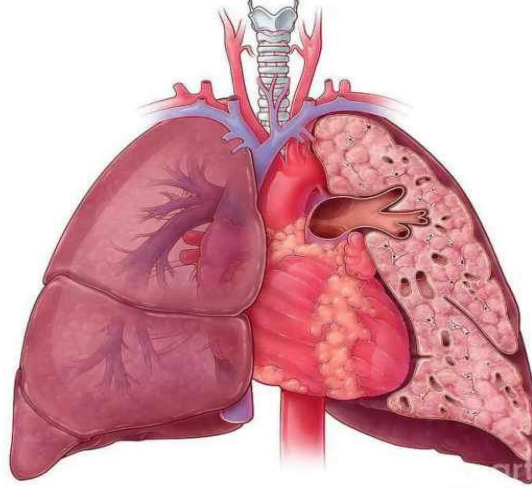


Date:

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لجان الرُّفَعَات



تفريغ أناتومي



موضوع المحاضرة : Skeletal System | part 2

رقم المحاضرة : 10

إعداد الصيدلانية : Yasmeen Alharahshah

■ Ethmoid Bone

- Located in the midline between the two orbits
- Has a transverse (cribriform) plate that forms the roof of the nasal cavity
- Contains two projections on each side called the superior and middle nasal conchae. These form part of the lateral wall of the nasal cavity
- Has a perpendicular plate

الحاجبين

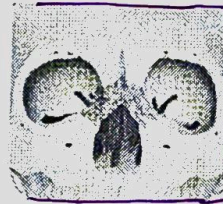
المنقوعة

علوي

متوسط

الجوف الأنفي

لوحة عمودية



Ethmoid air cells

Medial wall of orbit

Superior

Crista galli

Cribriform plate

Superior nasal concha

Nasal cavity

Middle nasal concha

Perpendicular plate

Inferior

Fig.6: The ethmoid bone.

Facial Bones:

عظام اللاحق

- Nasal Bones → bridge of the nose

عناشنتين
Nasal Bones
وصلة بين ووصلة يسار

الفلج العلوي

- Maxillae (the upper jawbone)

العظم الصلب في سقف الحلق

- Has processes: (1) Palatine process which forms the hard palate with the palatine bones, (2) Alveolar process which contains teeth sockets.

- Zygomatic Bones → Cheekbones

عظام الخد

- Inferior Nasal Conchae

- Form part of the lateral wall of the nasal cavity.

جدار

تجويف الأنف

- Lacrimal bone

- Forms part of the medial wall of the orbit. Related to lacrimal sac.

الكيس الدمعي

الفلج السفلي

- Mandible (lower jawbone) →

العظمة الوحيدة المتحركة

- The largest, strongest facial bone. The only movable skull bone.
- Has alveolar process that contains sockets for the teeth.

Frontal / Anterior View

Fig.7

عظم الكانف

Nasal bone

Lacrimal bone

Vomer

Inferior nasal
concha

Frontal bone

Zygomatic bone

Maxillary bone

- Alveolar process

Mandible

- Alveolar process

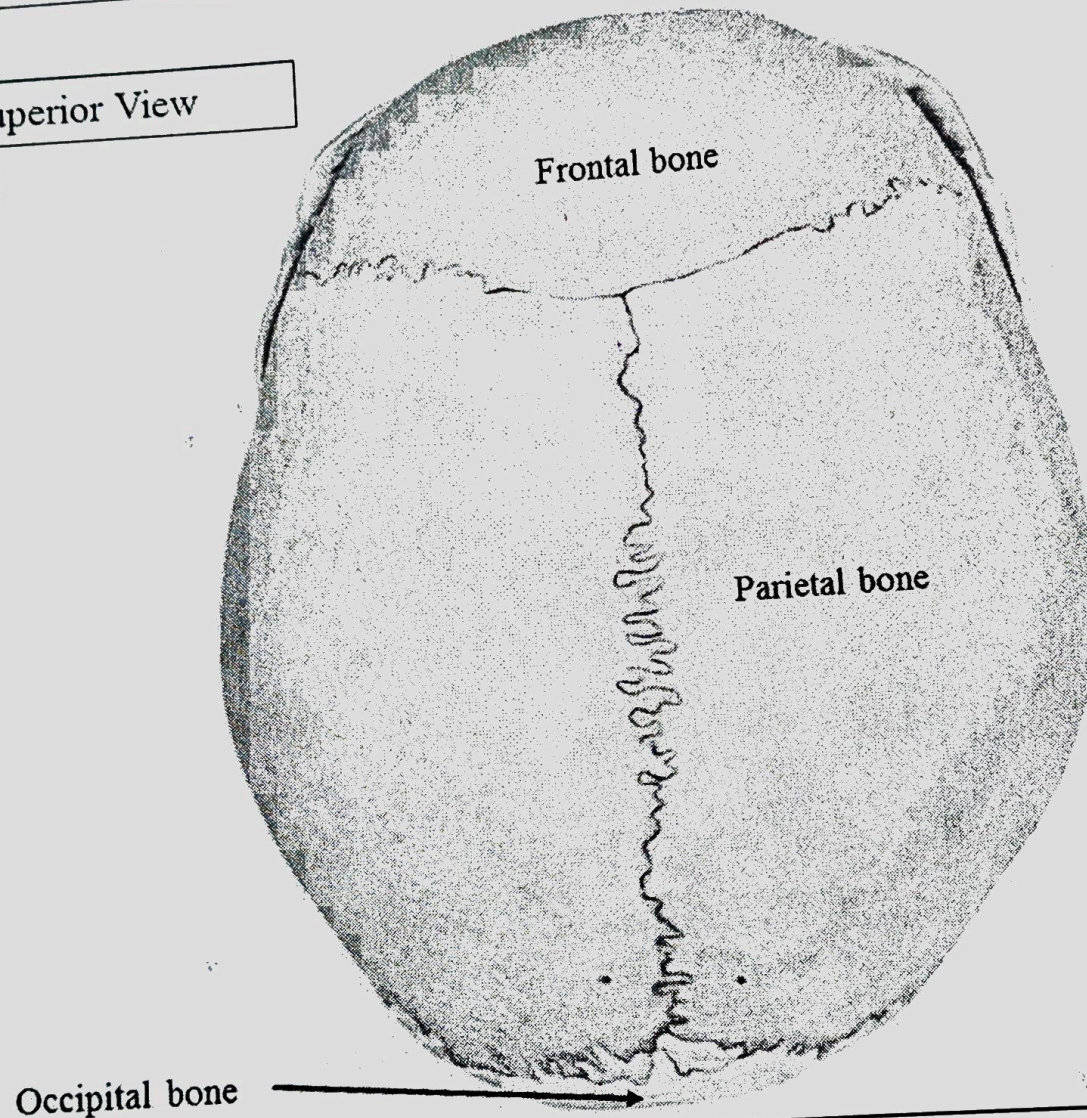
عظم الخد

الظلع
العلوي

الظلع السفلي

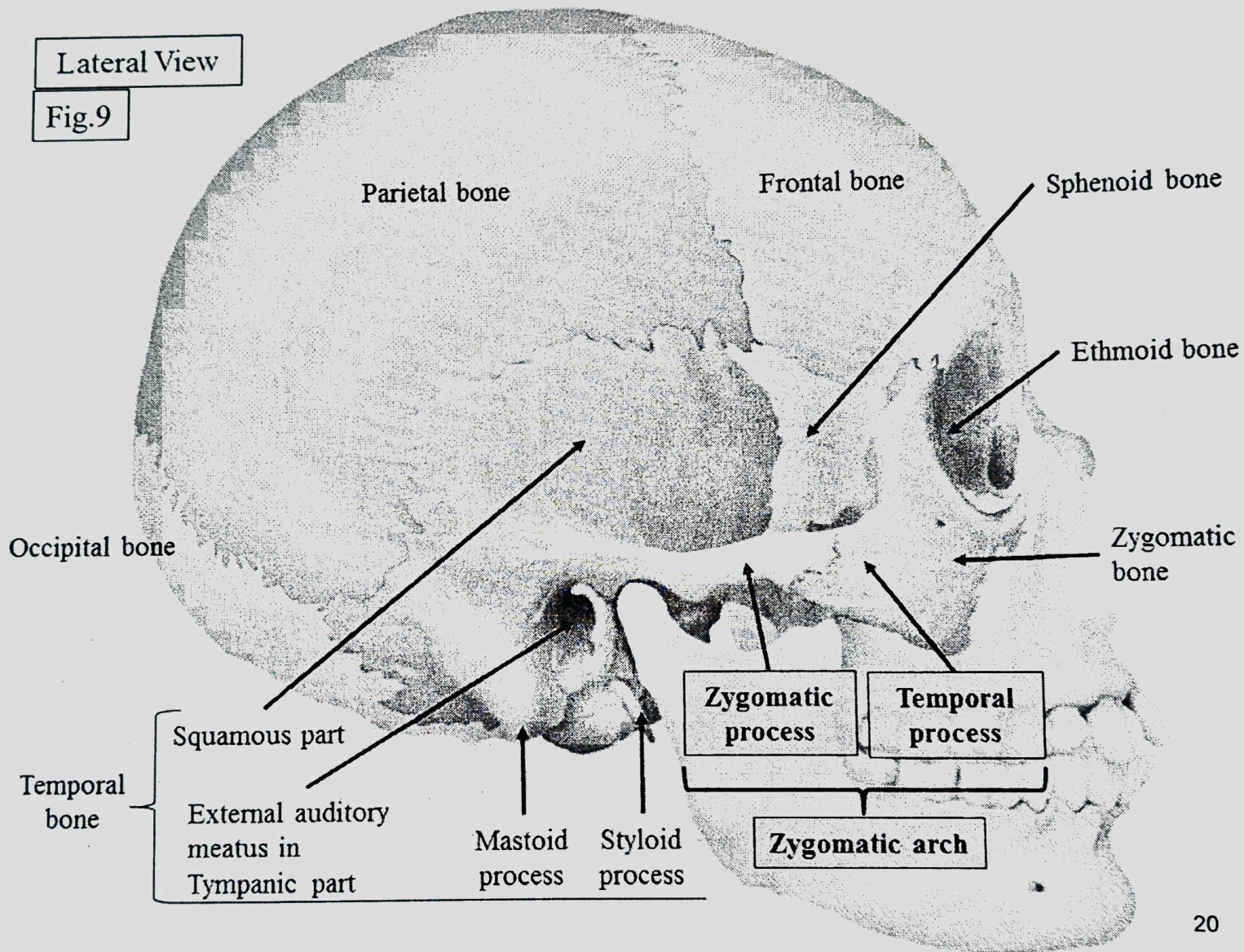
Superior View

Fig.8



Lateral View

Fig.9



Posterior View

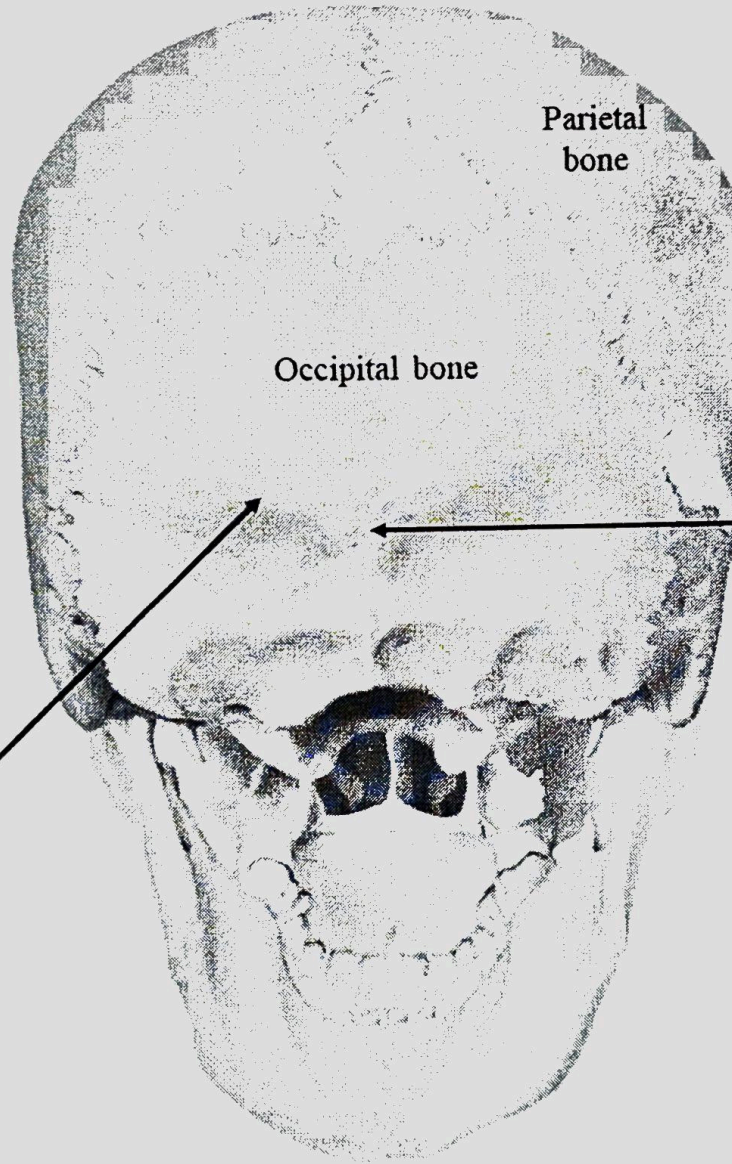
Fig.10

Superior nuchal line
— border between
head and neck

Parietal
bone

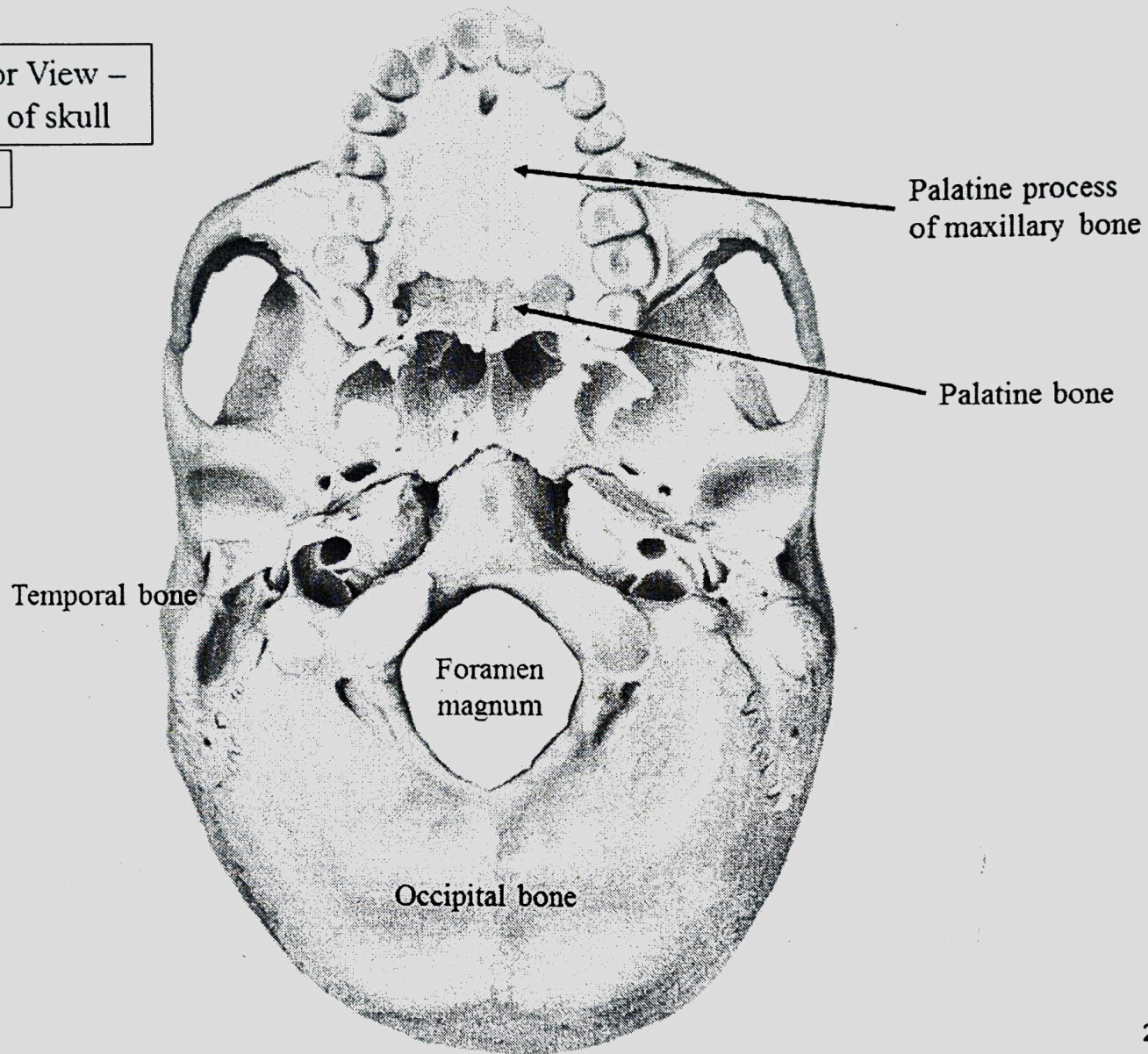
Occipital bone

External occipital
protuberance



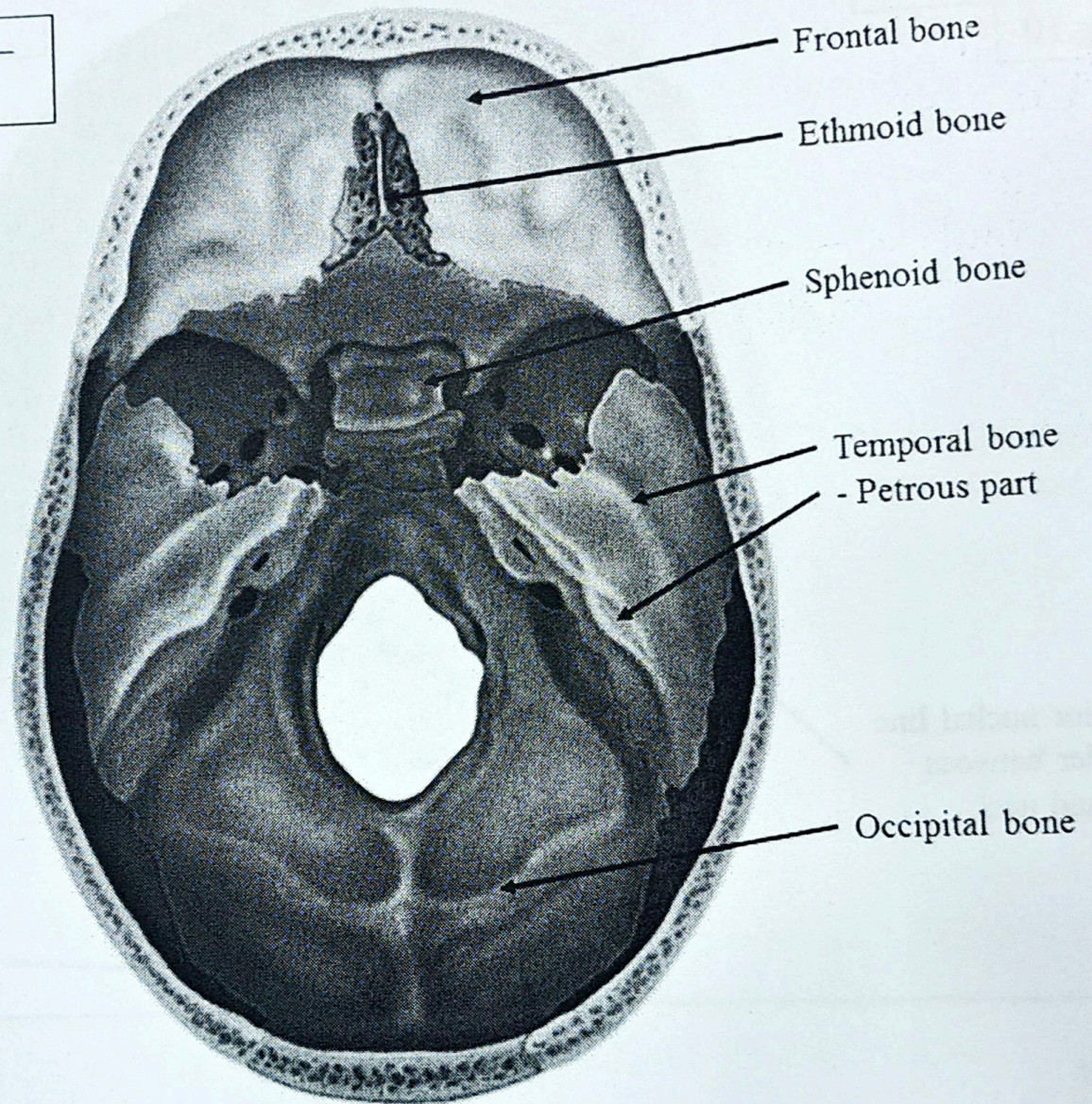
Inferior View –
Base of skull

Fig.11



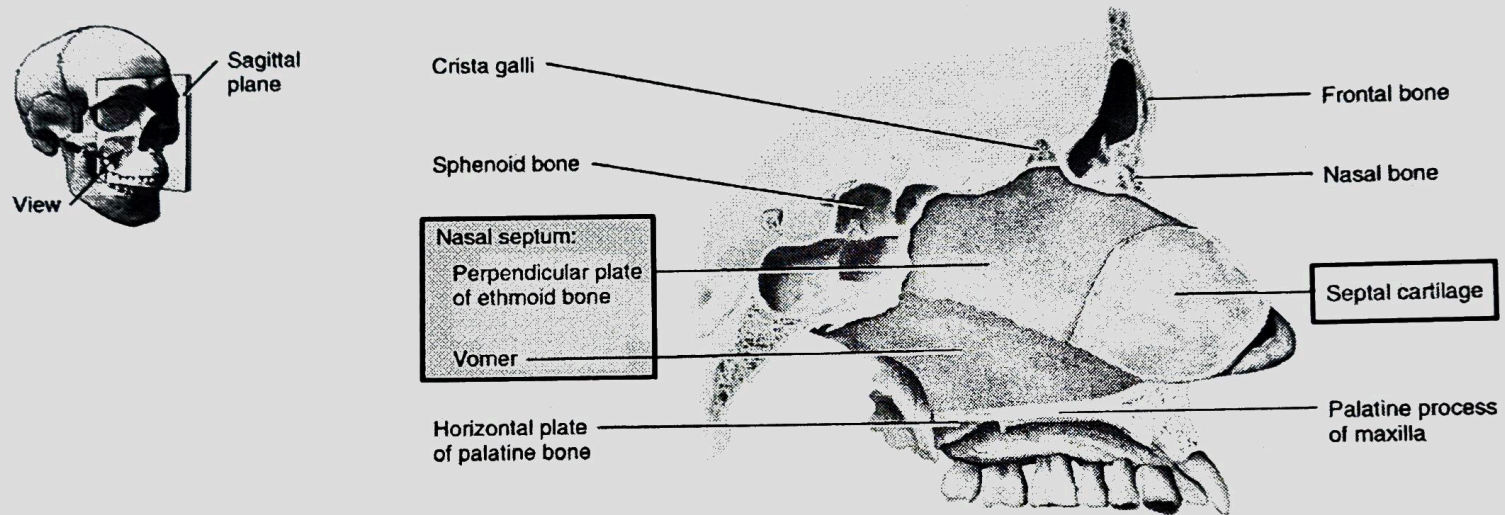
Interior of the skull –
Cranial cavity

Fig.12



The Nasal Septum:

Fig.13: The nasal septum.



- A partition that divides the nasal cavity into right and left parts.

صاهر ٠ يقسم التجويف الانفي ليمين ويسار

- It's formed of:

1. The perpendicular plate of the ethmoid bone and the vomer bone posteriorly → الخلف
2. Septal cartilage anteriorly → الأمام

الغضروف

الفقرز الرئيسي

Main Sutures:

1) Coronal Suture:

between the frontal and the two parietal bones.

تفصل بين

2) Sagittal Suture:

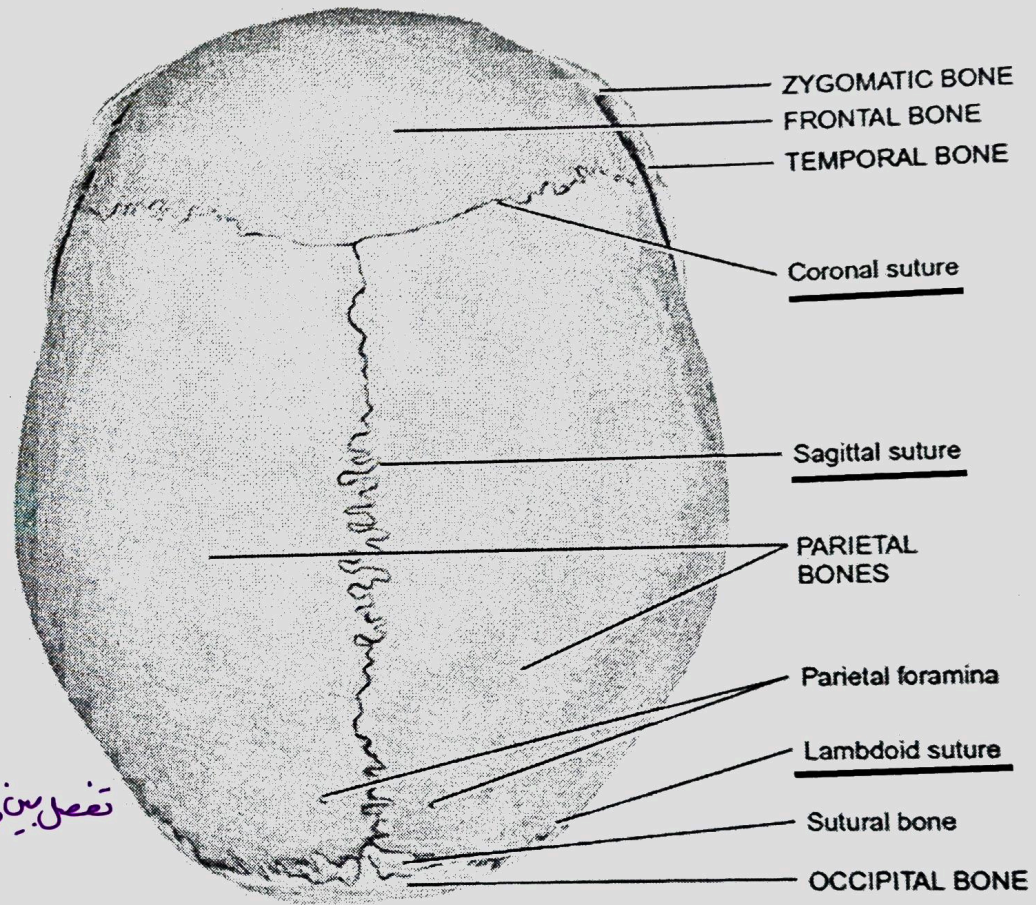
between the two parietal bones.

(two parietal)

3) Lambdoid Suture:

between the two parietal and the occipital bones.

تفصل بين



(a) Superior view

Fig.14: Some of the main sutures of the skull.

* يومه (٢) النول من الجيوب ويكونوا (Cavity) تجاويف

الجيوب الانفية

Paranasal Sinuses:

❖ Cavities within cranial and facial bones near the nasal cavity.
 تجاويف داخل عظام الجمجمة والوجه

❖ Secretions produced in the sinuses drain into the nasal cavity.
 تصب الإفرازات في تجويف الأنف

❖ Serve as resonating chambers that intensify and prolong sounds.
 تعمل كغرف رنينية - تكثف وتطول الأصوات

❖ Found in the Frontal, ethmoid, sphenoid and maxillary bones.
 موجودة في العظام السفلى

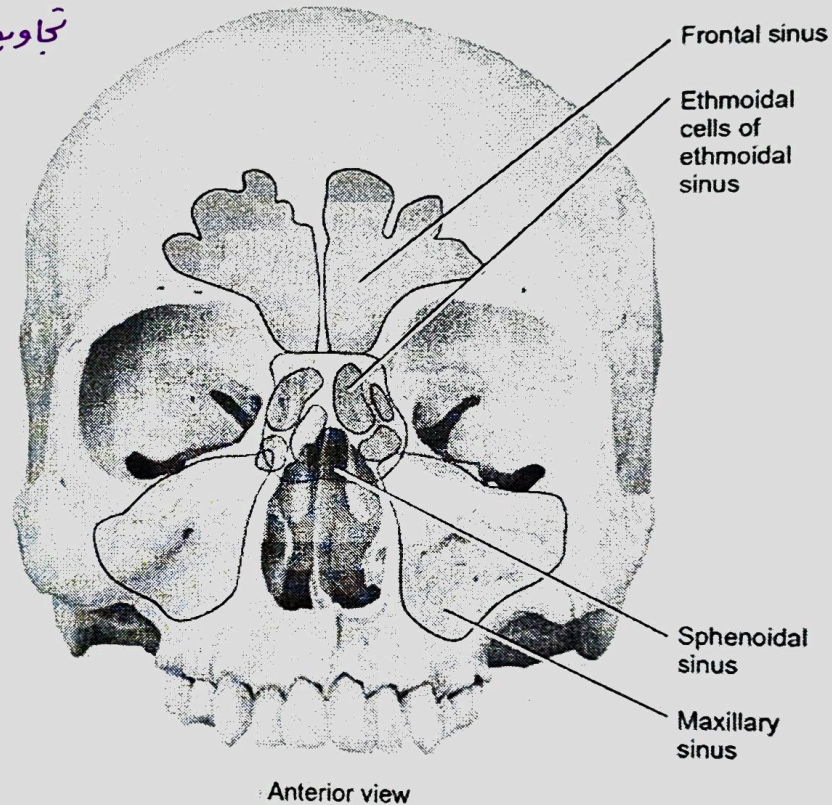


Fig.15: Paranasal sinuses.

Fontanelles:

(نافوخ)

- Areas of ^{غير متجمدة} unossified tissue that link the cranial bones at birth. → ^{عند الولادة}
- Eventually, they are replaced with bone to become sutures.

- Provide flexibility to the fetal skull, allowing the skull to change shape as it passes through the birth canal. → ^{قناة الولادة}
- The largest of these fontanelles are the anterior and posterior fontanelles.

توفر
المرونة
للمجمعة
المخبر

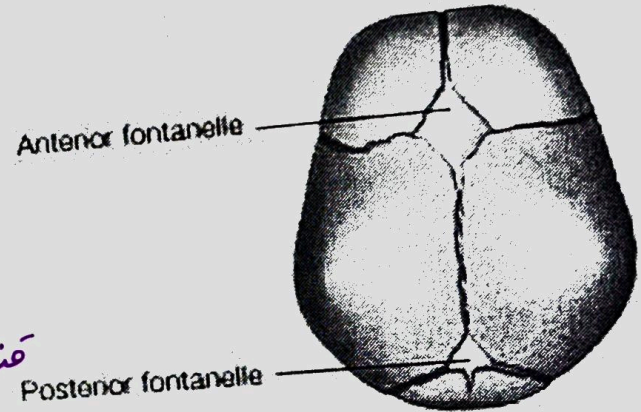


Fig.16: Anterior and posterior fontanelles.

(تفاهة اوم)

The Hyoid Bone

العظم الوحيد في الجسم الذي
لا يتواصل مع عظم اخر.

الجزء العلوي

- Located in the upper part of the neck

The only bone in the body that does not articulate with any other bone

لسان

- Supports the tongue, providing attachment sites for some tongue muscles and for muscles of the neck and pharynx and some ligaments. It's also attached to the larynx. وصلة بالحنجرة

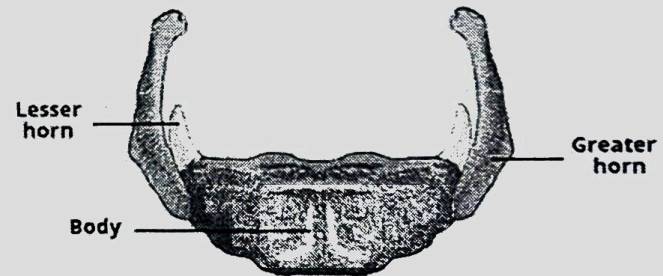
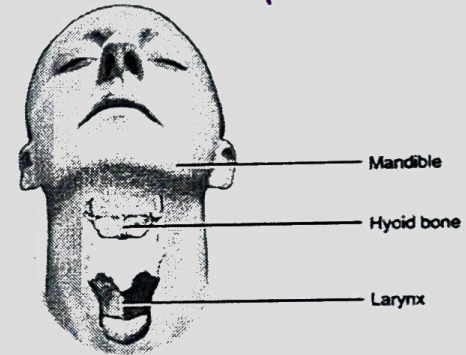


Fig.17: The hyoid bone.

The Vertebral Column

① spine

② spinal column

③ backbone

كلام مرادفات .

- Also called the spine, backbone, or spinal column

Functions to:

- Protect the spinal cord → حماية الجبل الشوكي
- Support the head → دعم الرأس
- Serve as a point of attachment for the ribs, pelvic girdle, and

عضلات muscles

نقطة ارتباط

حزام الكتف اضلاع

- Composed of a series of bones called vertebrae (Adult=26)

فقرات

- 7 cervical, in the neck region → منطقة الرقبة

- 12 thoracic, to which the ribs are attached

- 5 lumbar, support the lower back → تدعم اسفل الظهر

- 1 sacrum, triangular in shape and consists of five fused sacral vertebrae

- 1 coccyx, triangular in shape and consists of four fused coccygeal vertebrae

(خلف البطن مباشرة)

تتكون من خمس عظام صغار

تتكون من اربعة عظام صغار

- The vertebral column is curved to varying degrees in different locations

- Curves increase the column strength
العنقنيان ← تر يد من قوة العفود
- Help maintain balance in the upright position
توازن
- Absorb shocks during walking, and help protect the vertebrae from fracture
① تحفص ② صدمات الكسر
الفقران ← أثناء المشي

- These curves are:

- Cervical → عنقي
- Thoracic → صدري
- Lumbar
- Sacral

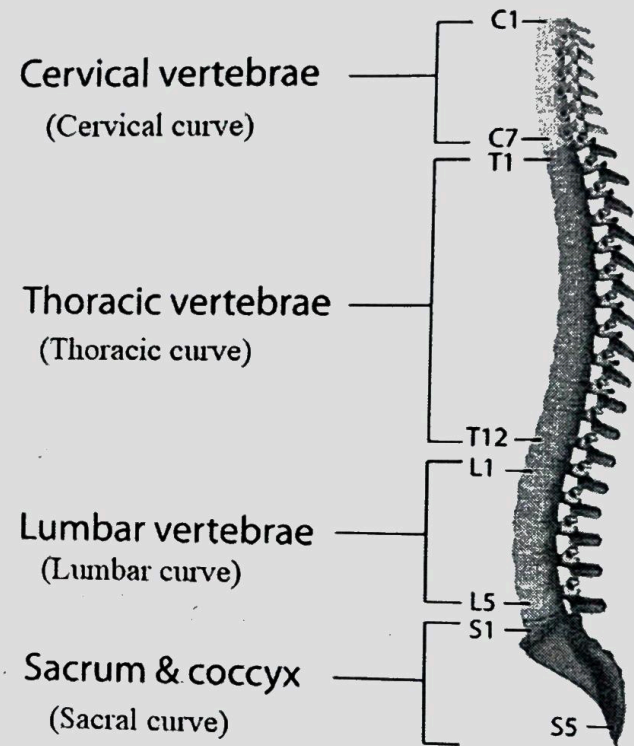


Fig.18: Curves of the vertebral column.

الفقران

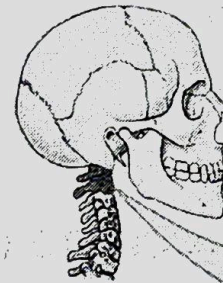
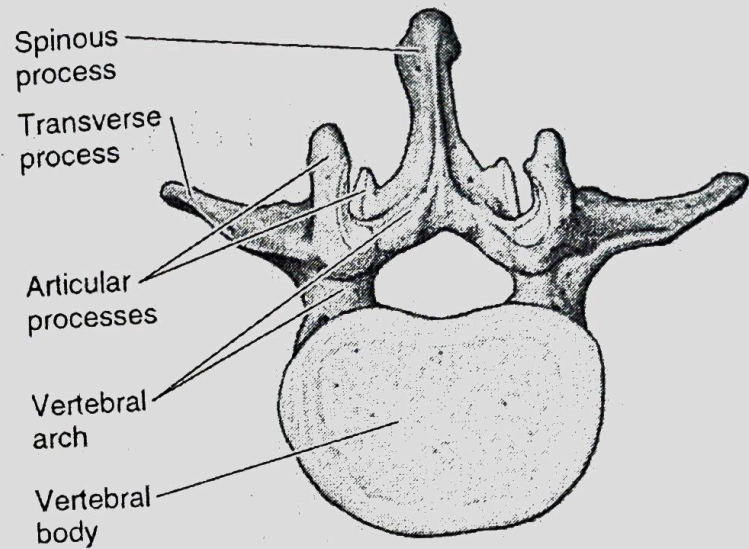
The Vertebrae:

يحمل الوزن

- Each vertebra has: (1) Body that bears weights, (2) Vertebral arch that protect the spinal cord, (3) One spinous and two transverse processes for muscle attachment, and (4) Joints for articulation with ribs and other vertebrae.

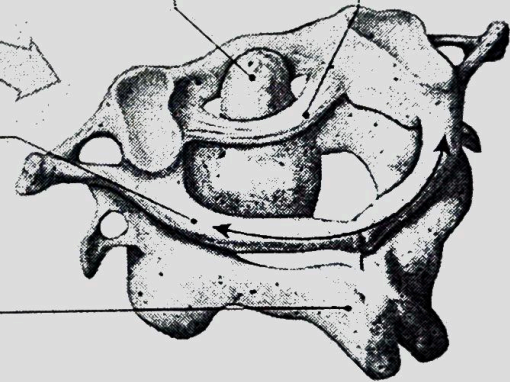
قوس فقري
(Spinal Cord)

- The first cervical vertebra (atlas) articulates with the occipital bone of the skull. The second cervical vertebra (axis) has a process (dens) that articulates with atlas.



Dens (odontoid process) Transverse ligament

Atlas (C₁)
Articulates with the occipital bone of the skull
Axis (C₂)
Articulates with atlas



The atlas/axis complex

Fig.19: Above, parts of vertebra. Below, atlantoaxial joint.

- The body and the vertebral arch surrounds a foramen called the **vertebral foramen**. When the vertebrae are stacked on each other, the vertebral foramina will align together to form the **vertebral canal** through which the spinal cord passes.

← الشقبة الفقرية

→ القناة الفقرية

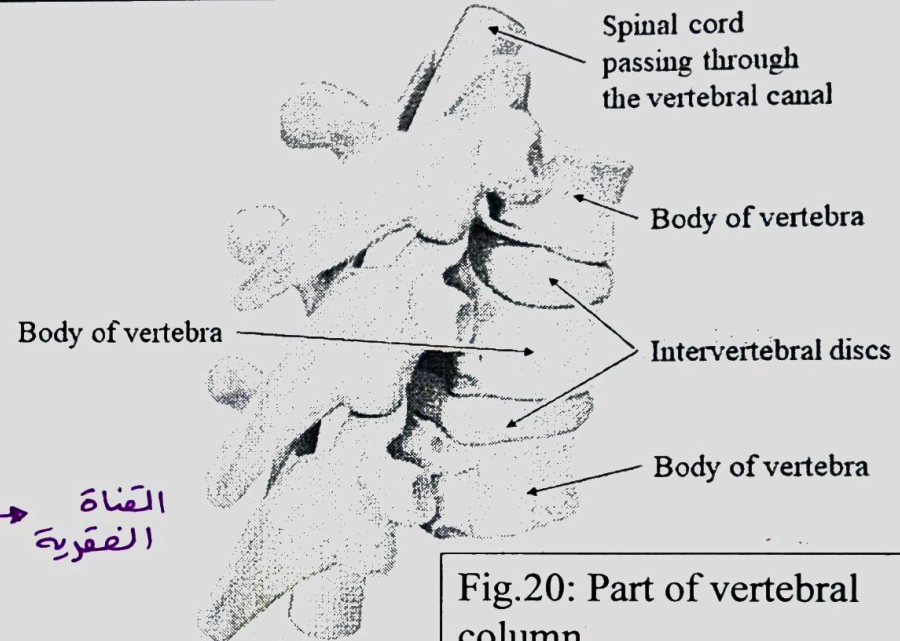


Fig.20: Part of vertebral column.

- Found between the bodies of adjacent vertebrae are the Intervertebral Discs (formed of **fibrocartilage**). The function of these discs is to:

عضروف ليفي

- Form strong joints → تكوين مفاصل قوية
- Permit various movements of the vertebral column
- Absorb vertical shock → امتصاص الصدمات

السماح بحركة العمود الفقري

العمودية

The Thoracic Cage

■ Thoracic cage is formed by the:

□ Sternum عظم القفص الصدري

□ Ribs الأضلاع الموجودة في الصدر

□ Costal cartilages (attach ribs to sternum) غضاريف

□ Thoracic vertebrae الفقرات الصدرية

■ Functions:

□ Enclose and protect the organs in the thoracic and abdominal cavities

□ Provide support for the bones of the upper limbs

□ Play a role in breathing التنفس

الصدر

دعم لنظام
الدعم في العظام

زفير
إلهيف

عظم القص

عظم الصدر

The Sternum (Breastbone):

- Located in the midline of the anterior aspect of the thoracic cage.
- Consists of the manubrium, body and xiphoid process.
- The manubrium is attached to the body at an angle called the **sternal angle**.
- To it are attached the clavicles and the costal cartilages.

الزاوية القصية

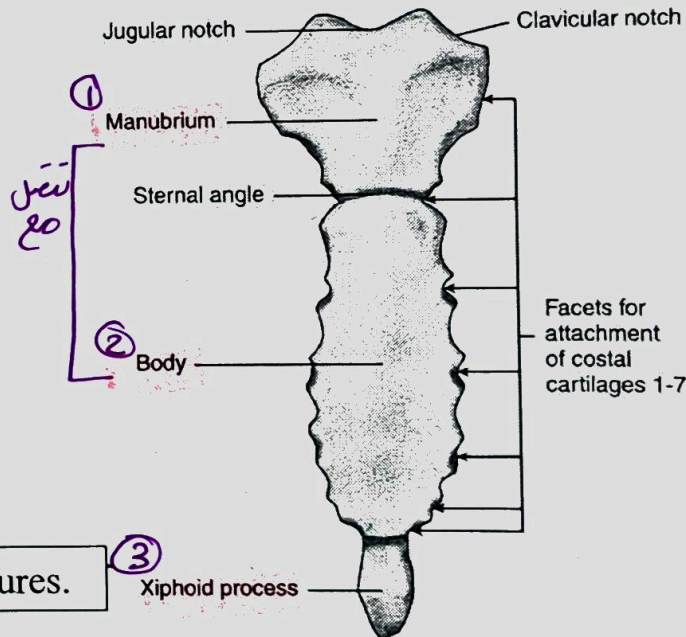
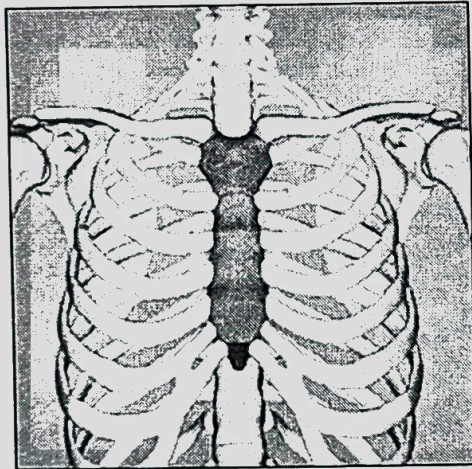


Fig.21: The sternum. Position and features.

12 زوج صفاق رibs

The Ribs:

- Twelve pairs of ribs give structural support to the sides of the thoracic cavity.
- The upper seven pairs are called *true ribs* because they're attached to the sternum by their own costal cartilages. 3-7
- Pairs 8-10 are called *false ribs* because their costal cartilages are attached, anteriorly, to the costal cartilages of the 7th rib. افصال غير مباشرة
- Pairs 11 and 12 are called *floating ribs* because they have no anterior attachment.
- Each rib articulates with the body and transverse process of the thoracic vertebrae.

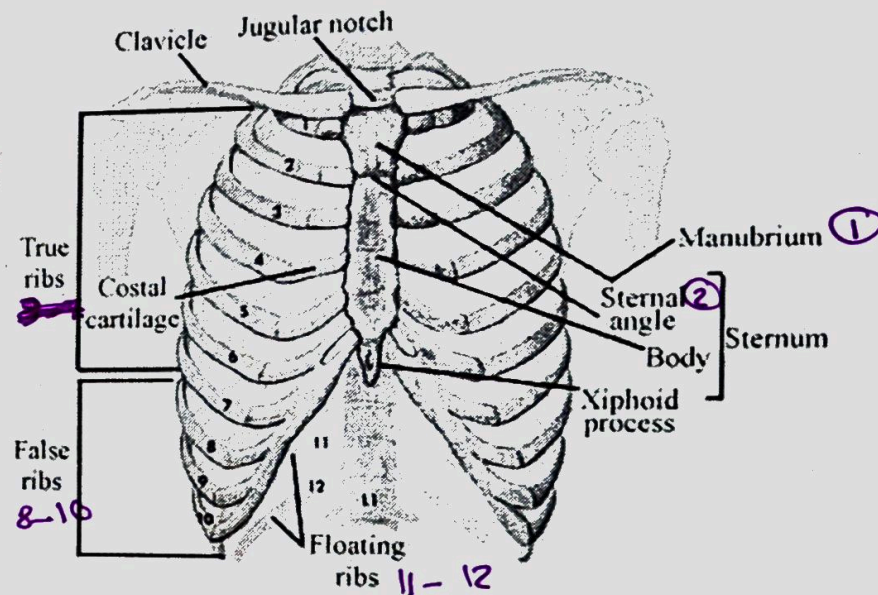
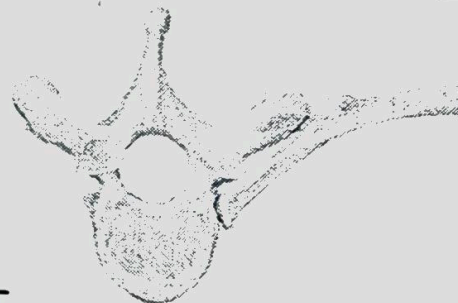


Fig.22: Above, types of ribs. Below, articulation of a rib to a vertebra.



11-12 صفاق صفاق | 8-10 صفاق صفاق مباشر | 3-7 صفاق صفاق مباشر مع
Sternum ال صفاق صفاق | Sternum ال صفاق صفاق | Sternum ال صفاق صفاق