

2024-Lecture No. 2

PELVIC LIGAMENTS

Question: How many pelvic ligaments have been there, what are their names and what is the function of these ligaments?

1. There are three, single or paired pelvic ligaments that maintain the relationship of pelvis to spinal column. Their names are, Dorsal and Lateral Sacro-iliac ligament, Sacro-sciatic ligament and Pre-pubic tendon.

Question: What are the origin and insertions points of dorsal and lateral Sacro-iliac ligament?

2. The dorsal and lateral sacroiliac ligaments which are attached to the medial wing of the ilium and the lateral portion of the sacrum and the summits of the sacral spines.
 - i. This articulation is very firm and rigid and
 - ii. It is further maintained and supported by the sacro-sciatic ligament and the pre-pubic tendon.

Question: What are the characteristics of Sacro-sciatic ligament, origin and insertion points and what is difference in dog?

3. The sacro-sciatic ligament is an extensive quadrilateral ligamentous sheet that completes the lateral wall of the pelvic cavity.
 - i. The ligament extends from the lateral border of the sacrum and the transverse processes of the first two coccygeal vertebrae to the ischiatic spine and tuber ischii.
 - ii. It furnishes attachment for the large gluteal muscles and the vulva.
 - iii. In the dog this ligament called the sacrotuberous ligament is a narrow strong band extending from the caudal part of the lateral margin of the sacrum to the tuber ischii.

Question: Define Pre-pubic tendon, what is the point of insertion and what function it has?

4. The pre-pubic tendon is essentially the tendon of insertion of the recti abdominis muscles and others except transverse abdominis muscle.
 - i. It is attached strongly to the cranial border of pubic bones.
 - ii. It is of importance in fixing the sacroiliac articulation and maintaining the bony pelvis in its proper position.

PELVIC CAVITY

Question: What are the characteristics of pelvic cavity?

1. The pelvic cavity is somewhat cone shaped, with the base of the cone located cranially. This base is formed by bony pelvis.
2. The pelvic inlet is roughly oval in shape in all species, with the largest diameter being sacro-pubic.
 - i. The size of the pelvic inlet varies greatly within a species due to breed, age and size.

- ii. The sow and cow have the most elliptical pelvic inlets, while the mare and some dogs have nearly round inlets.

Question: The foetal thorax is larger in diameter than the pelvis, even than foetus is born without difficulty, how it is possible?

3. In our larger domestic animals the cross section of the foetal chest or hips may be greater in diameter than the maternal pelvic inlet but birth is possible by the displacement and realigning of the fetal parts at the time of parturition.

Question: The caudal portion of the pelvis is narrower, even than parturition takes place easily, How?

4. The caudal portion of the pelvic cavity is smaller than the cranial portion formed by the bony pelvis but the caudal portion at the time of parturition dilates markedly to allow the passage of the foetus.
 - i. This ability to dilate is brought about by the relaxation of the pelvic ligaments, especially the sacrosiatic ligament.
 - ii. This relaxation in the cow is an obvious indication of approaching parturition.

MALE VERSUS FEMALE PELVIS

Question: What are the important differences between pelvis of male and females?

1. The pelvis of the male domestic animal differs from the female in a number of definite points.
 - i. The diameter of the pelvic inlet is smaller in the male,
 - ii. The ischiatic arch is usually narrower,
 - iii. The pelvic cavity is smaller and less roomy than in the female,
 - iv. The obturator foramen is smaller in the male,
 - v. The cranial floor of the pelvis is more apt to be convex in the male while it is usually concave in the female.
 - vi. The bones of the pelvis are thicker and heavier in the male.
 - vii. The pelvis of the male castrated at an early age resembles that of the female.
2. These differences are most noticeable in domestic animals.

COMPARATIVE DIFFERENCES BETWEEN PELVIS OF VARIOUS SPECIES

Question: What are the important differences in pelvis of various species?

1. In the mare the transverse or bisiliac diameter and sacro-pubic diameters are nearly alike, making the pelvic inlet almost spherical. The coxal tuberosities are large and prominent and the wings of ilia are nearly perpendicular to the long axis of the body.
2. In the cow the ischial tuberosities are prominent and high. The ilia and coxal tuberosities are smaller than in the mare. The pelvic inlet is more elliptical than in the mare.
3. The pelvis of the ewe is similar to cow in the shape of inlet but the wings of ilia are more nearly parallel to each other and tuber ischii are relatively much smaller.

4. In the sow the pelvic inlet is long and narrow. The wings of the ilia are not prominent and large as in the cow and horse. The symphysis pubis in the sow is thicker and does not undergo complete ankylosis. The tuber ischii are not completely ossified.
5. In the dog the wings of ilia are small and nearly parallel with the median plane. The ischium has a twisted appearance since the caudal part is nearly horizontal.
6. The pelvis of the cat is similar to that of the dog but has a relatively larger obturator foramina.

COXO-FEMORAL ARTICULATION

Question: What are the characteristics of coxo-femoral articulation?

1. The coxo-femoral articulation is a ball and socket joint with the head of the femur fitting into acetabular fossa made deeper by the cotyloid ligament. This is a fibrous band circling the acetabular fossa.
 - i. The transverse ligament is that portion of the cotyloid ligament which crosses the acetabular notch.
 - ii. The round ligament extends from the sub-pubic groove in the acetabulum to the head of the femur and is intra-articular. In occasional cases the ligament may be small or absent.

Question: The increased frequency of hip joint dislocation in cow is due to what factors?

2. The increased frequency of hip joint dislocation in the cow is due to the:
 - i. Shallowness of the acetabulum,
 - ii. Lack of bulky muscle around the joint,
 - iii. The small or occasionally absent, round ligament,
 - iv. Absence of accessory ligaments as in the horse,
 - v. The awkward gait,
 - vi. Excessive relaxation of the pelvic ligaments in advance pregnancy and with cystic ovaries,
 - vii. The large size of the abdomen in advanced pregnancy, twin pregnancy and hydrops of fetal membranes.