

Introduction and Osteology of the Head and Neck



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Introduction

The head is the upper globular part of the body which contains the brain. The neck is an elongated, cylindrical region of the body which connects the head to the trunk.

The bones of the head and neck region consist of *skull*, *cervical vertebrae*, and *hyoid bone*.

1. The skull forms the skeleton of the head region.
2. The cervical vertebrae form the skeleton of neck region.
3. The hyoid bone is present in the upper part of the neck in front of the third cervical vertebra.

Skull

The skull is formed by many paired and unpaired bones (**Table 1.1**), most of which unite with each other by sutures. A suture is narrow, linear gap filled with dense, fibrous tissue. Students are suggested to identify various bones of a dry skull and intervening sutures with the help of **Figs. 1.1** to **1.5**. We may study the dry skull by looking at it from various aspects, that is, from above (superior view), behind (posterior view), front (anterior view), side (lateral view), below (external view of the base), and inside (internal views of the base and the skull cap).

The skull consists of a brain box/cranium and facial skeleton. The facial skeleton is located beneath the anterior part of the cranium.

Table 1.1 Bones of skull

Part of skull	Paired	Unpaired
Cranium	Parietal bone, temporal bone	Frontal bone, ethmoid bone, occipital bone, sphenoid bone
Facial skeleton	Nasal bones, lacrimal bones, maxillae, zygomatic bones, palatine bones, inferior conchae	Frontal bone, vomer bone, mandible

Anatomical Position of the Skull

Anatomical position of the skull is obtained by keeping it in “Frankfurt horizontal plane.” This plane is obtained by holding the skull in such a way that the inferior border of the orbit and superior border of external acoustic meatus of right and left sides lie in the same horizontal plane.

Superior Aspect of the Skull

Bones: On the superior aspect of the skull, the scalp covers the parts of the frontal bone, right and left parietal bones, and occipital bone.

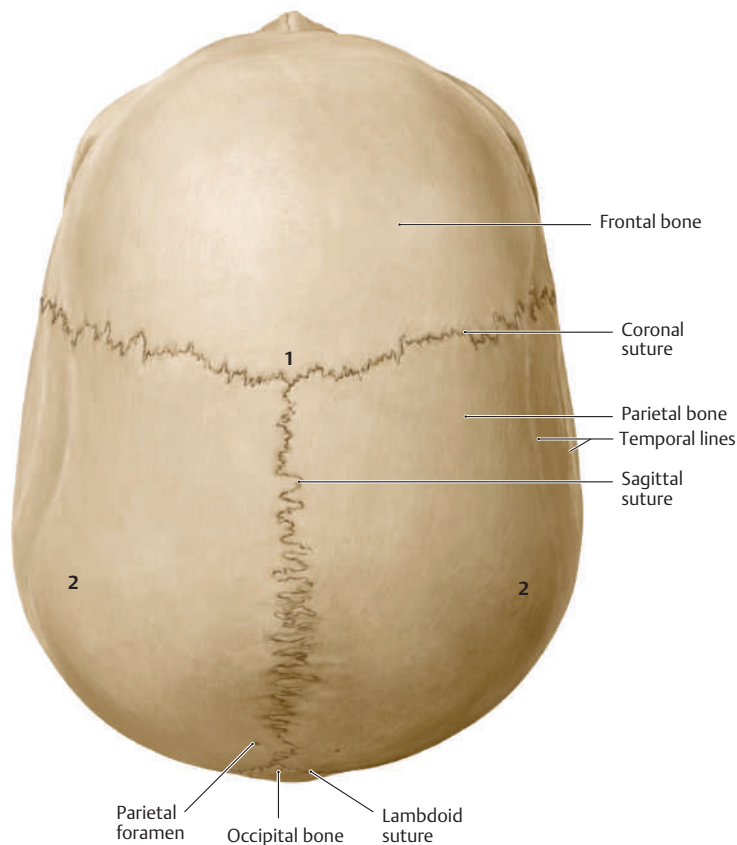


Fig. 1.1 Superior view of the skull. 1, Bregma; 2, parietal eminence. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

Sutures: With the help of **Fig. 1.1**, identify the coronal, sagittal, and lambdoid sutures in this view. The bregma is the meeting point between the coronal and sagittal sutures, while lambda is the meeting point between the sagittal and lambdoid sutures.

Bony features: Identify the parietal eminence, parietal foramen, temporal lines (superior and inferior), and vertex (highest point of the skull).

Posterior Aspect of the Skull

Bones: With the help of **Fig. 1.2**, look for the following bones on the posterior aspect of the skull: posterior portions of the parietal bones, upper part of the occipital bone, and mastoid parts of the temporal bone.

Sutures: Look for the following sutures seen in this view: lambdoidal suture, occipitomastoid suture, and parietomastoid suture.

Bony features: With the help of **Fig. 1.2**, identify the following bony features on a dry skull: external occipital protuberance, external occipital crest, highest nuchal lines (supreme nuchal lines), superior nuchal lines, and inferior nuchal lines.

Anterior Aspect of the Skull

The anterior aspect of the skull forms the facial skeleton. It consists of forehead, orbits, nasal region, and upper and lower jaws.

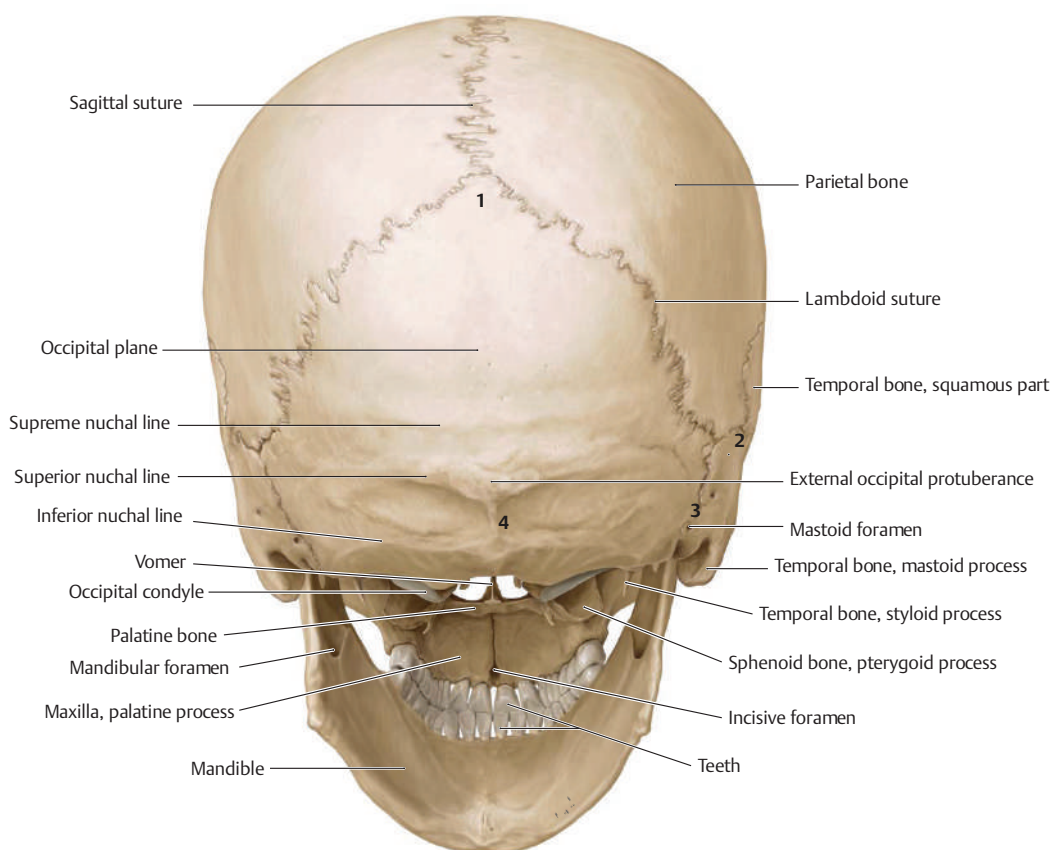


Fig. 1.2 Posterior view of the skull. 1, Lambda; 2, parietomastoid suture; 3, occipitomastoid suture; 4, external occipital crest. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

Bones: Identify the bones of the facial skeleton with the help of **Fig. 1.3**. These bones are the frontal bone, right and left nasal bones, right and left zygomatic bones, and right and left maxilla and mandible.

Sutures: Look at **Fig. 1.3** for the following sutures present in this view: frontonasal suture, frontomaxillary suture, internasal suture, nasomaxillary suture, intermaxillary suture, frontozygomatic suture, and zygomaticomaxillary suture.

Bony features:

- 1. Forehead:** Look for the following features on the forehead: glabella, superciliary arches, and frontal eminences.
- 2. Orbital opening:** It is quadrilateral in shape and presents four margins: supraorbital, infraorbital, lateral, and medial.
- 3. Malar prominence:** It is formed by the zygomatic bone and presents the zygomaticofacial foramen.
- 4. Anterior nasal aperture:** It is piriform in shape. Note the presence of the median nasal septum, anterior nasal spine, and nasal notch of the right and left maxillae.
- 5. Upper jaw (maxillae):** It is formed by the right and left maxillae. Note the bony features, such as the alveolar process, canine eminence, incisive fossa, and canine fossa.
- 6. Lower jaw (mandible):** It is formed by the mandible. Note the features, such as alveolar process, mental foramen, symphysis menti, and mental protuberance.

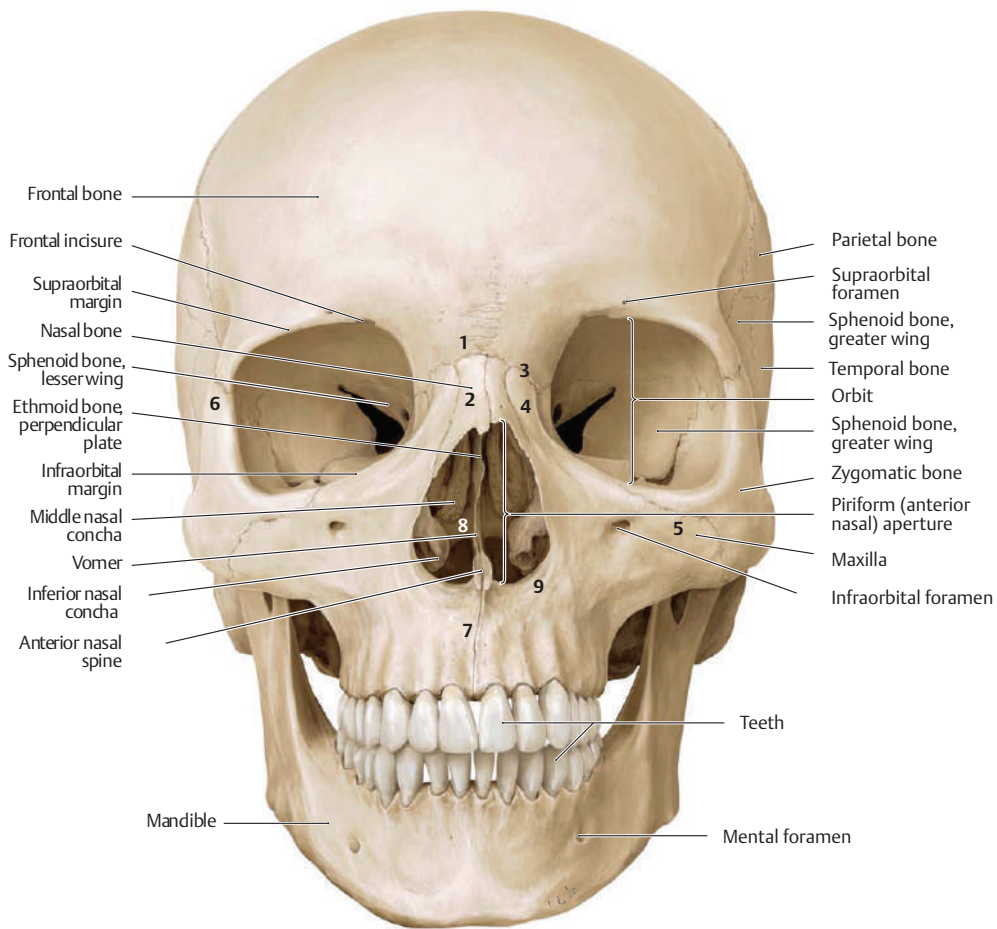


Fig. 1.3 Anterior view of the skull. 1, Frontonasal suture; 2, internasal suture; 3, frontomaxillary suture; 4, nasomaxillary suture; 5, zygomaticomaxillary suture; 6, frontozygomatic suture; 7, intermaxillary suture. Note the median nasal septum (8) formed by vomer and perpendicular plate of ethmoid. 9, Nasal notch. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

Lateral Aspect of the Skull

Bones: This aspect of the skull is formed by the cranial and facial bones. Identify the following bones on the lateral aspect of the skull: frontal, parietal, occipital, nasal, maxilla, zygomatic, sphenoid, temporal, and mandible (**Fig. 1.4**).

Sutures: Many sutures, which are seen on this aspect, have already been observed while studying the superior, anterior, and lateral views of the dry skull. Hence, we shall study the sutures present in the central region of the lateral view (**Fig. 1.4**).

Identify an H-shaped suture present in the floor of the temporal fossa. This H-shaped suture is formed by the parietosphenoid, frontosphenoid, and temporosphenoid sutures. A small circular area enclosing this H-shaped suture is called a *pterion*. Also, identify the parietosquamous (squamous) and parietomastoid sutures, lambdoid suture, and occipitomastoid suture.

Bony features: Identify the superior and inferior temporal lines, zygomatic arch, supramastoid crest, external acoustic meatus, suprameatal triangle, mastoid process, and styloid process.

1. **Temporal fossa:** This fossa lies above the zygomatic arch. It is bounded above by the temporal lines. The temporal fossa communicates below with the infratemporal fossa.

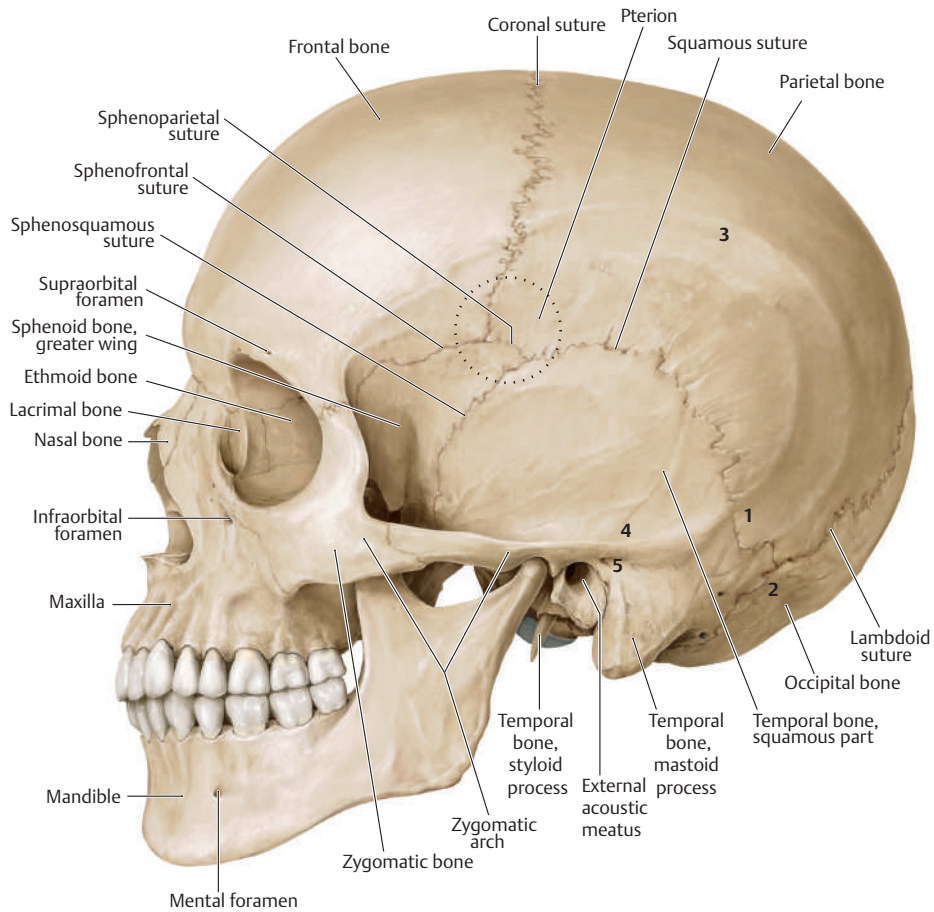


Fig. 1.4 Lateral view of the skull. 1, Parietomastoid suture; 2, occipitomastoid suture; 3, superior and inferior temporal lines; 4, supramastoid crest; 5, suprimeatal triangle. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

2. *Infratemporal fossa*: It is an irregular fossa below the zygomatic arch and behind the maxilla. It communicates above with the temporal fossa deep to the zygomatic arch. It consists of the roof, anterior, medial, and lateral walls, while the posterior wall and floor are open.
3. *Pterygopalatine fossa*: The junction of the anterior and medial walls shows a fissure called pterygomaxillary fissure. Deep to the fissure lies the pterygopalatine fossa.

(Students should note that *infratemporal* and *pterygopalatine fossae* are not properly visualized in these figures. They should study these fossae on a dry skull with the help of their teacher.)

Base of the Skull

You should note that to visualize the base of the skull, it is necessary to detach the mandible from the rest of the skull. The base of the skull is formed, from anterior to posterior, by the maxillae, palatine, vomer, sphenoid, temporal, and occipital bones (**Fig. 1.5**). For the convenience of description, the base of the skull is divided into anterior, middle, and posterior parts by two imaginary horizontal lines. The first imaginary horizontal line is drawn along the posterior border of the hard palate, and the second line passes through the anterior margin of the foramen magnum.

Anterior Part of the External Aspect of the Base of the Skull

Bones: It is formed by the alveolar arch of the maxilla and hard palate (**Fig. 1.5**). Hard palate is formed by the palatine processes of the right and left maxillae and horizontal plates of the palatine bones.

Sutures: Intermaxillary (median palatine), interpalatine, and palatamaxillary (transverse palatine) sutures form a cruciform suture.

Bony features: Note the following bony features with the help of **Fig. 1.5**: greater palatine foramen, lesser palatine foramen, incisive fossa, posterior nasal spine, and palatine crest.

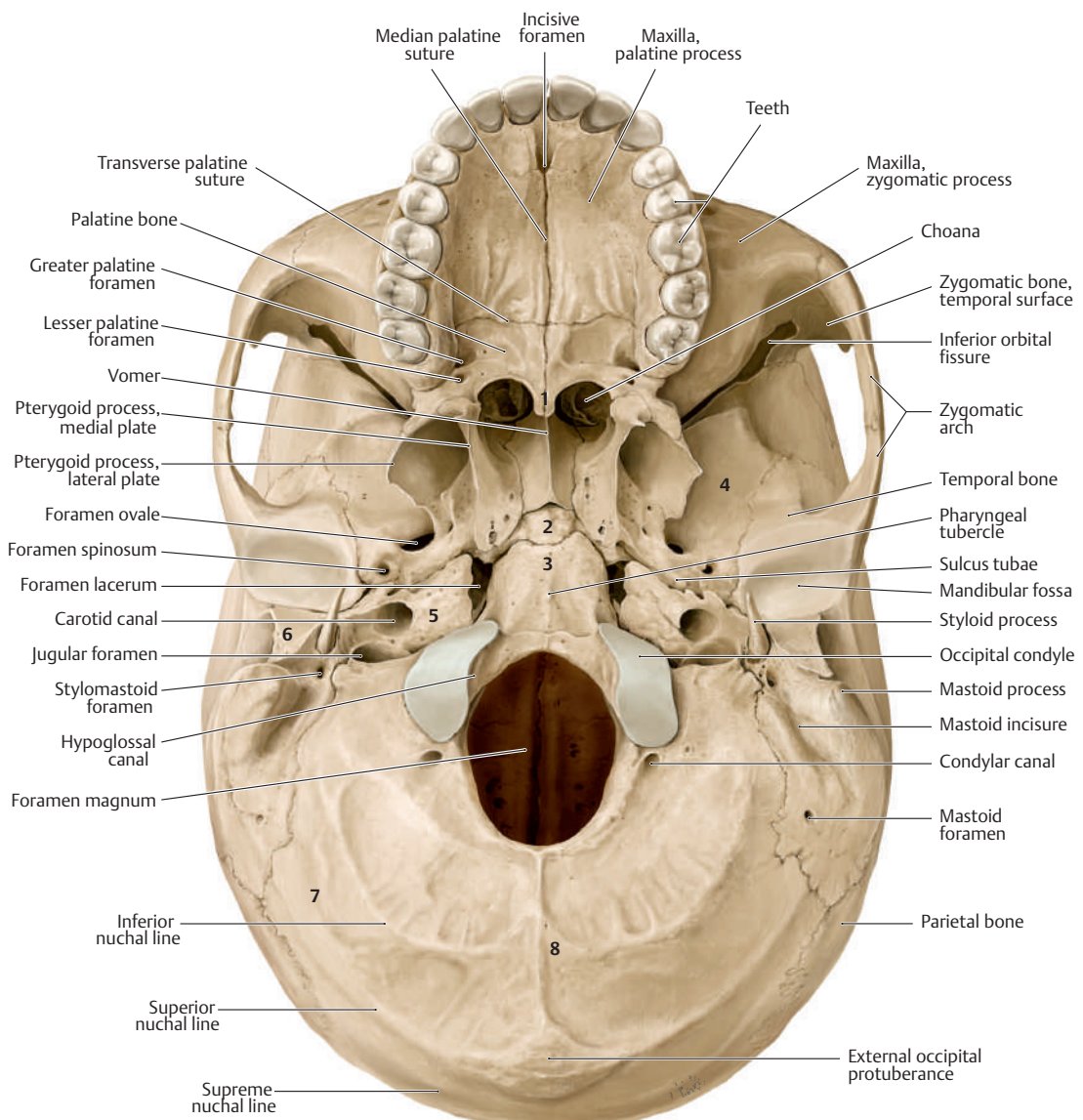


Fig. 1.5 Base of the skull. 1, Posterior nasal spine; 2, body of sphenoid; 3, basilar part of occipital bone; 4, greater wing of sphenoid; 5, petrous bone; 6, tympanic bone; 7, asterion; 8, external occipital crest. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

Middle Part of the Base of the Skull

Bones: The bones present in the region are divided into median, right, and left areas. In the median area, bones are posterior border of vomer, body of sphenoid, and basilar part of the occipital bone. The bones in the lateral area are medial and lateral pterygoid plates, greater wing of the sphenoid, and temporal bone with its squamous, tympanic and petrous parts.

Sutures: The infratemporal surface of the greater wing of the sphenoid articulates with the squamous part of the temporal bone, posterolaterally, and with the petrous part of the temporal bone, posteromedially (sulcus tubae). Also, look for the squamotympanic fissure, petrosquamous fissure, and petrotympanic fissure.

Bony features: Note the posterior nasal apertures on either side of the vomer and pharyngeal tubercle in front of the foramen magnum. On the lateral side, look for the pterygoid fossa, scaphoid fossa, and hamulus. More laterally, note the tubercle of the root of the zygoma, articular tubercle, and mandibular fossa. Note the tympanic plate forming the posterior nonarticular part of the mandibular fossa.

Posterior Part of the Base of the Skull

Bones: The median area of the posterior part consists of the foramen magnum, which is bounded anteriorly by the basilar part, laterally by the condylar part and posteriorly by the squamous part of the occipital bone. In the lateral area of this part, look for the mastoid and styloid processes.

Sutures: Note the meeting point of the three sutures, that is, the occipitomastoid, lambdoid, and parietomastoid at the asterion.

Bony features: In the median part, identify the foramen magnum, jugular foramen, and occipital condyles. Posterior to the foramen magnum, look for the external occipital crest, protuberance, and nuchal lines with the help of **Fig. 1.5**. In the lateral part, note the presence of the styloid and mastoid processes.

Internal Aspect of the Skull

When the upper part of the vault of the skull (skull cap or calvaria) is removed, we may see the inner surface of the cranial vault and the interior of the base of the skull.

Inner Surface of the Cranial Vault

Bones and sutures: The various bones and the intervening sutures forming the cranial vault are the same as observed in the superior aspect of the skull (**Fig. 1.1**).

Bony features: In the midline, note the frontal crest and sagittal sulcus (groove). Many small depressions (*granular pits or foveolae*) are observed on each side of the sagittal sulcus. The inner aspect of the calvaria shows the presence of grooves for the meningeal vessels (**Fig. 1.6**).

Interior of the Base of the Skull

The internal aspect of the base of the skull can be divided into three fossae, that is, *anterior, middle, and posterior cranial fossae* (**Fig. 1.7**). The posterior border of the lesser wing of the sphenoid, anterior clinoid process and the anterior border of the sulcus chiasmaticus separates the anterior cranial fossa from the middle fossa. The middle and posterior fossae are separated from each other by the superior border of the petrous part of the temporal bone, posterior clinoid process, and dorsum sellae.

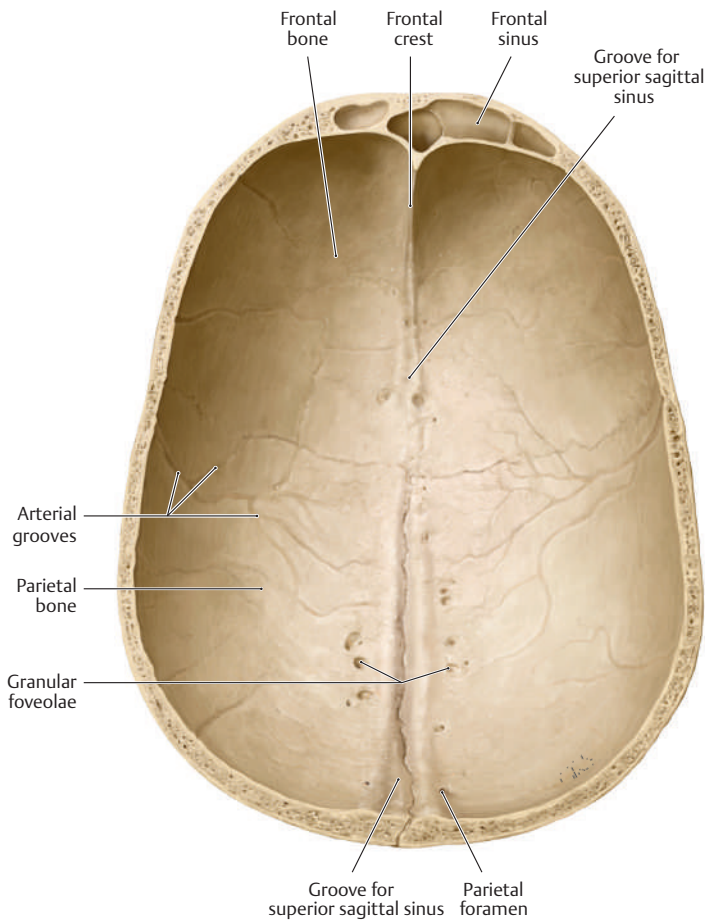


Fig. 1.6 Inner surface of the cranial vault. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

Anterior Cranial Fossa

Bones: The anterior cranial fossa is formed by the frontal bone, cribriform plate of the ethmoid, lesser wing of the sphenoid, and the anterior part of the superior surface of the body of the sphenoid (*jugum sphenoidale*).

Sutures: With the help of **Fig. 1.7a**, identify the frontoethmoidal, frontosphenoidal, and sphenothmoidal sutures.

Bony features: In the median region of the floor of the anterior cranial fossa, note the frontal crest, crista galli, cribriform plate of the ethmoid, and *jugum sphenoidale*. The lateral region of the floor consists of the orbital plate and lesser wing of the sphenoid.

Middle Cranial Fossa

Bones: The median part is formed by the body of the sphenoid. Most anteriorly, the *sulcus chiasmaticus* is present. Behind the *sulcus chiasmaticus*, a saddle-shaped depression is present on the superior surface of the body of the sphenoid. It is known as *sella turcica*. The *sella turcica* consists of the *tuberculum sellae*, *hypophyseal fossa*, and *dorsum sellae* from anterior to posterior. Laterally, the floor of the middle cranial fossa is formed by three bones, that is, the cranial surface of the greater wing of the sphenoid, squamous, and petrous parts of the temporal bone.

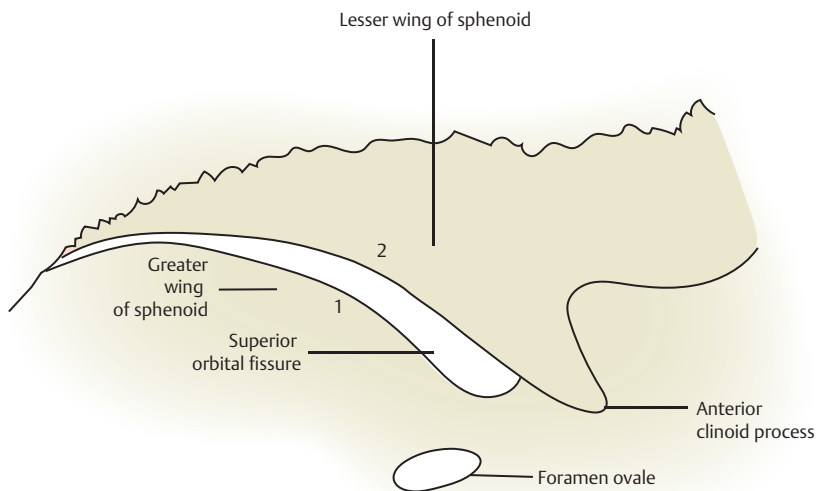
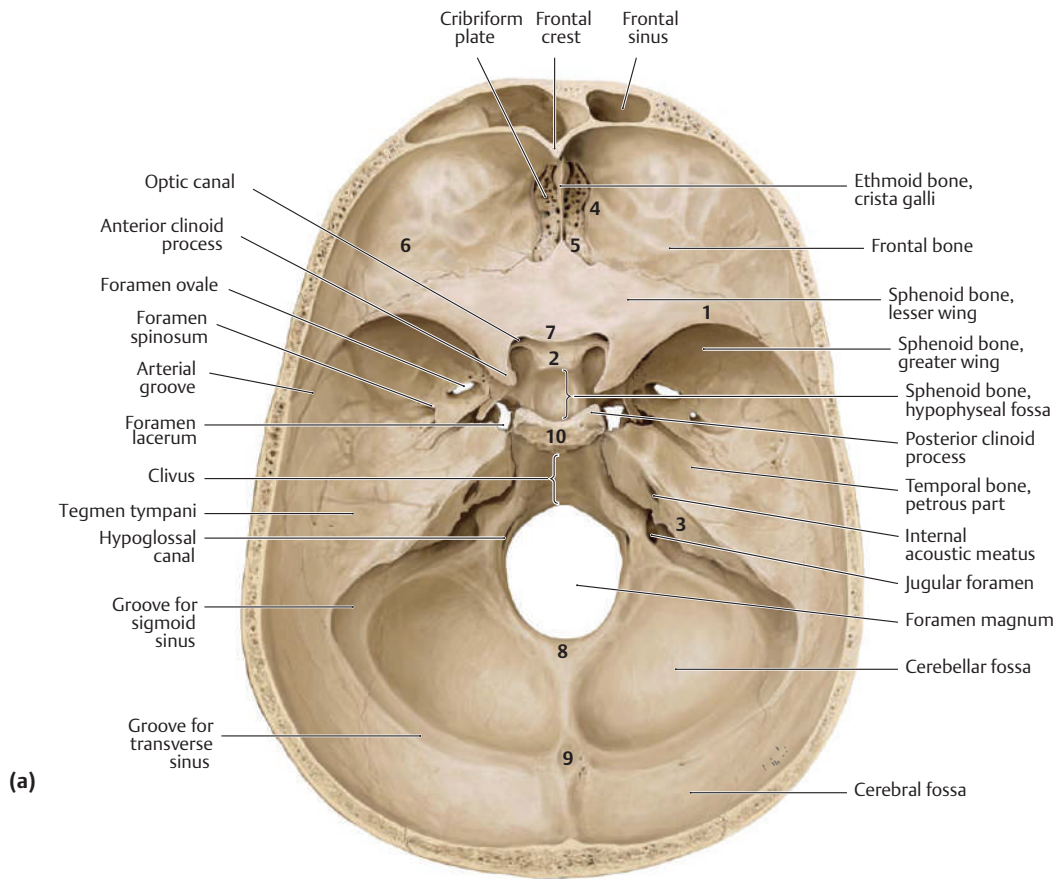


Fig. 1.7 (a) Interior of the base of the skull. 1, Posterior border of lesser wing of sphenoid; 2, sulcus chiasmaticus; 3, superior border of petrous temporal bone; 4, frontoethmoidal suture; 5, sphenothmoidal suture; 6, frontosphenoidal; 7, jugum sphenoidale; 8, internal occipital crest; 9, internal occipital protuberance; 10, dorsum sellae. Superior orbital fissure is not seen as it is hidden below the free margin of lesser wing of sphenoid (refer to **b**). **(b)** Diagram of left superior orbital fissure as seen through middle cranial fossa. Superior orbital fissure is located between the 1. free margin of greater wing and 2. free margin of lesser wing of sphenoid bone. (Figure a: From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

Sutures: At the base of the middle cranial fossa, look for a suture between the greater wing of the sphenoid and the squamous part of the temporal bone, and a suture between the petrous part and greater wing of the sphenoid.

Bony features: The *superior orbital fissure* (Figs. 1.7b and 1.8a) is a triangular oblique cleft present most anteriorly in the middle cranial fossa. It connects the middle fossa with the orbit. Identify the foramen rotundum, foramen ovale, foramen spinosum, and foramen lacerum. In the median part, identify the hypophyseal fossa.

Posterior Cranial Fossa

Bones: The posterior part of the body of the sphenoid, occipital bone, posterior surface of the petrous temporal bone, mastoid part of the temporal bone, and posteroinferior angle of the parietal bone.

Sutures: The lower end of the lambdoid suture is present between the parietal and occipital bone, the parietomastoid suture, occipitomastoid suture, and petro-occipital suture.

Bony features: The median part of the floor presents the most striking structure, that is, the foramen magnum. The part anterior to the foramen magnum is called *clivus*. The parts posterior to the foramen magnum are internal occipital crest and internal occipital protuberance. In the lateral part of the floor, identify the *internal acoustic meatus*, jugular foramen, and transverse sulcus.

Orbital Cavity

The orbit is like a four-sided pyramid. It has a base, an apex, a roof, a floor, a medial wall, and a lateral wall (Fig. 1.8a–c).

The base: The base of the orbit is the orbital opening. It has four margins, that is, upper, lateral, medial, and inferior margins (Fig. 1.3).

The apex: The apex of the orbit lies posteriorly.

The medial wall: From anterior to posterior, the medial wall of the orbit is formed by the frontal process of the maxilla, lacrimal bone, orbital plate of the ethmoid, and body of the sphenoid.

The superior wall or roof: The superior wall is formed mainly by the orbital plate of the frontal bone and posteriorly by the lesser wing of the sphenoid.

The lateral wall: The lateral wall is formed anteriorly by the zygomatic bone and posteriorly by the greater wing of the sphenoid.

The inferior wall or floor: The inferior wall is mainly formed by the maxilla and a small part by the zygomatic bone.

Fissures, canal, and foramina of the orbital cavity: You should note that the orbital cavity communicates with the neighboring regions of the skull through the superior and inferior orbital fissures, optic and infraorbital canals, and various foramina.

Nasal Cavity

The nasal cavity is divided into right and left halves by the vertical median septum (i.e., the nasal septum). Each half of the cavity consists of an anterior opening, that is, the anterior nasal aperture, posterior nasal aperture, lateral wall, medial wall, roof, and floor.

The medial wall: The medial wall (median nasal septum) is formed by the perpendicular plate of the ethmoid, vomer bone, and septal cartilage (Fig. 1.9a).

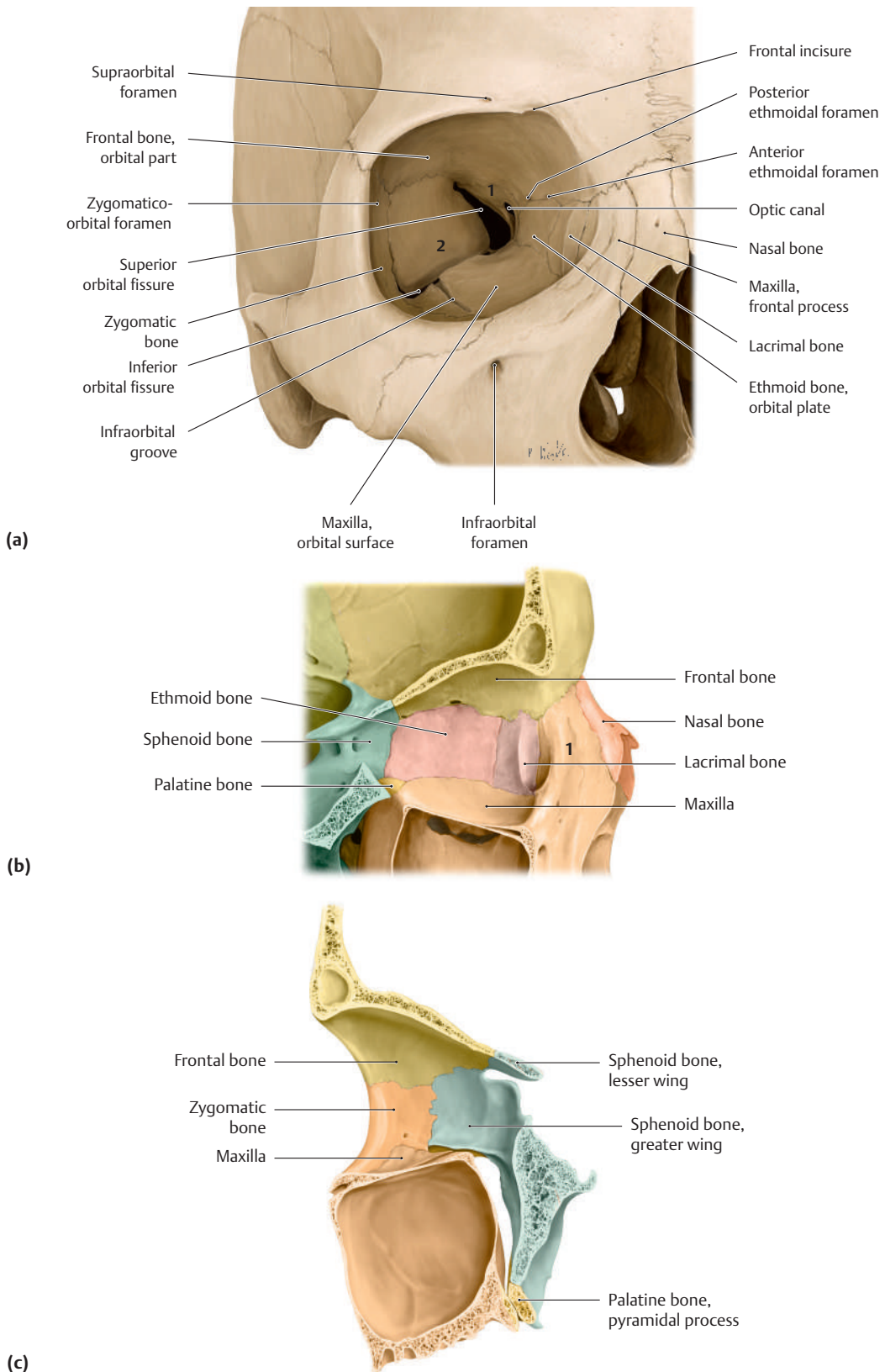


Fig. 1.8 Bony orbit: (a) Anterior view. 1, Lesser wing of sphenoid; 2, greater wing of sphenoid. (b) View of the medial wall with the lateral wall removed. 1, Frontal process of maxilla. (c) View of the lateral wall with the medial wall removed. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

The lateral wall: The lateral wall is formed by three irregular bony projections, that is, the *superior*, *inferior*, and *middle conchae*. The spaces deep to the conchae are called *meatuses*, that is, the superior, middle, and inferior meatuses (**Fig. 1.9b, c**).

Roof: From anterior to posterior, the roof is formed by the nasal bone, frontal bone, cribriform plate of the ethmoid, anterior surface of the body of the sphenoid, and ala of vomer (**Fig. 1.9a**).

Floor: It is formed by the palatine process of the maxilla and horizontal plate of the palatine bone (**Fig. 1.9a-d**).

Bony features: Students are suggested to identify the following important features: sphenothmoidal recess, superior, inferior, and middle conchae, bulla ethmoidal, uncinete process, and maxillary hiatus (**Fig. 1.9b, c**).

The relative positions of the nasal cavity, orbit, maxillary air sinus, and ethmoidal air sinuses are shown in **Fig. 1.9d**.

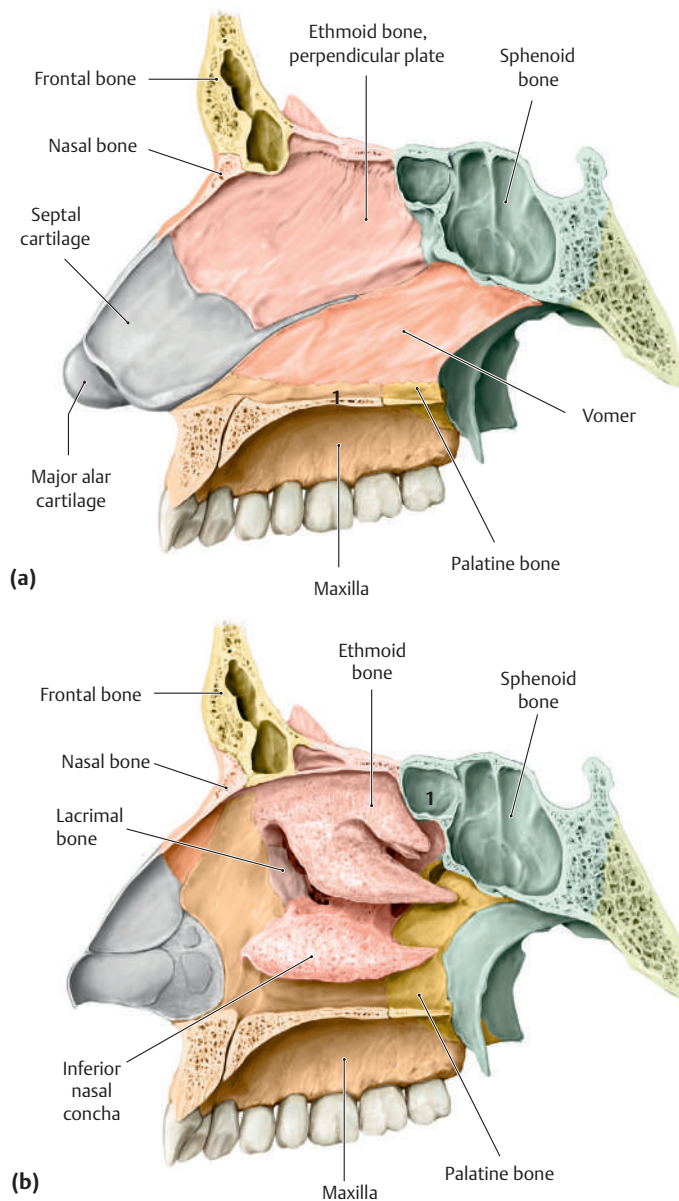


Fig. 1.9 Bony nose: **(a)** Bones of the nasal septum (left lateral view). 1, Palatine process of maxilla. **(b)** Bones of the lateral nasal wall (left lateral view). 1, Sphenothmoidal recess.

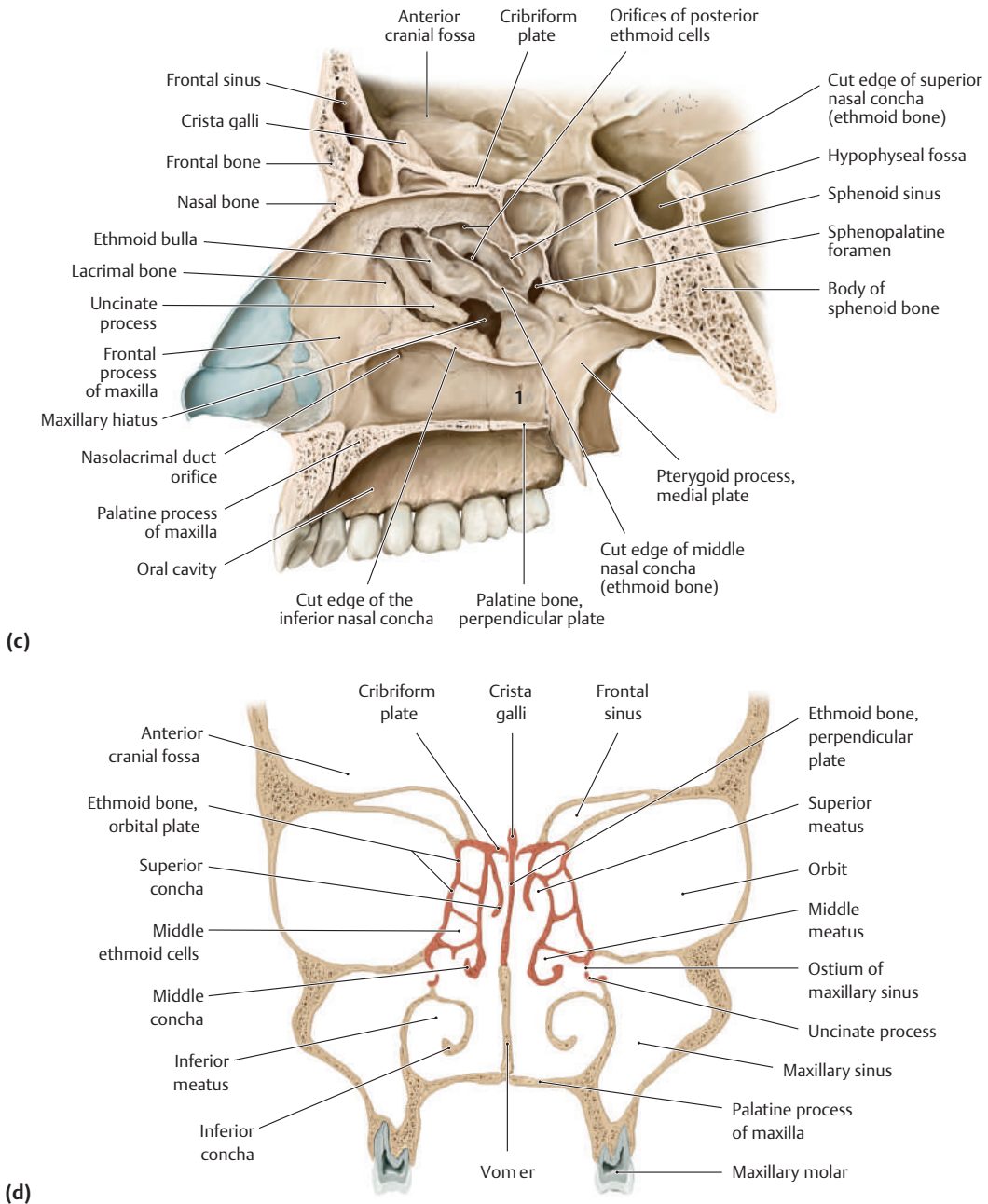


Fig. 1.9 Bony nose: **(c)** Lateral wall of the nose (left lateral view with nasal conchae removed). 1, Horizontal plate of palatine bone. **(d)** Coronal section through the skull to show the relative positions of the nasal cavity, orbit, maxillary air sinus, and ethmoidal air sinuses. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

Mandible

The mandible is the bone of the lower jaw. It has a horseshoe-shaped body and two vertical broad rami.

Body: The body is U-shaped and has two surfaces and two borders. It consists of right and left halves united in the median plane at the symphysis menti. The upper border of the mandible is also known as the alveolar border. It bears sockets for the teeth. The lower border is also known as the base of the mandible (**Fig. 1.10a–c**).

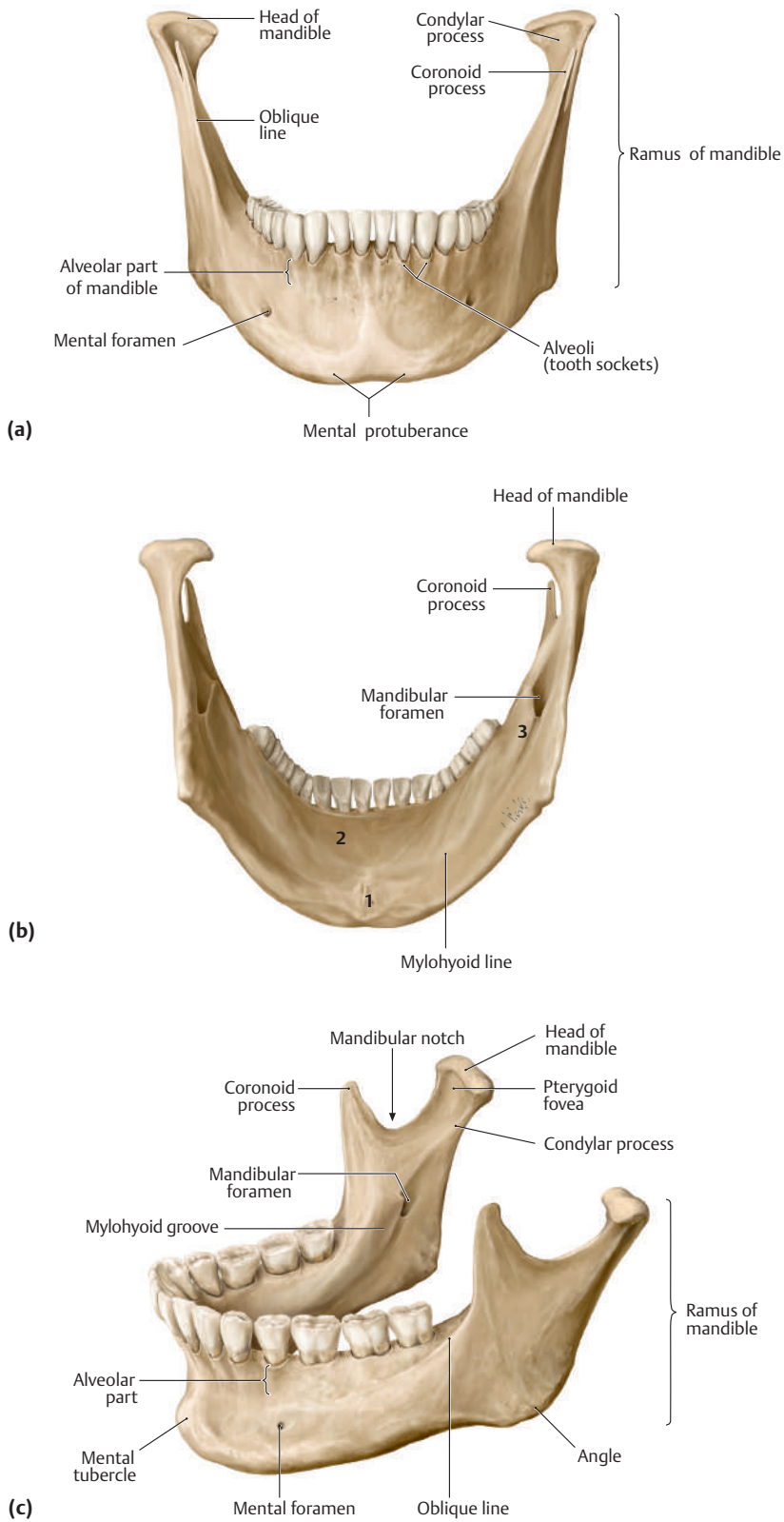


Fig. 1.10 Mandible: (a) Anterior view. (b) Posterior view. 1, Genial tubercles; 2, sublingual fossa; 3, mylohyoid groove. (c) Oblique left lateral view. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

Ramus: The ramus of the mandible projects upward from the posterior part of the body. It has four borders (anterior, posterior, upper, and lower), two surfaces (lateral and medial), and two processes (coronoid and condylar).

Bony features: Identify the following bony features of the body of the mandible with the help of **Fig. 1.10a–c**: mental foramen, oblique line, mylohyoid line, sublingual fossa, and genial tubercles. In the ramus of the mandible, identify the mandibular notch, pterygoid fovea, mandibular foramen, and mylohyoid groove.

Hyoid Bone

Hyoid is a small U-shaped bone present in the upper part of the neck. The hyoid bone consists of a central body and greater and lesser cornua (horn) (**Fig. 1.11a–c**). It is not attached to any other bone but hangs at the level of third cervical vertebra with the help of the muscles and ligaments. The body has an anterior and posterior surface. Each end of the body is continuous posterolaterally as greater cornua. The lesser cornua are small conical projections attached to the bone at the junction of the body and greater cornu on each side.

Cervical Vertebrae

The cervical part of the vertebral column is highly mobile, and its curvature is convex anteriorly. It is made up of seven cervical vertebrae (**Fig. 1.12**). A cervical vertebra is characterized by the presence of a foramen in each transverse process (foramen transversarium). The first, second, and seventh vertebrae are atypical, while the third, fourth, fifth, and sixth vertebrae are typical.

Typical Cervical Vertebrae (C3–C6)

A typical cervical vertebra consists of a body and vertebral arch (**Fig. 1.13a**). The body is relatively small and rectangular shaped. The vertebral arch consists of the pedicle and lamina. The body and

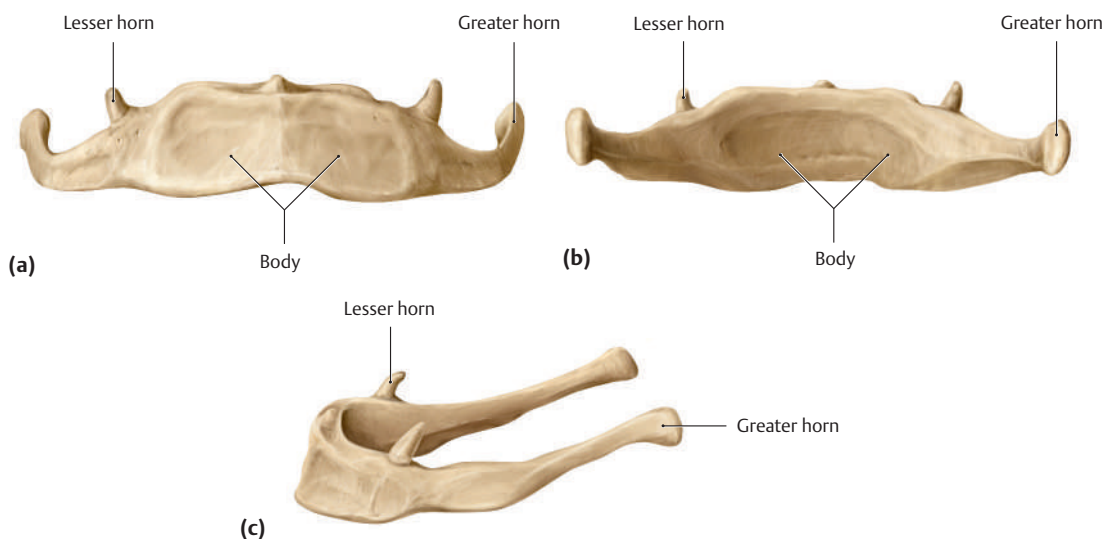


Fig. 1.11 Hyoid bone: (a) Anterior view. (b) Posterior view. (c) Oblique left lateral view. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

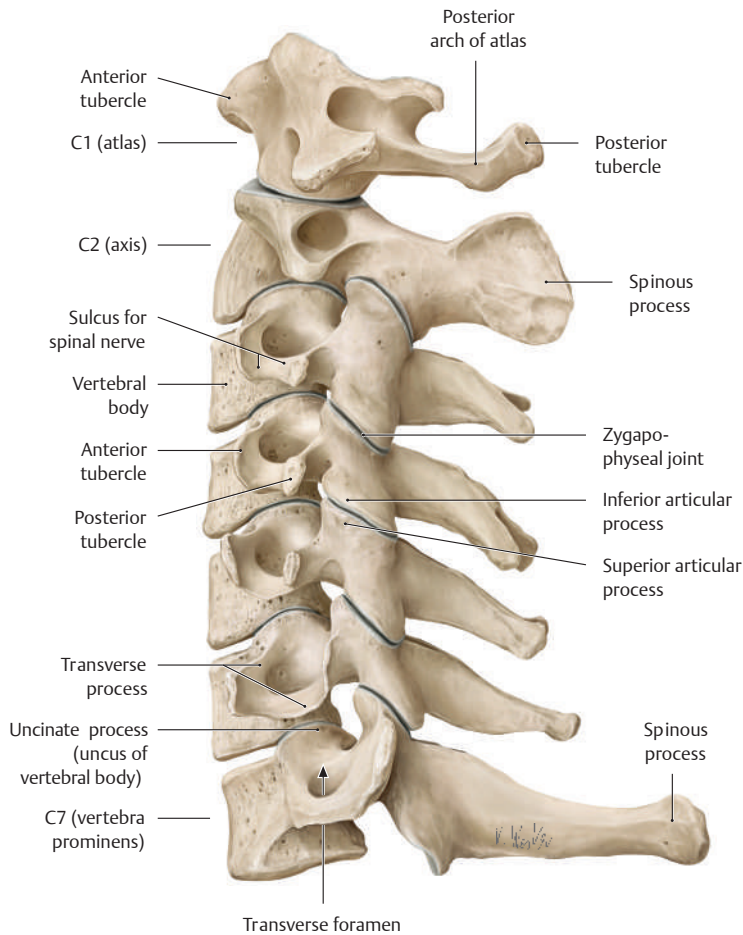


Fig. 1.12 Cervical spine (left lateral view).* (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

vertebral arch enclose a vertebral foramen, which is large and triangular in shape. The vertebral foramen lodges the spinal cord and its meninges. The vertebral arch consists of various processes, that is, the superior and inferior articular processes, transverse processes, and spine. The superior and inferior articular processes are broad and flat (**Fig. 1.13b**). The transverse processes bear foramen transversarium, which give passage to the vertebral artery. The spinous processes in the typical cervical vertebrae are short and bifid.

First Cervical Vertebra (Atlas)

The first cervical vertebra is also known as *atlas*. It is easily identified from the rest of the cervical vertebrae because it is ring shaped, has no body, is the widest of all the other cervical vertebrae, and has no spinous process (**Fig. 1.14a**). It has two lateral masses joined anteriorly by the anterior arch and posteriorly by the posterior arch. Each lateral mass has a superior articular facet and an inferior articular facet (**Fig. 1.14b**). The superior facets form the atlanto-occipital joints, whereas the inferior facets form the atlantoaxial joints. The transverse process projects laterally from the lateral mass. It has foramen transversarium which transmits the vertebral artery, vein, and sympathetic nerve.

*Illustrations in this volume variably depict the artery, nerve, vein either by their full name or through the shortened version, i.e., a., n., v.

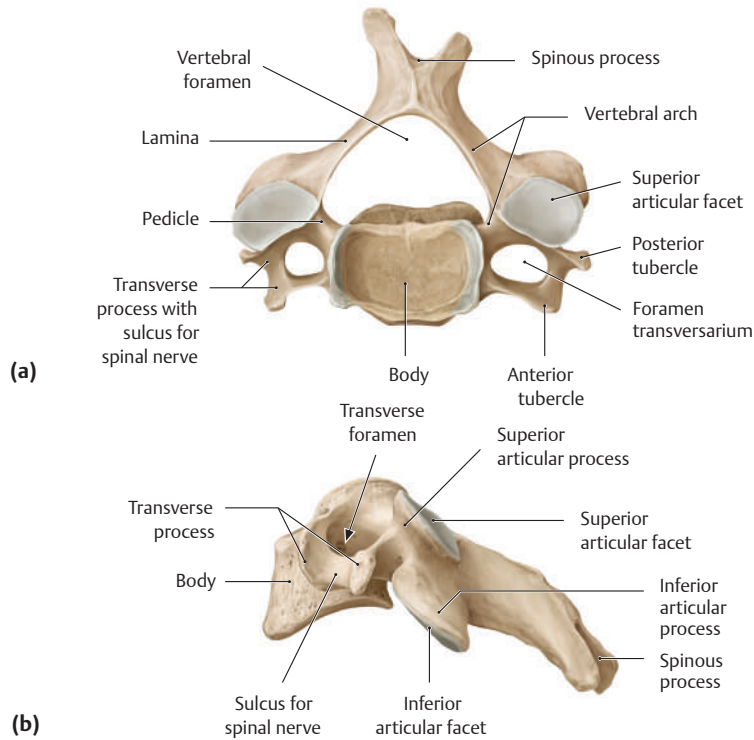


Fig. 1.13 Typical cervical vertebra: **(a)** Superior view. **(b)** Left lateral view. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

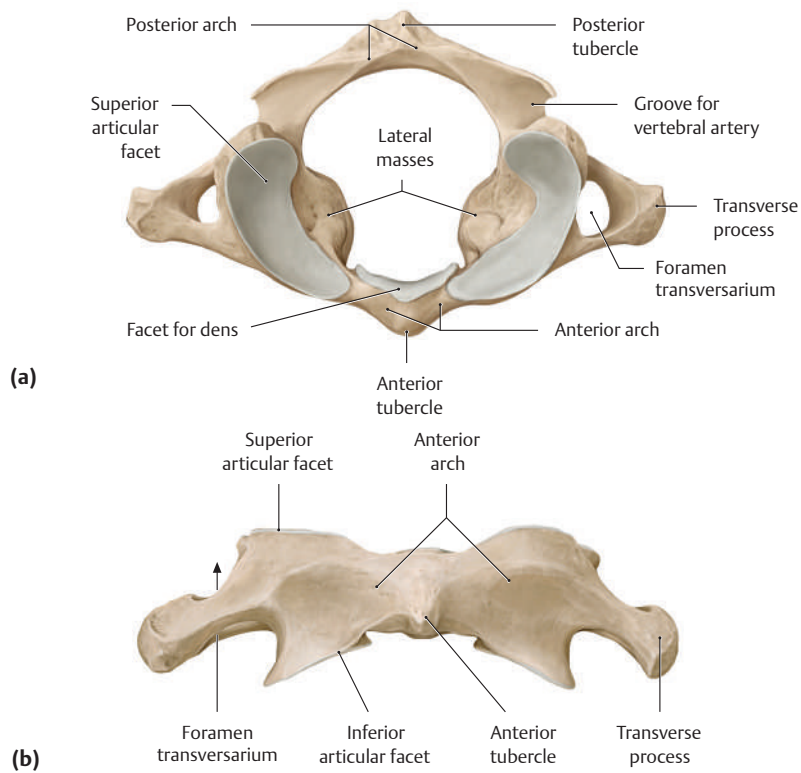


Fig. 1.14 First cervical vertebra (atlas): **(a)** Superior view. **(b)** Anterior view. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

Second Cervical Vertebra (Axis)

It can be easily identified from the rest of the vertebrae because of the presence of *dens* or *odontoid* process. The dens is a blunt, conical, toothlike process which projects superiorly from the body of the vertebra (**Fig. 1.15a**). The spinous process is long, strong, and bifid, and projects posteriorly. The superior articular facets are situated lateral to the odontoid process (**Fig. 1.15b, c**). The transverse processes are small and lie lateral to the superior articular facets. The pedicle, lamina, and bifid spine are massive and very strong.

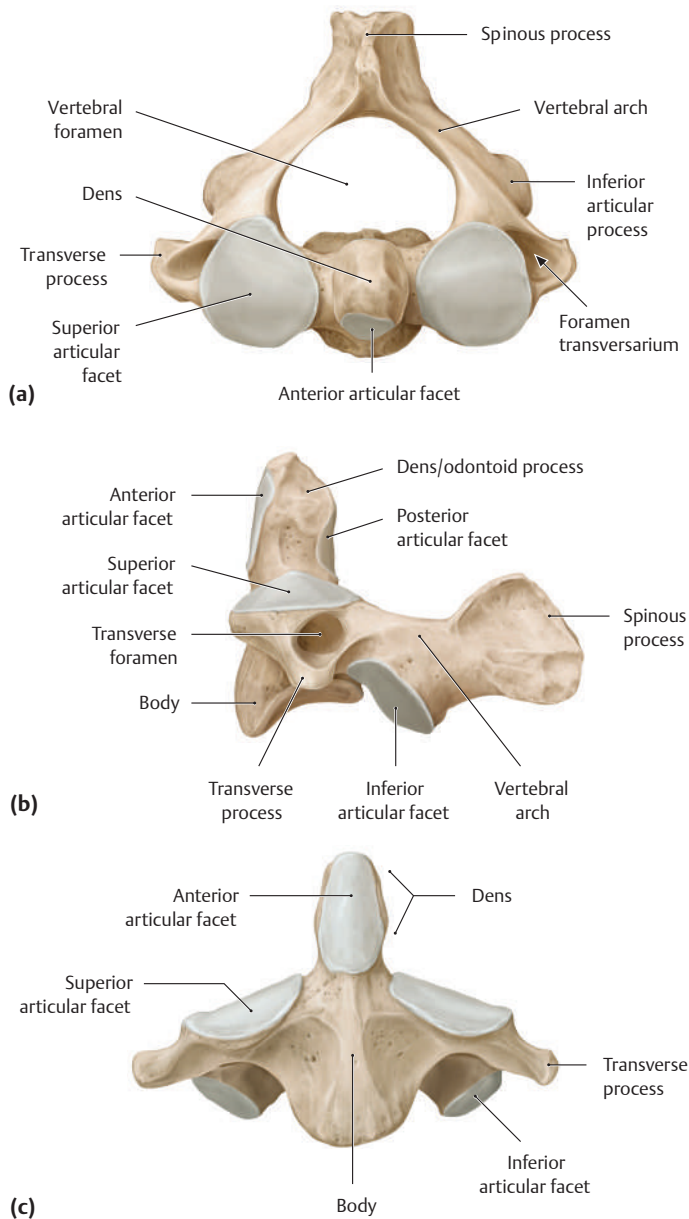


Fig. 1.15 Second cervical vertebra (axis): **(a)** Superior view. **(b)** Left lateral view. **(c)** Anterior view. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

Seventh Cervical Vertebra

This vertebra is easily identified from the other cervical vertebra due to the presence of a very long, horizontal spinous process, which is not bifid (ends in a single tubercle). The transverse processes are large and the foramen transversarium is small because it does not provide passage to the vertebral artery (**Fig. 1.16**).

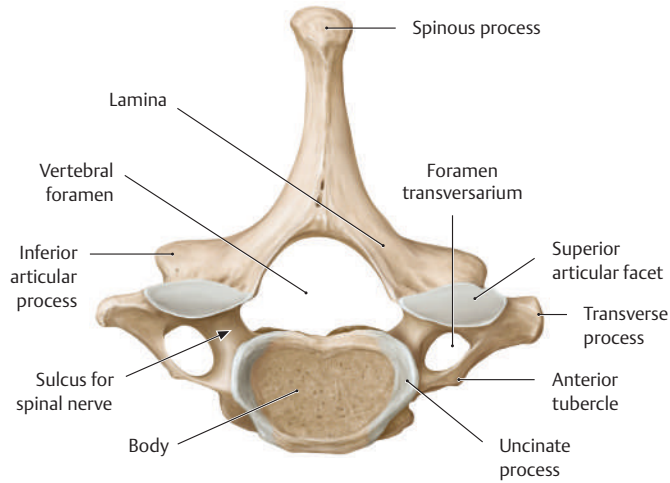


Fig. 1.16 Seventh cervical vertebra (vertebra prominens): Superior view. (From: Schuenke M, Schulte E, Schumacher U. THIEME Atlas of Anatomy. Head, Neck, and Neuroanatomy. Illustrations by Voll M and Wesker K. © Thieme 2020.)

