The Skull and Temporomandibular joint I

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Cranial bones

Frontal Bone
Forms the forehead

Parietal Bones
Form the sides and roof of the cranial cavity

Temporal Bones
Form the lateral aspects and floor of the cranium

Occipital Bone
Forms the posterior part and most of the base of the cranium

Sphenoid Bone
Lies at the middle part of the base of the skull

Ethmoid Bone
Located on the midline in the anterior part of the cranial floor medial to the orbits. It is a major superior supporting structure of the nasal cavity
Contain thin projections called conchae
Facial bones

Nasal Bones
Form the bridge of the nose

Maxillae
Form the upper jawbone, form the hard palate
  Separates the nasal cavity from the oral cavity

Zygomatic Bones
commonly called cheekbones, form the prominences of the cheeks

Lacrimal Bones
Form a part of the medial wall of each orbit

Palatine Bones
Form the posterior portion of the hard palate

Inferior Nasal Conchae
Form a part of the inferior lateral wall of the nasal cavity

Vomer
Forms the inferior portion of the nasal septum

Mandible
Lower jawbone. The largest, strongest facial bone
  The only movable skull bone
Side of the skull
Fontanelles

Fontanelles are membranous areas that have not yet ossified in the developing cranial vault of neonatal and juvenile animals. Fontanelles allow for rapid stretching and deformation of the cranium as the brain expands faster than the surrounding bone can grow.

Fontanelles are the space between the bones of an infant's skull where the sutures intersect. The fontanelles include:

- **anterior fontanelle** - the junction where the frontal and two parietal bones meet. The *anterior fontanelle* remains soft until about 2 years of age.

- **posterior fontanelle** - the junction of the two parietal bones and the occipital bone. The *posterior fontanelle* usually closes first, before the anterior fontanelle, during the first several months of an infant's life.
The temporal bone consists of five parts:
- squamous part.
- mastoid part.
- petrous part.
- tympanic part.
- styloid process (or part)
Anterior cranial fossa

is a depression in the floor of the cranial base which houses
the projecting frontal lobes of the brain.
It is formed by the orbital plates of the frontal, the cribriform
plate of the ethmoid, and the lesser wings and front part of
the body of the sphenoid.

It is limited behind by the posterior borders of the lesser
wings of the sphenoid and by the anterior margin of the optic
groove.

Its lateral portions roof in the orbital cavities

The central portion corresponds with the roof of the nasal
cavity, and is markedly depressed on either side of the crista
galli
Foramina foramen cecum, between the frontal bone and the crista galli of the ethmoid, which usually transmits a small vein from the nasal cavity to the superior sagittal sinus in front of the cribriform plate, which supports the olfactory bulb and presents foramina for the transmission of the olfactory nerves, and in front a slit-like opening for the nasociliary nerve.
Middle cranial fossa

Is deeper than the anterior cranial fossa, is narrow medially and widens laterally.

**Boundaries**

**In front**
The lesser wings of the sphenoid bone, the anterior clinoid processes, and the ridge forming the anterior margin of the optic groove.

**Behind**
superior angles of the petrous bone and the dorsum sellæ.

**Laterally**
the Squamous temporal, parietal, and greater wings of the sphenoid bones.

**Contents:**
The Temporal lobes of the brain and pituitary gland.
The foramina seen in the Middle Cranial Fossa

**Superior orbital fissure** It transmits to the orbital cavity

1- The **oculomotor**, the **trochlear**, the **ophthalmic** division of the trigeminal, and the **abducent** nerves (3,4,5,6) some filaments from the cavernous plexus of the **sympathetic**

2- Orbital branch of the middle meningeal artery; and from the orbital cavity a **recurrent branch from the lacrimal artery** to the dura mater

3- the **ophthalmic veins**.

**Foramen rotundum**: It is the passage for the **maxillary nerve**.

**Foramen ovale**, transmits the **mandibular nerve, lesser superficial petrosal nerve** and the **accessory meningeal artery**
Foramen spino\textit{sum} It is the passage for the \textit{recurrent branch from the mandibular nerve} and the \textit{middle meningeal vessels}

\textbf{Foramen lacerum}; the lower part of this foramen is filled up by a layer of fibrocartilage; \textit{the nerve of the pterygoid canal} and a \textit{meningeal branch from the ascending pharyngeal artery} pierce the layer of fibrocartilage. The upper and inner parts transmit the \textit{internal carotid artery} surrounded by a \textit{plexus of sympathetic nerves}. 
posterior cranial fossa

Located between the foramen magnum and tentorium cerebelli.

It contains the cerebellum, medulla and pons.

Boundaries

Anteriorly it extends to the apex of the petrous temporal.

Posteriorly it is enclosed by the occipital bone.

Laterally portions of the squamous temporal and mastoid part of the temporal bone

Foramina

Foramen magnum

Large opening in the floor of the fossa. It transmits the medulla, the ascending portions of the spinal accessory nerve (XI), and the vertebral arteries.
Internal acoustic meatus
Lies in the anterior wall of the posterior cranial fossa.
It transmits the facial and vestibulocochlear nerves.

Jugular foramen
Lies between the inferior edge of the petrous temporal bone and the adjacent occipital bone.
It transmits the internal jugular vein, the glossopharyngeal, the vagus and the accessory nerves (9,10,11).

Anterior condylar (hypoglossal) canal
Lies at the anterolateral margins of the foramen magnum and transmits the hypoglossal nerve (12).
Depressions seen in the posterior cranial fossa are caused by the venous sinuses returning blood from the brain to the venous circulation:

Right and left transverse sinuses which meet at the confluence of sinuses (marked by the internal occipital protuberance).

Transverse venous sinuses lead into sigmoid (S-shaped) sinuses (one on each side).

Sigmoid sinus passes along the articulation between the posterior edge of the petrous temporal bone and the anterior edge of the occipital bones to the jugular foramen, where the sigmoid sinus becomes the internal jugular vein.
Thank You