

✓ Atlas vertebra of Guineapig, *Cavia*. (Fig. 3.20)

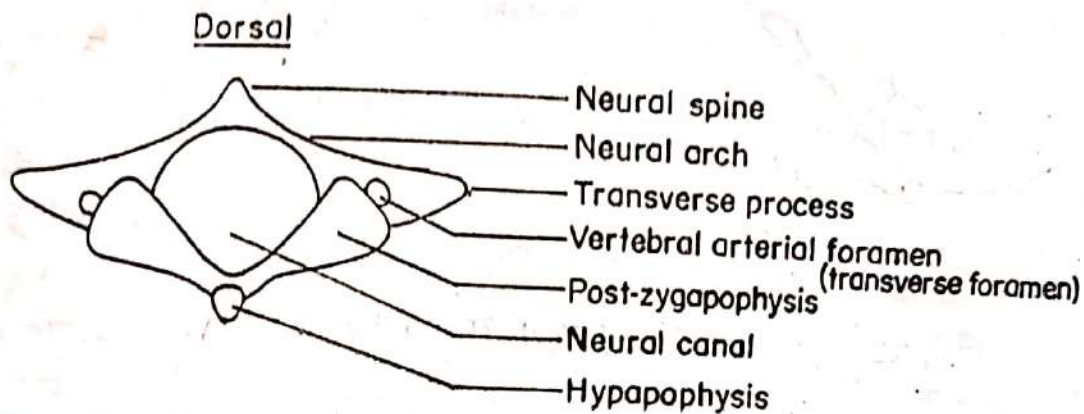


Fig. 3.20 Atlas vertebra of *Cavia* (Posterior view)

1. Neural canal, neural arch, neural spine, transverse process and zygapophysis present.

Hence, a Vertebra.

1. Ring-like.
2. Neural canal large and circular.
3. Centrum absent.
4. Well-developed, laterally directed, wing-like transverse process perforated at the base by an antero-posterior Vertebralarterial foramen (Transverse foramen) and a dorsal Atlantal foramen.
5. A pair of ventrolateral Condylar facet anteriorly.
6. Prezygapophysis absent ; Postzygapophysis well developed.
7. Neural spine reduced.
8. A small mid-ventral tubercle, Hypapophysis, present.

Hence, Atlas vertebra of a mammal, *Cavia*.

✓ Axis vertebra of Guinea pig, *Cavia*. (Fig. 3.21)

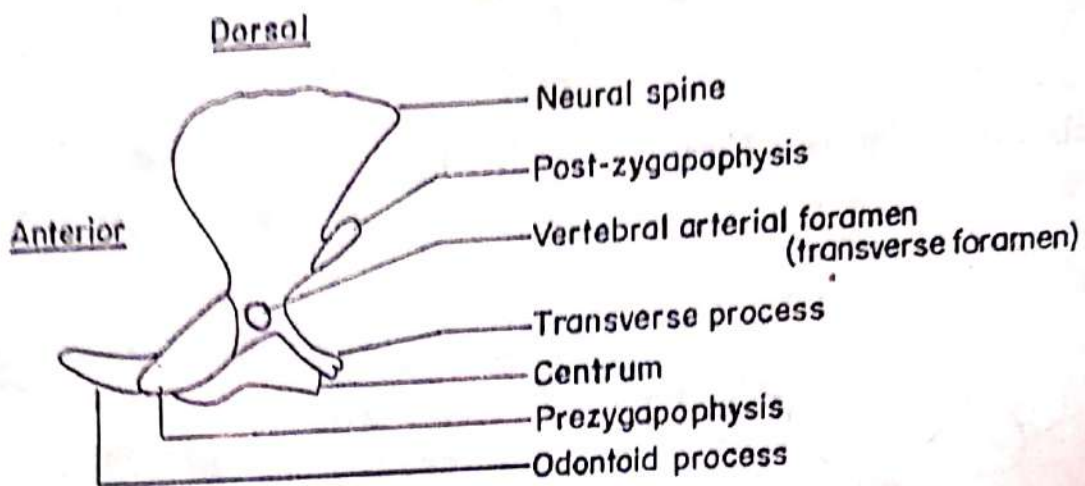


Fig. 3.21 Axis vertebra of *Cavia* (Lateral view)

1. Centrum, neural canal, neural arch, neural spine, transverse process and zygapophyses present.

Hence, a Vertebra.

1. Centrum acœlous.
2. Epiphyses on the anterior and posterior faces of centrum.

Hence, Vertebra of a mammal.

1. Centrum bears an anterior, tooth-like Odontoid process.
2. Neural spine thin, flat, plate-like and backwardly directed,
3. Transverse process short, rod-like, directed backwards.
4. Base of Transverse process perforated by Vertebral arterial foramen (Transverse foramen).
5. Pre-and Post-zygapophyses well developed.

Hence, Axis vertebra of a mammal, *Cavia*.

**Note :** 1. It is the 2nd vertebra of the vertebral column and is also known as Epistropheus.

2. Odontoid process represents centrum of atlas vertebra,



✓ Typical cervical vertebra of Guinea pig, *Cavia*. (Fig. 3.22).

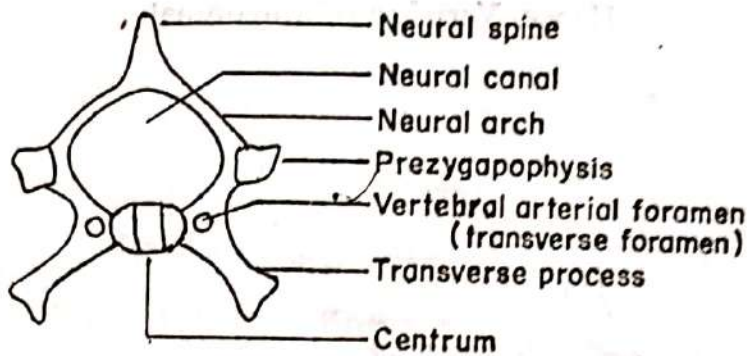


Fig. 3.22 Typical cervical vertebra of *Cavia*. (Anterior view)

1. Centrum, neural canal, neural arch, neural spine, transverse process and zygapophyses present.

Hence, a Vertebra.

1. Centrum acelous.
2. Epiphyses on the anterior and posterior faces of centrum.

Hence, Vertebra of a mammal.

1. Transverse process short and stout, directed outward and downward.
2. Base of transverse process perforated by a Vertebral arterial foramen (Transverse foramen).
3. Neural spine short and directed vertically upward.
4. Well-developed Pre and Post-zygapophyses.

Hence, a typical Cervical vertebra of a mammal, *Cavia*.

1. Centrum accolous,
  2. Epiphyses on anterior and posterior faces of centrum.
- Hence, Vertebra of a mammal

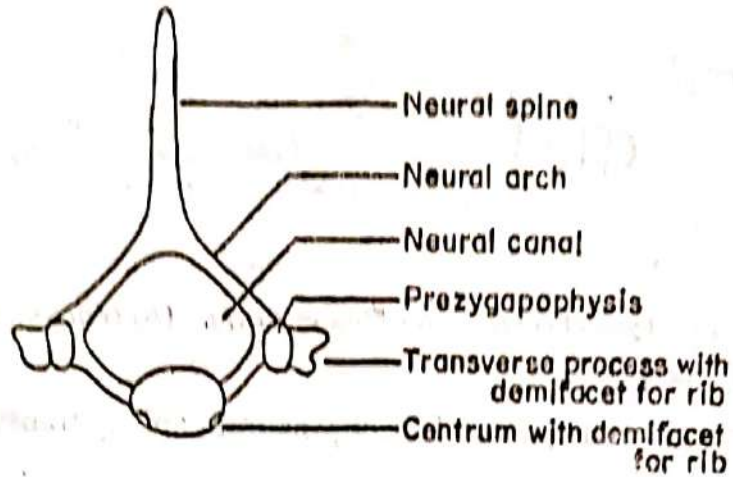


Fig. 3.23 Typical thoracic vertebra of *Cavia*. (Anterior view)

1. Long, pointed, upwardly directed Neural spine.
2. Transverse process short, stumpy, not perforated at the base.
3. Demifacets for rib articulation on Transverse process and Centrum.

Hence, a typical thoracic vertebra of a mammal, *Cavia*.

- Note :
1. Distinct ribs are associated with thoracic vertebrae only, in mammals.
  2. Tuberculum of rib articulates with demifacet on transverse process while Capitulum of rib articulates with demifacet on centrum.

Typical Lumbar vertebra in Guineapig, *Cavia*. (Fig. 3.24)

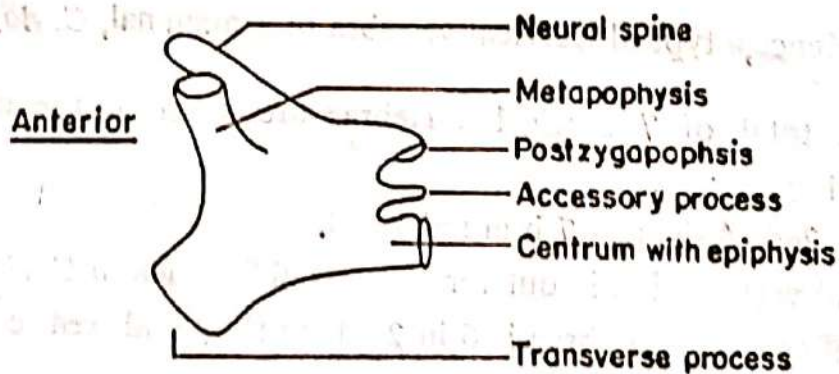


Fig. 3.24 Typical Lumbar vertebra of *Cavia*. (Lateral view)

1. Centrum, neural canal, neural arch, neural spine, transverse process and zygapophyses present.

Hence, a Vertebra.



1. Centrum acelous.
2. Epiphyses on the anterior and posterior faces of Centrum.

Hence, vertebra of mammal.

1. Large and stout.
2. Neural spine prominent and stout, projecting obliquely forward and upward.
3. Transverse process, thin, flat, wing-like, directed downward and outward.
4. Well-developed Prezygapophyses borne on stout, anteriorly directed projections called Metapophyses.
5. Well-developed Postzygapophyses borne on stout, backwardly directed projections.
6. A pair of backwardly directed spiny projections, Anapophyses or the Accessory processes, are present below the the Postzygapophyses.
7. Epiphyses very prominent.

Hence, a typical lumbar vertebra of a mammal, *Cavia*.

- Note :**
1. Lumbar vertebrae are found in the upper abdominal region.
  2. These vertebrae are stronger and larger than all the preceding vertebrae for weight-bearing of the abdominal viscera.
  3. Large transverse processes serve for the attachment of muscles of hindlimb.
  4. Generally, the number in mammals varies between 4—7. In *Cavia* the number is 6 while in man the number is 5.

✓ Sacrum of Guineapig, *Cavia* (Fig. 3.25)

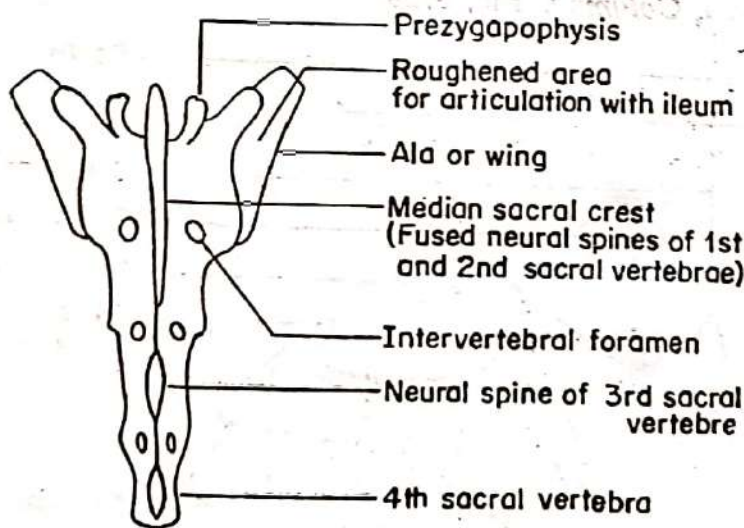


Fig. 3.25 Sacrum of *Cavia*. (Dorsal view)

1. Compound structure made up of several bones arranged one after another in an anterior-posterior axis.
2. Roughly triangular in shape, broad anteriorly and narrow posteriorly.

3. Each component bone is a vertebra being made up of Centrum, Neural canal, Neural arch, Transverse process, etc.
4. Centrum acoclous with epiphyses.
5. Neural canal narrow.
6. Intervertebral foramina present between adjacent vertebrae.
7. Well-developed Prezygapophysis on the anteriormost vertebra.
8. Transverse process on the anteriormost vertebra is stout, laterally expanded and has roughened dorsal area.
9. Transverse processes of posterior vertebrae are not laterally expanded and are progressively reduced in size.
10. Neural spines are flattened and ridge-like.

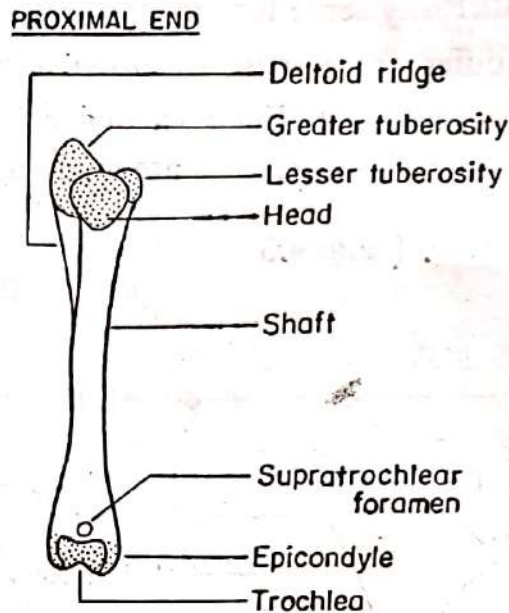
Hence, Sacrum of a mammal, *Cavia*.

**Note :** 1. found in the posterior abdominal region.

2. rough area on the transverse process of the anteriormost vertebra articulates with the anterior end of ilium.
3. fusion of the sacral vertebrae into a common mass and association with pelvic girdle is for weight-bearing of viscera.
4. number of sacral vertebrae generally varies between 3 (dog, cat) to 5 (man, horse).
5. in male guineapig sacrum is made up of 4 vertebrae while in female sacrum is made up of 3 vertebrae.
6. sacral vertebrae are not fused together in whales.



✓✓ **Humerus of guineapig, *Cavia*. ( Fig. 4.4 )**

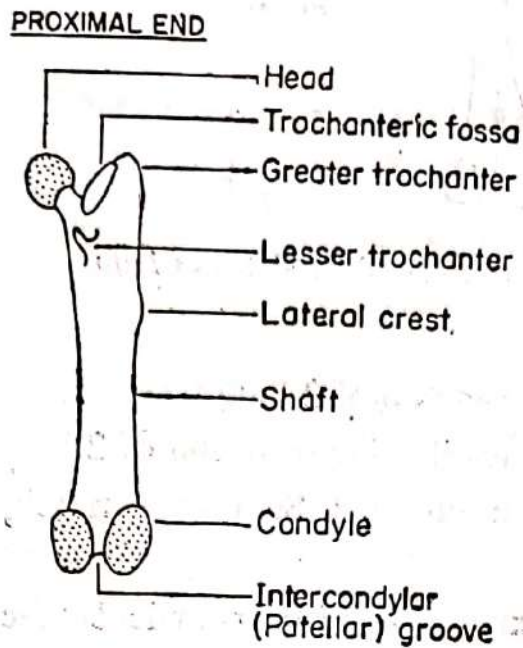


**Fig. 4.4** Humerus of *Cavia*.

1. Single long bone made up of a narrow Shaft, and broad proximal and distal ends.
2. Shaft stout and straight, somewhat flattened bilaterally.
3. Proximal end bears a spherical Head, an outer, large Greater Tuberosity, an inner, small Lesser Tuberosity, a shallow Bicipital Groove separating the tuberosities and a moderately developed Deltoid ridge extending down from the Greater Tuberosity.
4. Distal end ( Trochlear end ), with a large spindle-shaped Trochlea and 2 lateral Epicondyles ; Epicondylar foramens absent ; Supratrochlear foramen present.

Hence, Humerus of a mammal, *Cavia*.

**Femur of Guineapig, *Cavia*. (Fig. 4.8)**



**Fig. 4.8 Femur of *Cavia*.**

1. Single elongated bone made up of a Shaft and broad proximal and distal ends.
2. Shaft stout, straight and somewhat flattened.
3. Proximal end bears a spherical Head extending away from the Shaft and borne on a distinct Neck, a large Greater Trochanter, a small Lesser Trochanter and a deep Trochanteric fossa ; there is no 3rd Trochanter.
4. A prominent Lateral Crest extends down the shaft for some distance.



5. Distal end bears two large lateral Condyles separated by a Patellar or Intercondylar groove.

Hence, Femur of a mammal, *Cavia*.

## ✓ Radius-Ulna of Guinea pig, *Cavia*. ( Fig. 4.12 )

PROXIMAL END

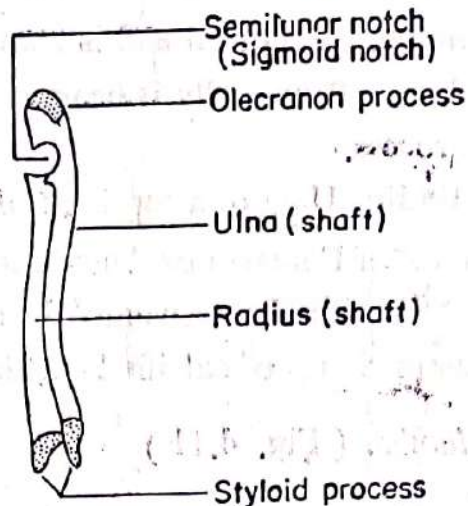


Fig. 4.12 Radius-Ulna of *Cavia*.

1. Compound structure made up of 2 elongated bones lying close together.
2. Bones are of equal thickness but are of unequal length.
3. Longer bone is Ulna. Its proximal end bears a deeply concave Semilunar ( Sigmoid ) notch and a stout Olecranon process. Its distal end bears a Styloid process.
4. Shorter bone is Radius. Its proximal end bears a small concavity. Its distal end bears a Styloid process.

Hence, Radius-Ulna of a mammal, *Cavia*.

- Note :**
1. These are the bones of Forearm or Ante-brachium.
  2. Proximal ends articulate with Humerus.



† Tibia-Fibula of Guineapig, *Cavia*. (Fig. 4. 16)

PROXIMAL END

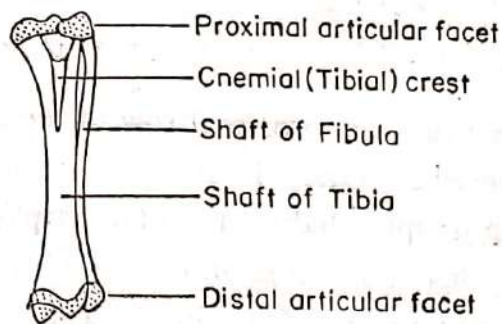


Fig. 4.16 Tibia-Fibula of *Cavia*.

1. Compound structure made up of 2 elongated curved bones lying close together, narrowly separated proximally.
2. Bones are slightly unequal in length but grossly unequal in thickness.
3. The stout bone is Tibia. It bears proximally 2 concave articular surfaces, and a well-developed Cnemial (Tibial) crest. Its distal end bears 2 irregular articular surfaces.
4. The slender bone is Fibula. Both the ends are slightly expanded and fused with Tibia.

Hence, Tibia-Fibula of a mammal, *Cavia*.

✓ Scapula or one-half of Pectoral girdle of Guinea pig. (Fig. 5.5)

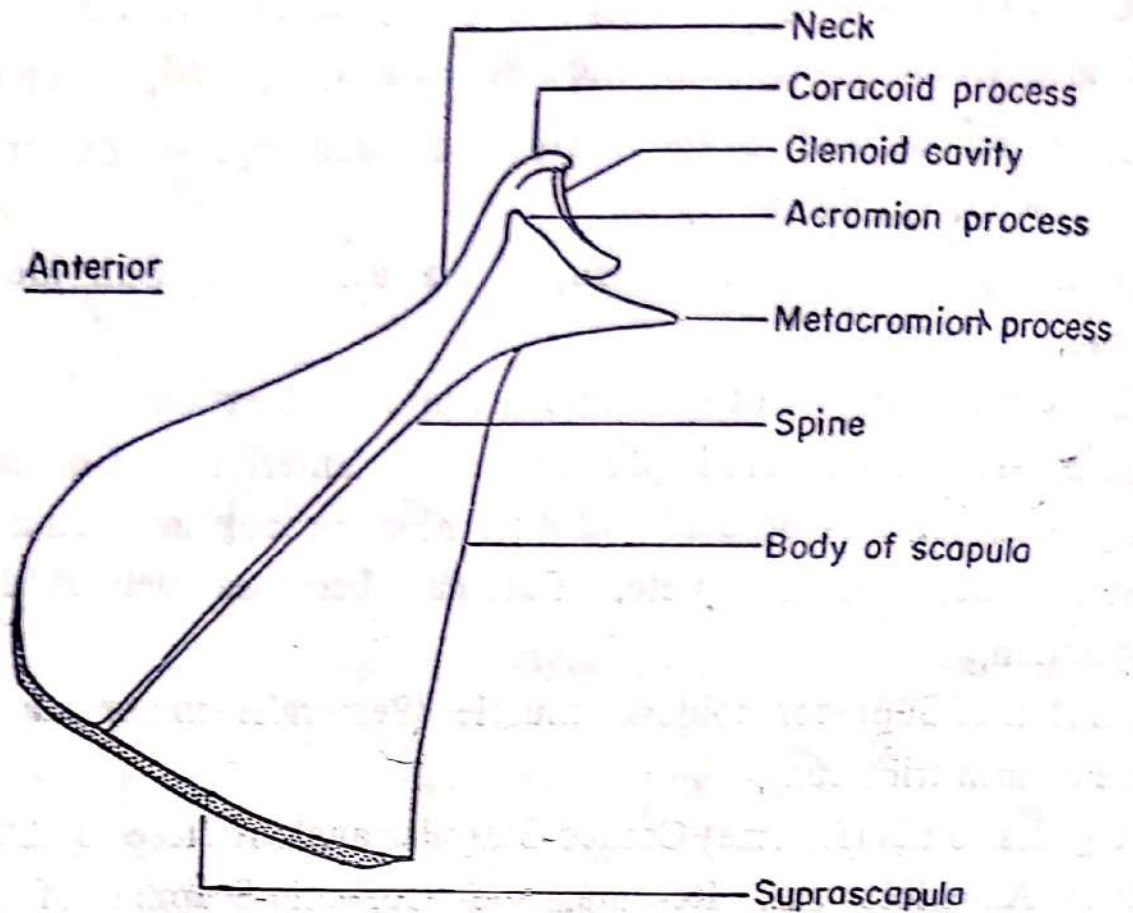


Fig. 5.5 Pectoral Girdle (one-half) of *Cavia*. (Dorsal view)



1. Compound structure consisting of Supra-scapula, Scapula and a Glenoid cavity.
2. Triangular in shape, wide posteriorly and narrow anteriorly.
3. Scapula is very large, thin, flat and plate-like, with a dorsal, median, anteriorly directed ridge - the Scapular Spine and a short, anterior, curved, hook-like Coracoid process.
4. Scapular Spine is separated from the Scapula anteriorly by a Scapular notch.
5. Scapular Spine bears anteriorly an Acromion and a Metacromion process.
6. Supra-scapula is a thin rim of cartilage present on the wide posterior border of Scapula.
7. Glenoid cavity is a shallow anterior concavity formed by Scapula only.

Hence, Scapula or one-half of Pectoral Girdle of a mammal, *Cavia*.

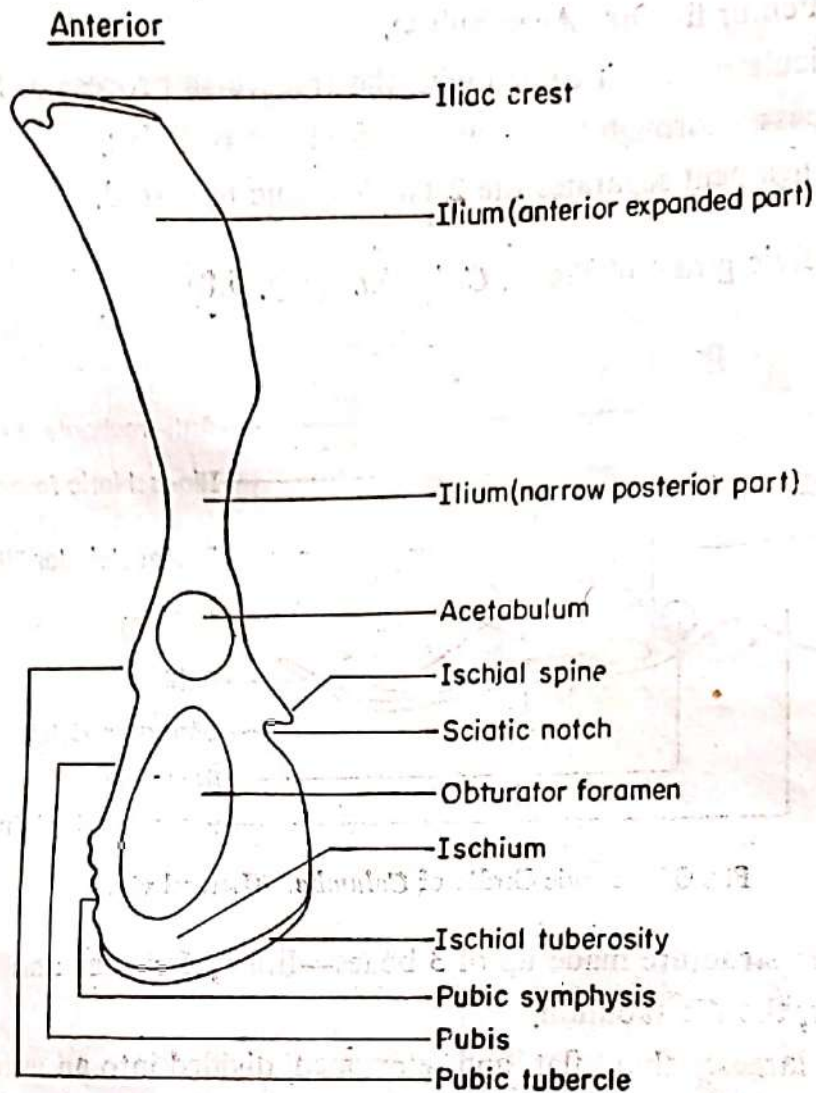


Fig. 5.9 Pelvic Girdle of *Cavia*. (Lateral view)

1. Compound elongated structure made up of several paired bones arranged in 2 symmetrical halves united ventro-posteriorly by symphysis.
2. Each half consists of 3 bones—Ilium, Ischium and Pubis, completely fused together without any suture.
3. At about the middle of each half is a lateral concavity, the Acetabulum.
4. Ilium is flat, elongated and stout with its anterior end expanded ; tip of anterior end thickened to form an Iliac crest ; inner surface of anterior end rough.
5. Ischium is short, stout and L-shaped with an Ischial spine, a Sciatic notch and an Ischial tuberosity.
6. Pubis is thin, flat and curved.
7. Ischium and Pubis separated by a large Obturator foramen (Obturator fenestra).



8. Acetabulum not perforated and formed by all 3 bones.
9. Only Pubis forms the symphysis.

Hence, Pelvic girdle of a mammal, *Cavia*.