sinus
- Anterior trunk of middle meningeal vein

From brain

- Superficial middle cerebral vein
- Inferior cerebral vein

SUPERIOR SAGITTAL SINUS (SA)

Situation

It lies between the two layers of the falx cerebri along the convexity of its attached border.

Features.

- Triangular in cross section.
- Communicates with venous lacunae on each side.
- Arachnoid granulations project into its lumen which help in drainage of C S F.

Applied aspect

Thrombosis of superior sagittal sinus: the spread of infection from nose, scalp and diploe to the superior sagittal sinus may cause its thrombosis

STRAIGHT SINUS (SA)

Formation.

It is formed anteriorly by the union of inferior sagittal sinus with the great cerebral vein.

Termination.

Ends at the internal occipital protuberance by continuing as the transverse sinus

Applied aspect

During birth excessive compression of the head, the attachment of falx cerebri from Tentorium cerebelli may tear. Bleeding takes place from the straight sinus.

SIGMOID SINUS (SA)

Direct continuation of the transverse sinus.

S shaped.

It continues as the internal jugular vein at the posterior margin of jugular foramen.

Tributaries

- Mastoid and condylar emissary vein
- Cerebellar veins.
- Internal auditory vein.

Applied aspect

The thrombosis of sigmoid sinus may occur, secondary to infection of middle ear or mastoid process.

