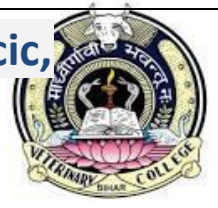




# Introduction to splanchnology, boundaries of thoracic, abdominal and pelvic cavities



## **Splanchnology:**

Study of the visceral organs of digestive, respiratory, urinary, endocrine, male and female reproductive systems.

## **Body cavities:**

Most of the viscera are contained in body cavities while some are embedded in tissues of head and neck. The three body cavities are thoracic, abdominal and pelvic, the abdominal cavity is the largest, the thoracic cavity is the second and the pelvic cavity is the smallest of the three body cavities. The wall of Thoracic, abdominal and pelvic cavities consists of skin, fascia, musculoskeletal layer and an internal layer of fasci and are lined by serous membranes known as parietal pleura in thoracic cavity and parietal peritoneum in abdominal and pelvic cavities.

## **Boundary of thoracic cavity:**

The thoracic cavity is in the form of a truncated cone, presents a roof, a floor, two lateral wall, an inlet and posterior wall. The thoracic cavity bounded dorsally by bodies of thoracic vertebrae form the roof, the lateral walls are formed by ribs, costal cartilages and intercostal muscles, ventrally by sternum and transversus thoracis muscle form the floor, anteriorly by thoracic inlet and posteriorly by diaphragm. The transverse diameter of the cavity is greatest between the 9<sup>th</sup> ribs (about 19 inches) and vertical diameter is more or less same.

**The thoracic inlet** is bound dorsally by first thoracic vertebra, laterally by first pair of ribs and ventrally by manubrium sterni. The height of inlet is 8 to 9 inches and width is 4 to 4.5 inches.

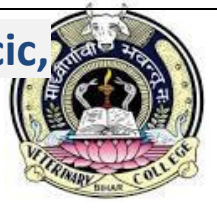
**The diaphragm** is an unpaired skeletal muscle forming the partition between thoracic and abdominal cavities.

## **Boundary of abdominal cavity:**

The abdominal cavity is the largest of the body cavities. It is ovoid in form and compressed laterally. It is bounded dorsally by bodies and transverse processes of



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lumbar vertebrae, crura of diaphragm and sub lumbar muscles, laterally by oblique and transverse abdominal muscles, ilia, iliacus muscle, parts of caudal ribs and cartilages of asternal ribs below the attachment of diaphragm, ventrally by rectus abdominis muscle, aponeuroses of obliquus and transverse abdominal muscles, linea alba and xiphoid cartilage, anteriorly by diaphragm and posteriorly it is continuous with pelvic cavity, the line of demarcation being pelvic inlet.

The walls of the abdominal cavity are pierced by five openings. Three of them are in diaphragm and two are inguinal canals.

### **Boundary of pelvic cavity:**

The pelvic cavity is the smallest of the three body cavities. It is bounded by sacrum and the first three caudal vertebrae dorsally and pubes and ischia ventrally and parts of ilia and sacrosciatic ligaments laterally. The pelvic inlet marked by the base of the sacrum above, brim of pubis below and iliopectineal lines laterally. The pelvic outlet is marked by 3<sup>rd</sup> caudal vertebra above, ischial arch below and the posterior borders of sacrosciatic ligaments laterally. It is closed by perineal fascia, anus and its muscles, root of penis in male and vulva in female.

The pelvic outlet can enlarge slightly during parturition while inlet cannot as it is totally osseous. Surrounding pelvis is gluteal, thigh and tail muscles which complete the wall of the pelvic cavity.