

# AGA 2110

**BODY CAVITIES**

# TERMINOLOGY

- ❑ **Pleura** - A pleura is a serous membrane that line the lungs and the wall of the thorax
- ❑ **Pleura cavity** – space between the two layers of the pleura
- ❑ Mediastinum
- ❑ **Peritoneum** - A serous membrane lining the cavity of the abdomen and covering the abdominal organs.
- ❑ **Pericardium** – Membrane that surround the heart

# INTRODUCTION

- ❑ A body cavity is a hole or hollow space within the body that protects internal organs.
- ❑ A body cavity is a fluid-filled space inside the body that holds and protects internal organs.
- ❑ Animal body cavities are separated by membranes and other structures.

RECAP

# BODY CAVITIES

□ The animal's body has two main body cavities (spaces)

a. The dorsal cavity - small

b. The ventral cavity – big

These two body cavities are subdivided into smaller body cavities

# BODY CAVITIES

## DORSAL BODY CAVITY

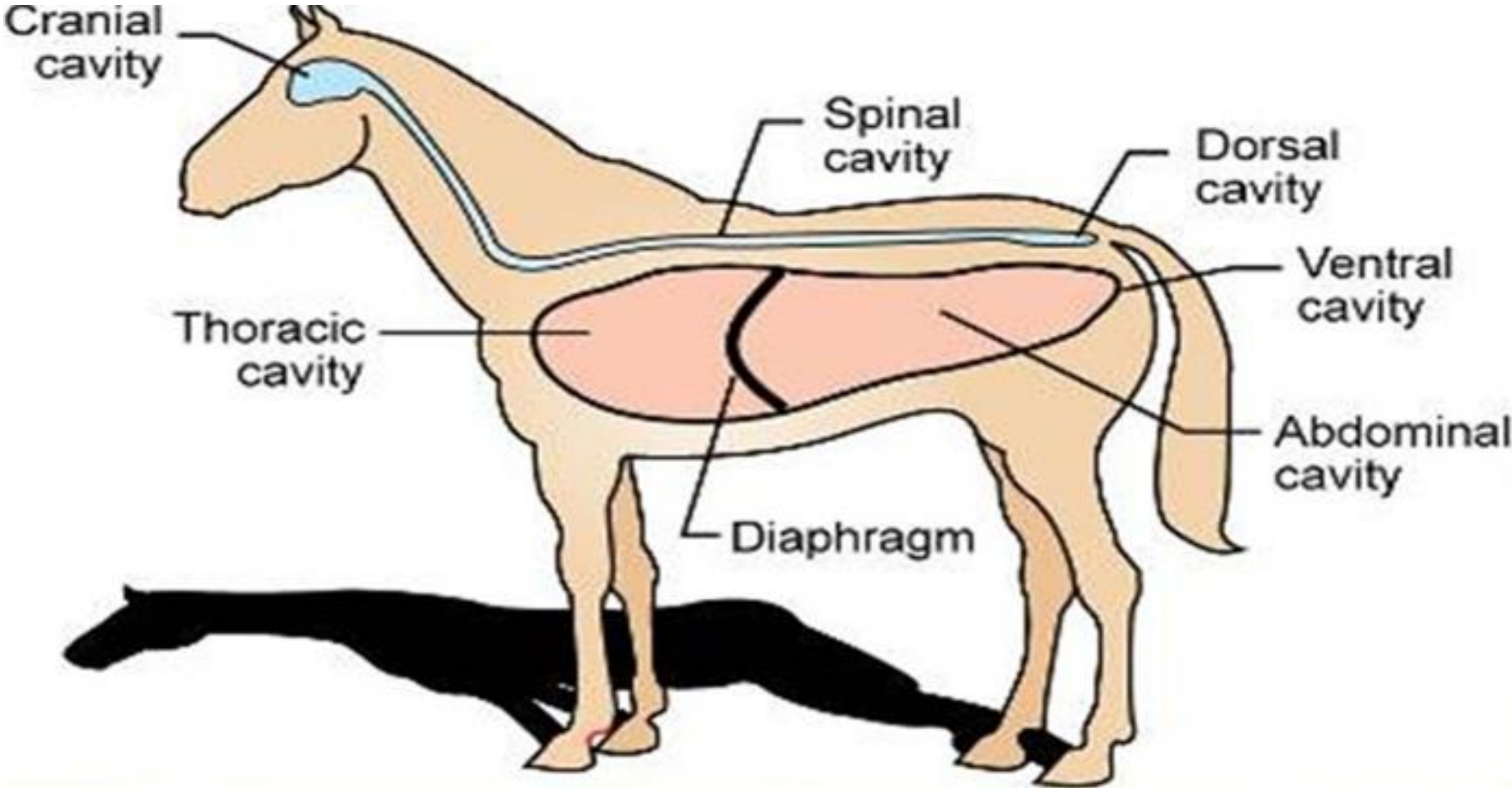
- It consists of two parts:
  - i. **cranial cavity** - brain
  - ii. **spinal cavity** - spine cord

The cranial cavity is also known as the **cranium**. It is formed from several bones of the skull. It houses and protects the brain.

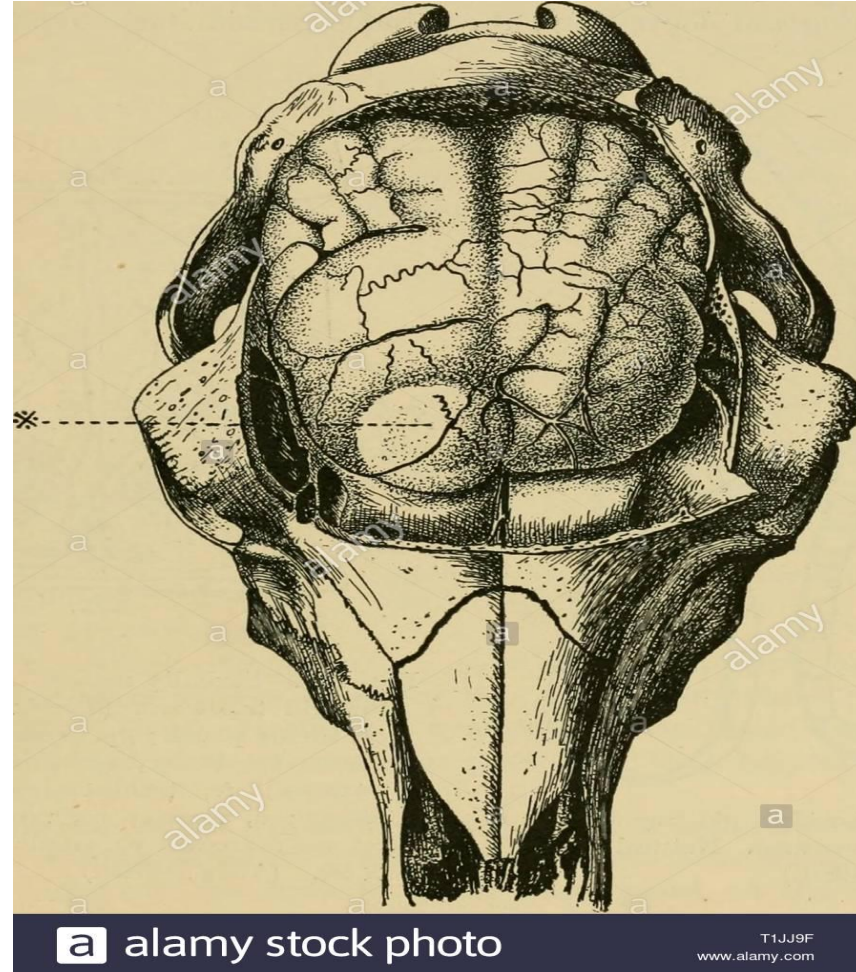
# BODY CAVITIES

- Cranial cavity is in the head
- Spinal cavity is the spinal column
- Thoracic cavity is the chest cavity
- Abdominal cavity is the between the diaphragm and pelvis
- Pelvic cavity is in the pelvis

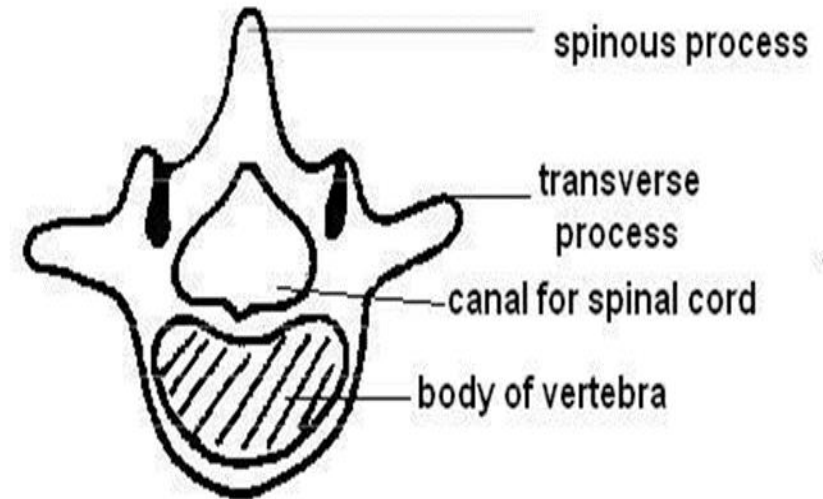
# BODY CAVITIES



# CRANIAL CAVITY



# CRANIAL AND SPINAL CAVITIES



# CRANIAL CAVITY



# BODY CAVITIES

## THE VENTRAL BODY CAVITY

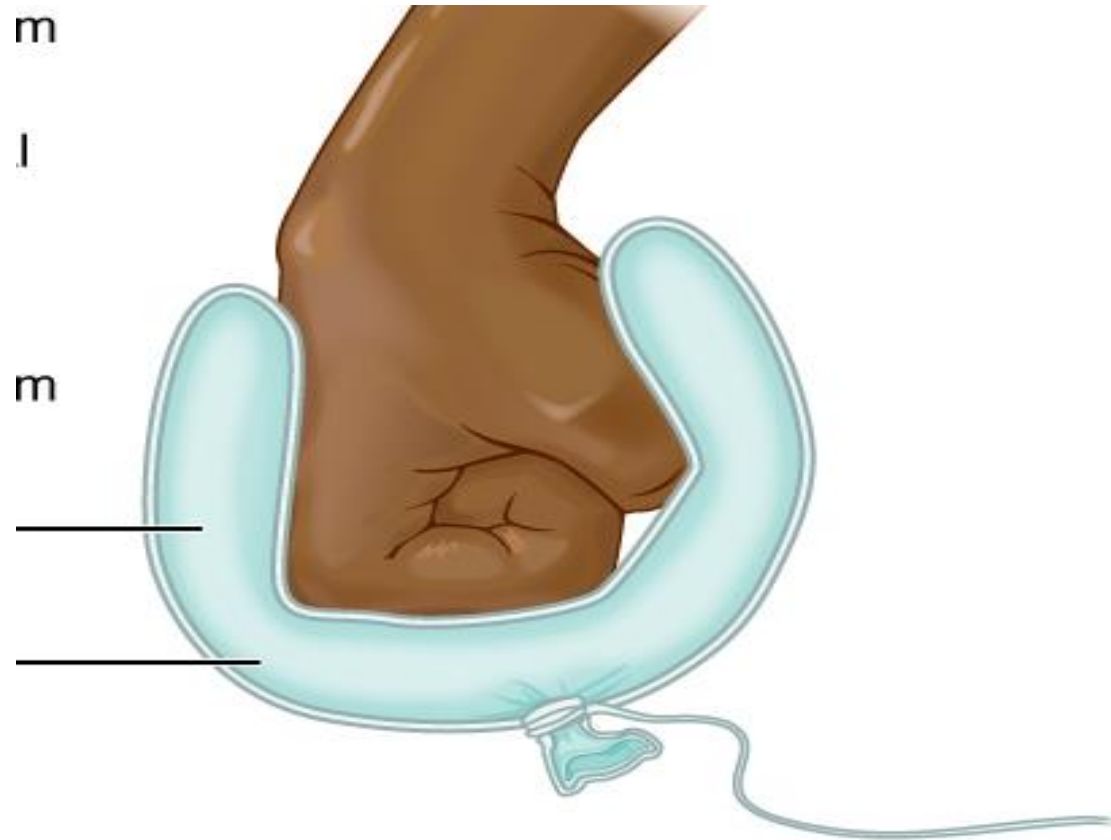
- ❑ Is much larger than the dorsal one.
- ❑ It contains most of the soft organs (viscera) of the body.
- ❑ It is divided by the thin diaphragm muscle into;
  - i. Thoracic cavity, known as the thorax or chest,
  - ii. Abdominal cavity, also known as the abdomen.
  - iii. Pelvic cavity

# BODY CAVITIES

## THE VENTRAL BODY CAVITY

- ❑ **Thoracic cavity** - heart, lungs, esophagus & many major blood vessels coming to & going from the heart
- ❑ **Abdominal cavity** - contains the digestive organs, kidneys, ureters, stomach, intestines, liver, gallbladder, and pancreas
- ❑ **Pelvic cavity** – Urinary organs & reproductive organs (bladder, anus and reproductive organs)

# MEMBRANES THAT LINE THE CAVITIES



# MEMBRANES THAT LINE THE CAVITIES

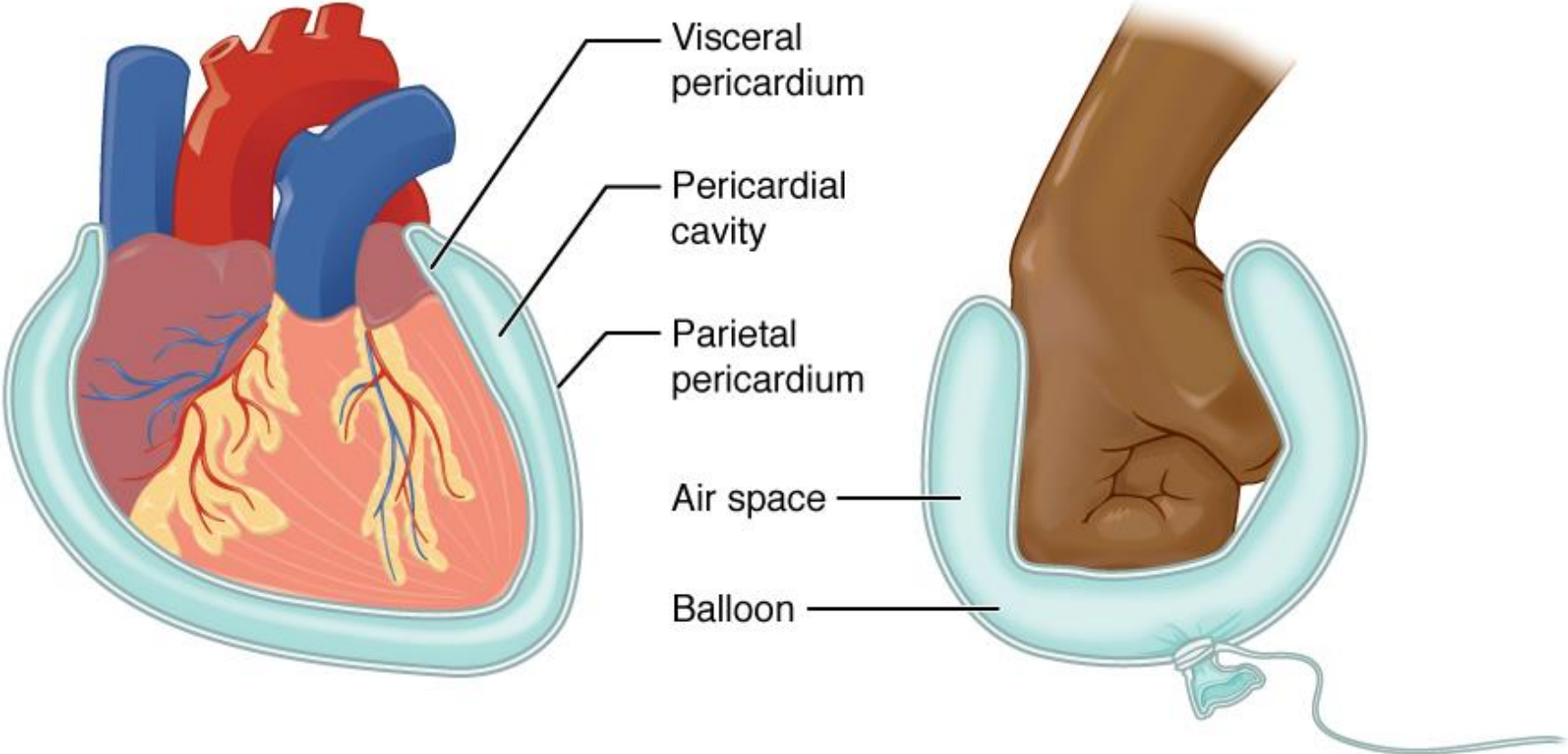
- ❑ This sac consists of two thin layers.
- ❑ Normally, there is a small amount of fluid between them (**serous fluid**)
- ❑ The fluid reduces friction between the two layers as they rub against each (**fluid is a lubricant**)

# INTESTINES LINED BY SEROUS MEMBRANE

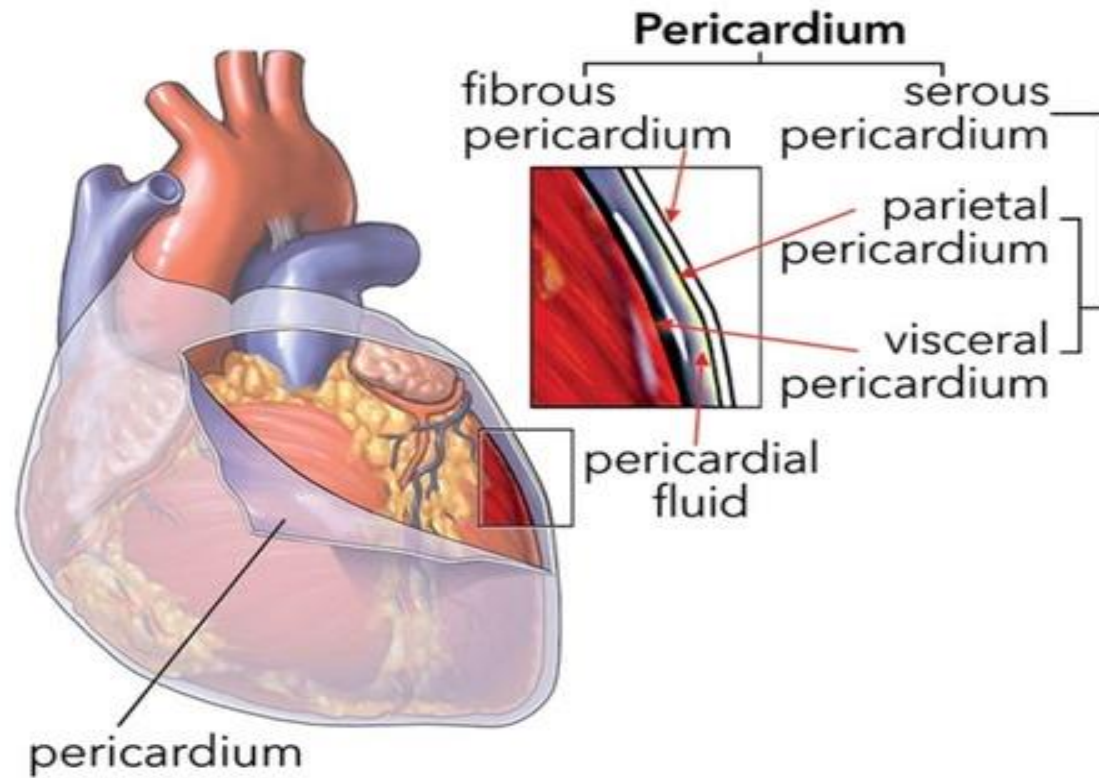


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# MEMBRANES THAT LINE THE CAVITIES



# PERICARDIAL CAVITY



# MEMBRANES THAT LINE THE CAVITIES

## THE THORACIC CAVITY

- ❑ The thoracic cavity is divided into two **lateral chambers**.
- ❑ Each chamber is lined by a **serous membrane** called the **pleura**, and is termed a pleural cavity.
- ❑ The right and left lungs occupy their respective cavity and are enveloped by a membrane called **pleura**
- ❑ **The pleura cavity allows lungs to expand and avoid friction with the ribs and diaphragm as it reaches capacity.**

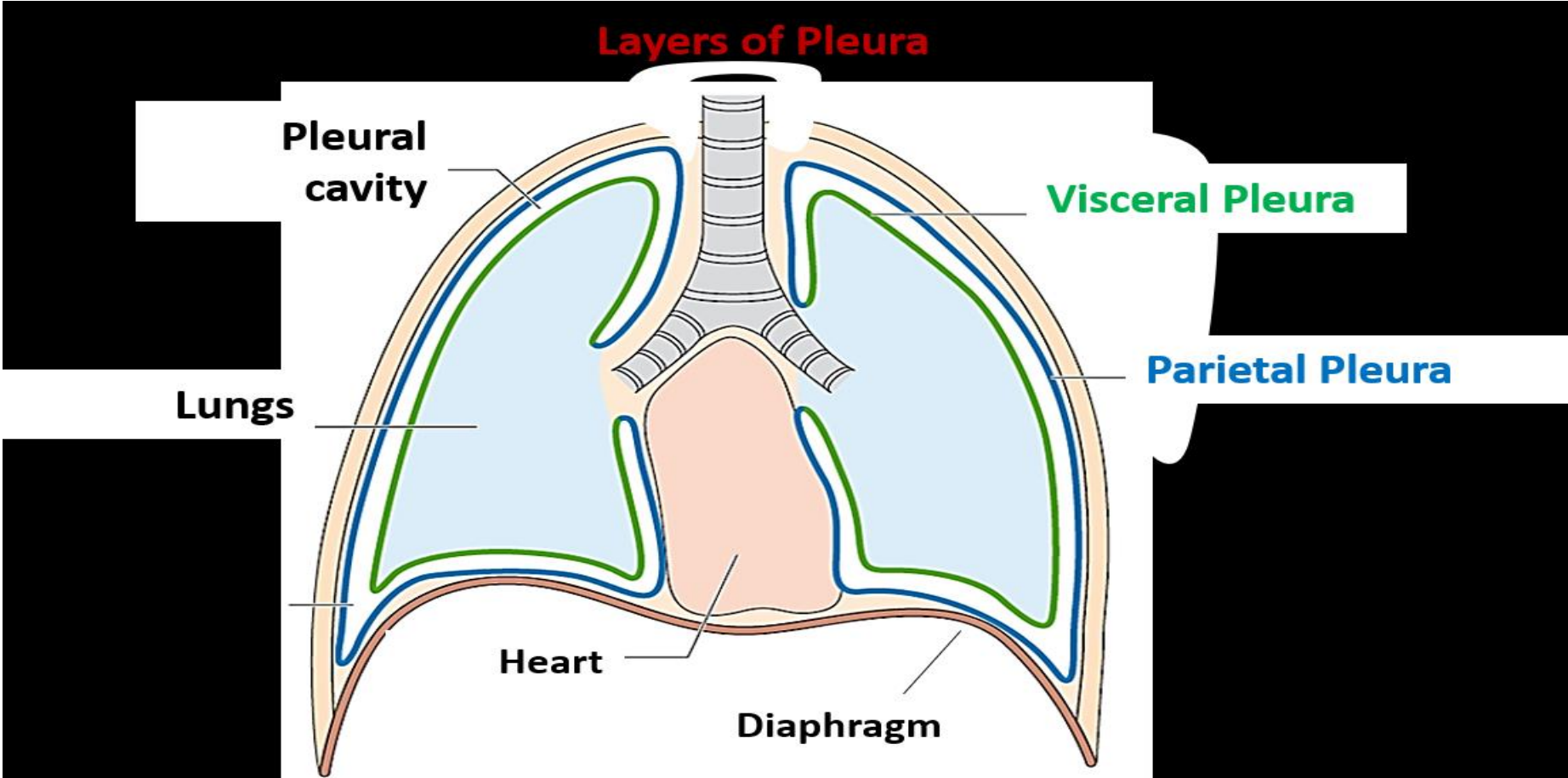
# MEDIASTINUM

- The central part of the thoracic cavity ie space between two pleural ...

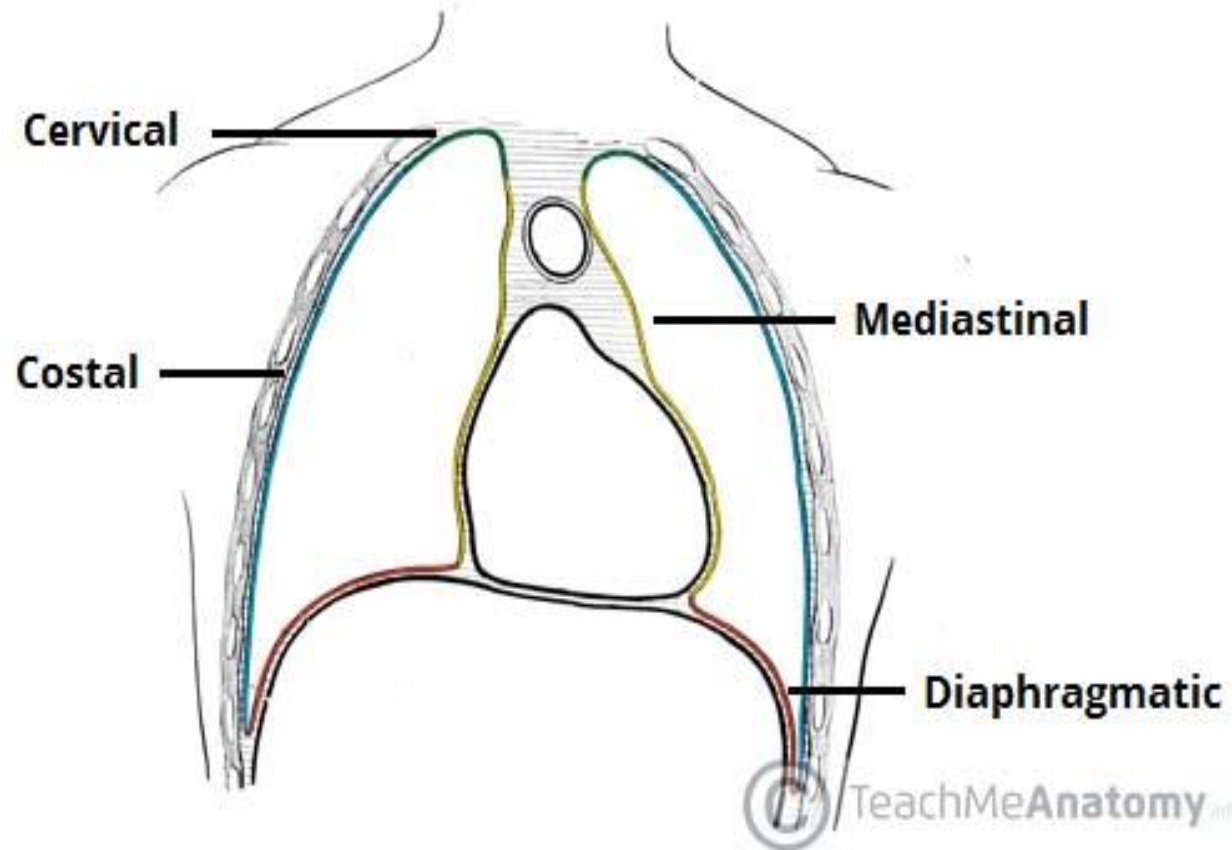
## STRUCTURES FOUND IN MEDIASTINUM

Heart, Pericardium, Aorta, Trachea, bronchi, Lymph nodes, Pulmonary artery.

# LAYERS OF THE PLEURA MEMBRANE



# LAYERS OF THE PLEURA MEMBRANE



# THE LUNGS AND PLEURA CAVITY

Diagram of the Pleural Cavities

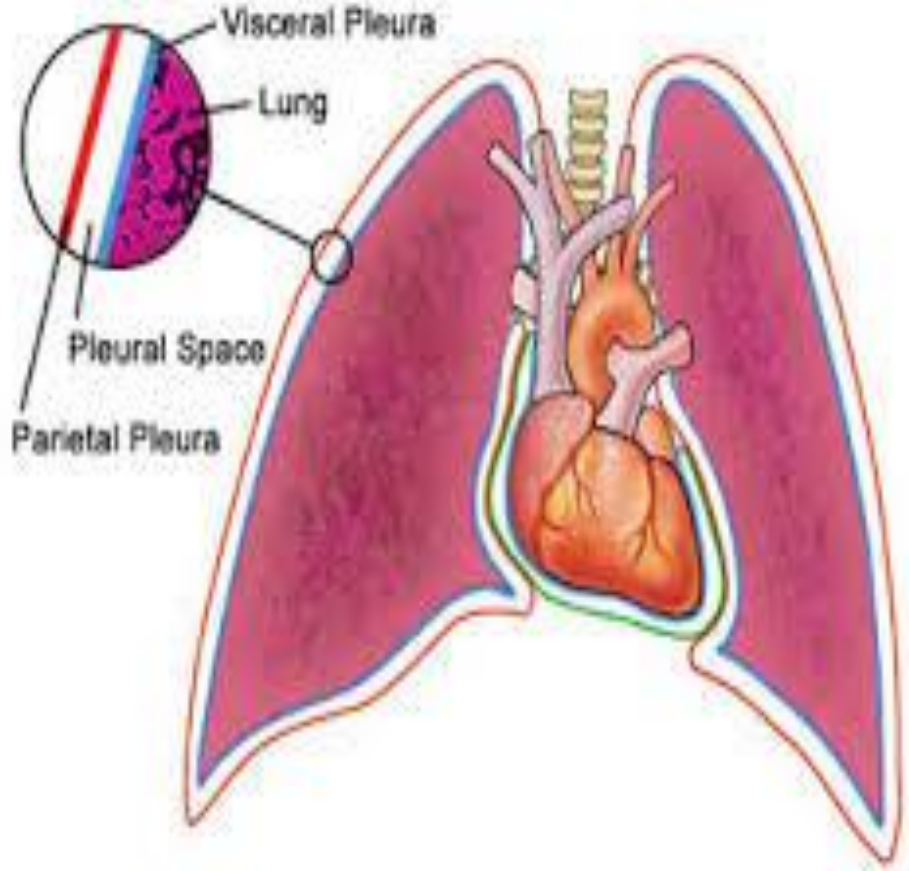
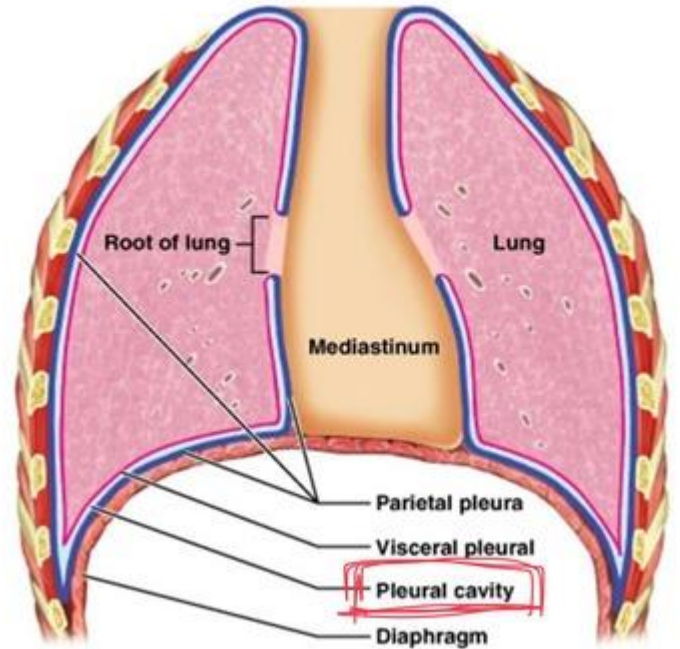
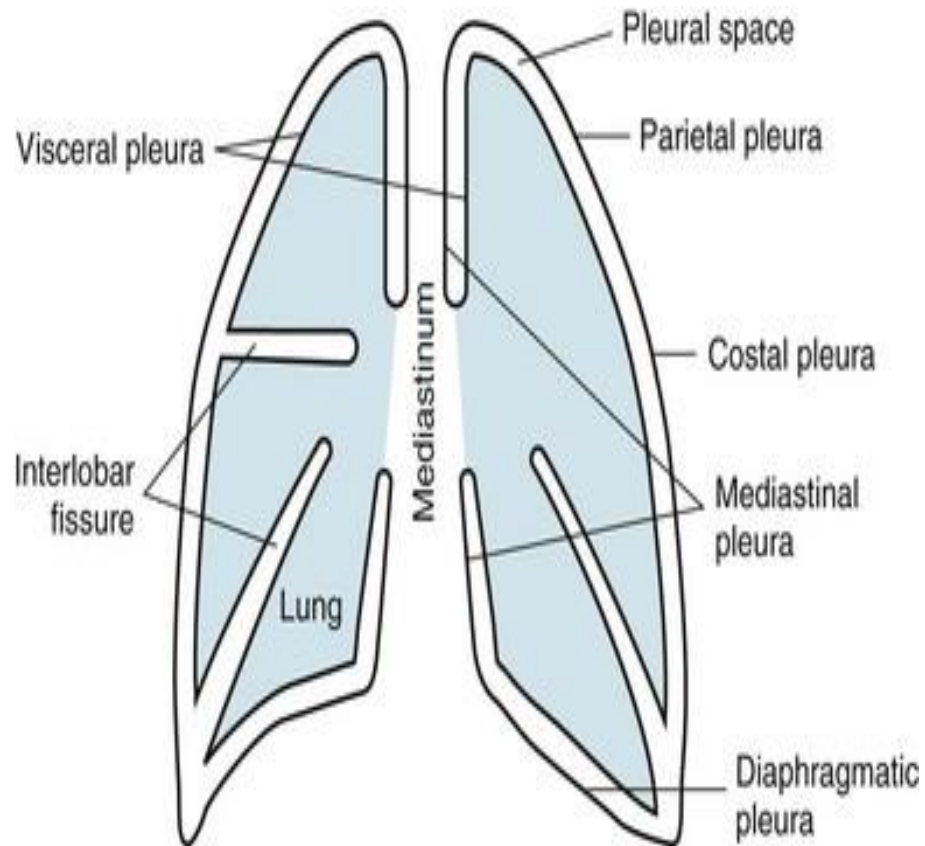


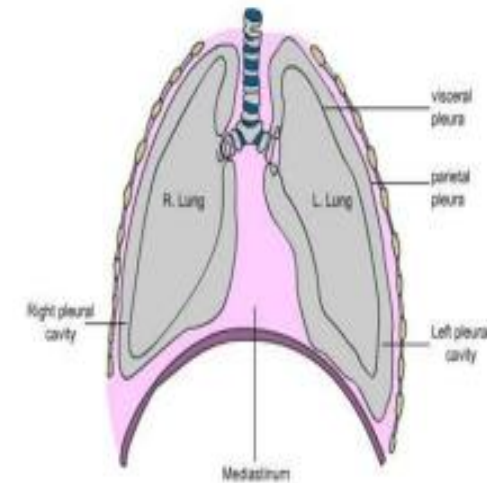
Figure 21.11

# LAYERS OF THE PLEURA MEMBRANE



## Pleura types

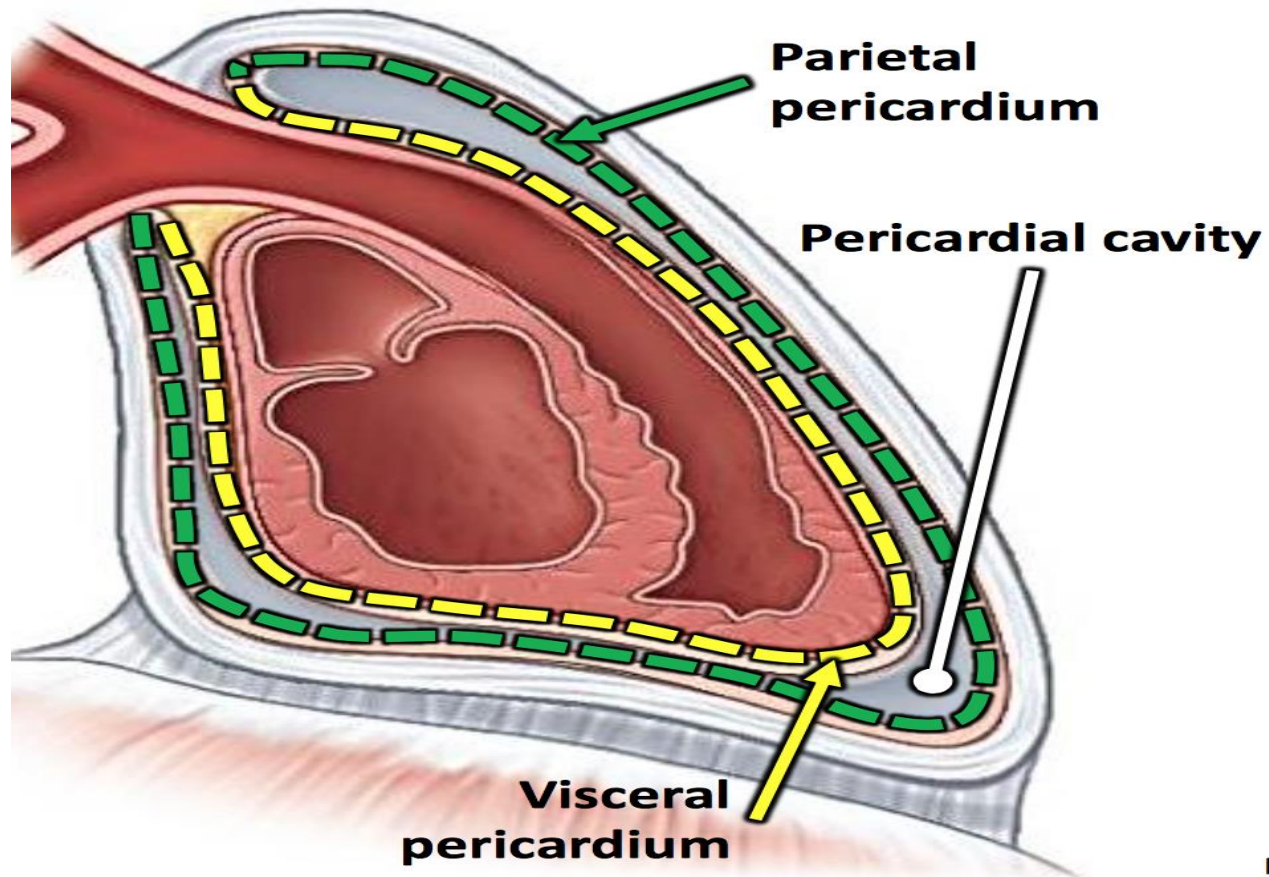
- There are **two types** of pleura :
  - \* **visceral** pleura
  - \* **parietal** pleura
- The parietal pleura is **subdivided into**
  - \* mediastinal pleura
  - \* costal pleura
  - \* diaphragmatic pleura
  - \* cervical pleura



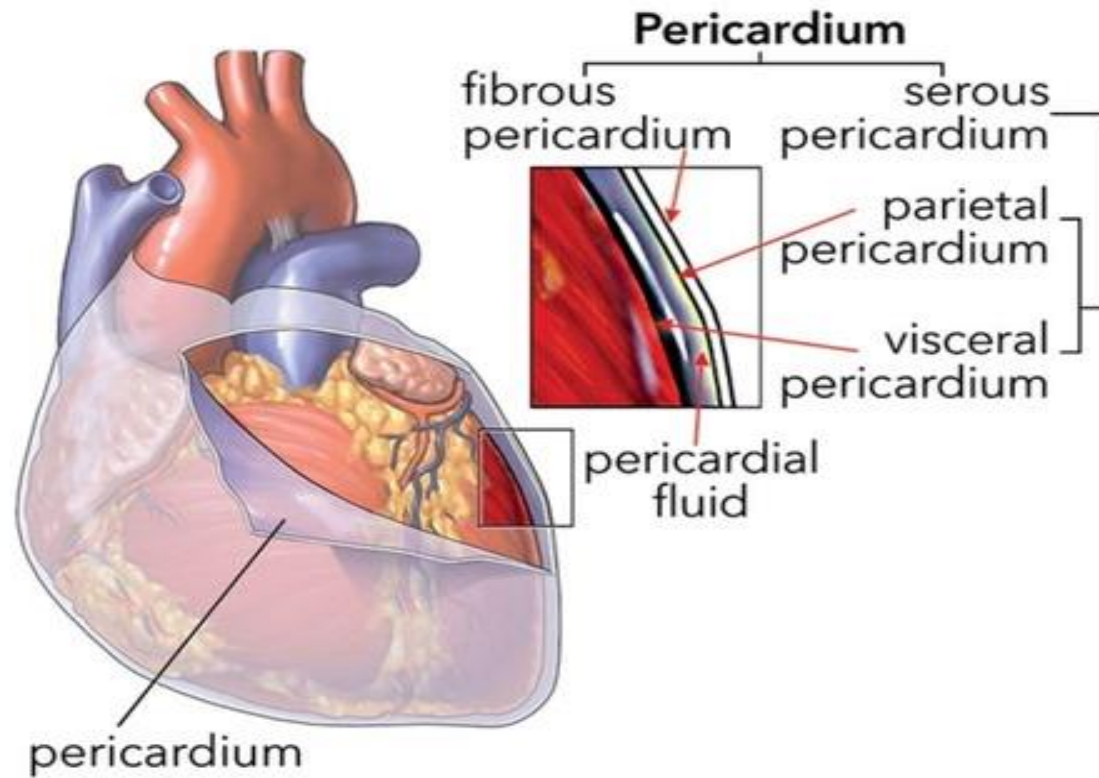
# THE HEART

- ❑ The heart is further protected by the pericardial cavity
- ❑ The pericardium is similar to the peritoneum of the ventral body cavity, except it protects the heart.
- ❑ These different layers have fluids between them which act like lubricants, ensuring the heart pumps without friction.

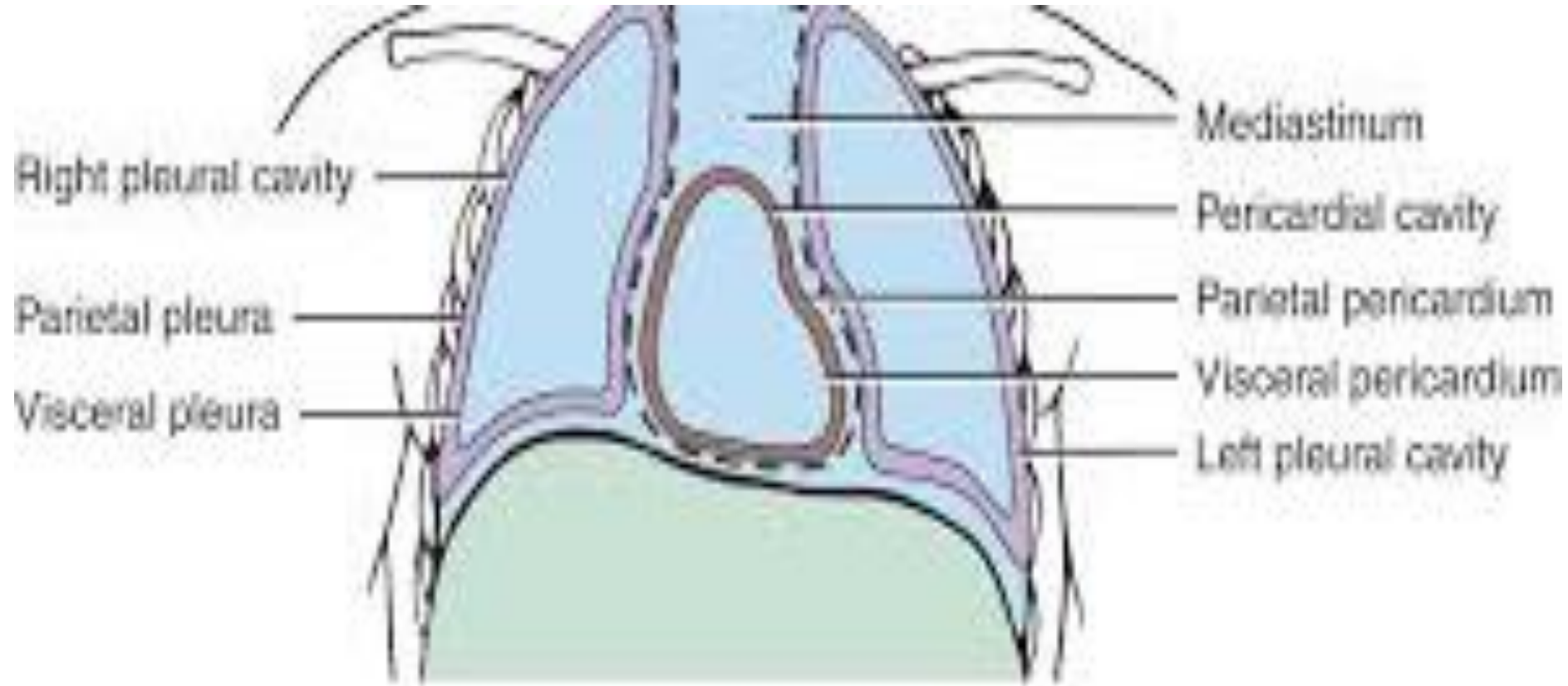
# PERICARDIAL CAVITY



# PERICARDIAL CAVITY



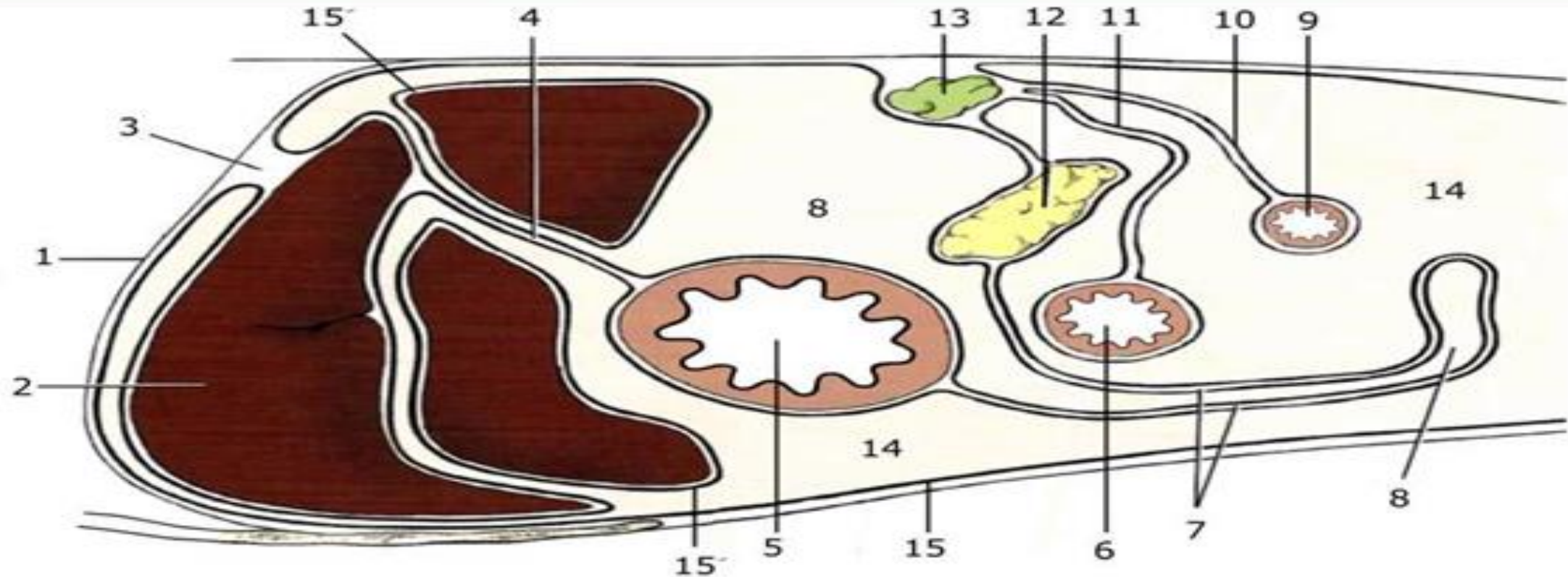
# PLEURA AND PERICARDIAL CAVITIES



# ABDOMINAL CAVITY

- ❑ The abdominal cavity contains the kidneys, most of the digestive organs, and parts of the internal reproductive organs in both sexes.
- ❑ The pelvic cavity contains;
  - the rectum ( last part of GIT)
  - the internal parts of the urogenital system
- ❑ A serous membrane similar to that surrounding the heart & lungs is also found in the abdominopelvic cavity and is known as peritoneum.

# Arrangement of peritoneum



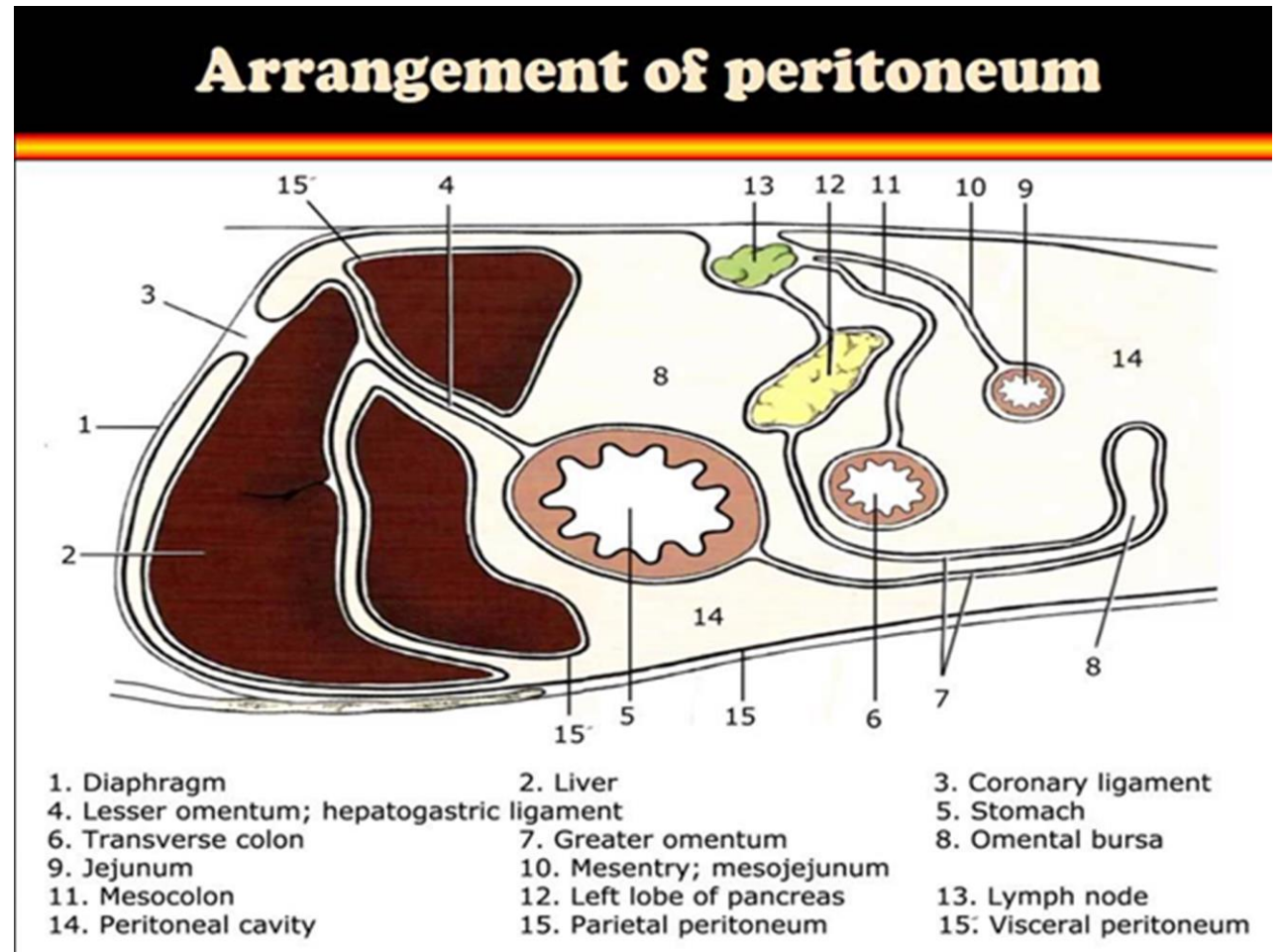
- |   |                         |                            |
|---|-------------------------|----------------------------|
| 1. Diaphragm                              | 2. Liver                | 3. Coronary ligament       |
| 4. Lesser omentum; hepatogastric ligament | 7. Greater omentum      | 5. Stomach                 |
| 6. Transverse colon                       | 8. Omental bursa        | 10. Mesentery; mesojejunum |
| 9. Jejunum                                | 11. Mesocolon           | 12. Left lobe of pancreas  |
| 14. Peritoneal cavity                     | 13. Lymph node          | 15. Parietal peritoneum    |
|   | 15. Visceral peritoneum |                            |

# ARRANGEMENT OF THE PERITONEUM

- ❑ The abdomen contains the digestive, urinary & reproductive organs
- ❑ The cavity & its contents are lined by a thin membrane called the peritoneum
- ❑ The **visceral layer of peritoneum** covers the abdominal organs
- ❑ The **parietal layer** lines the abdominal cavity.
- ❑ A potential space filled with **peritoneal fluid** separates the two layers.
- ❑ The **peritoneal cavity** is a potential space between the parietal and visceral peritoneum

# MESENTERY, OMENTUM & LIGAMENTS

- ❑ **Peritoneum** lines the abdominal cavity & extends into the pelvic cavity
- ❑ Abdominal organs are suspended in the abdominal cavity, they are suspended from the abdominal wall **using peritoneal folds**



# MESENTERY, OMENTUM & LIGAMENTS

- ❑ The connecting folds are termed **mesenteries, omenta & ligaments**.
- ❑ They are a double layer of the visceral peritoneum
- ❑ They contain a varying amount of connective tissue, fat, & lymph glands, and provide a pathway for vessels & nerves of the organs
- ❑ This double layer of visceral peritoneum is called different names according to the organ it attaches to

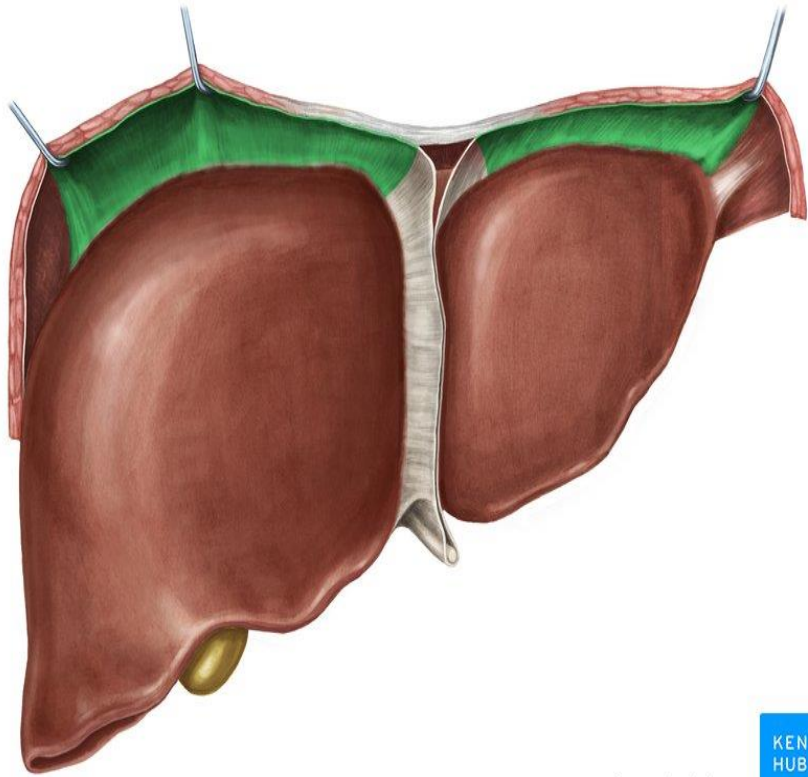
# PERITONEAL FOLDS

**MESENTERY** - attaches the intestines to the body wall

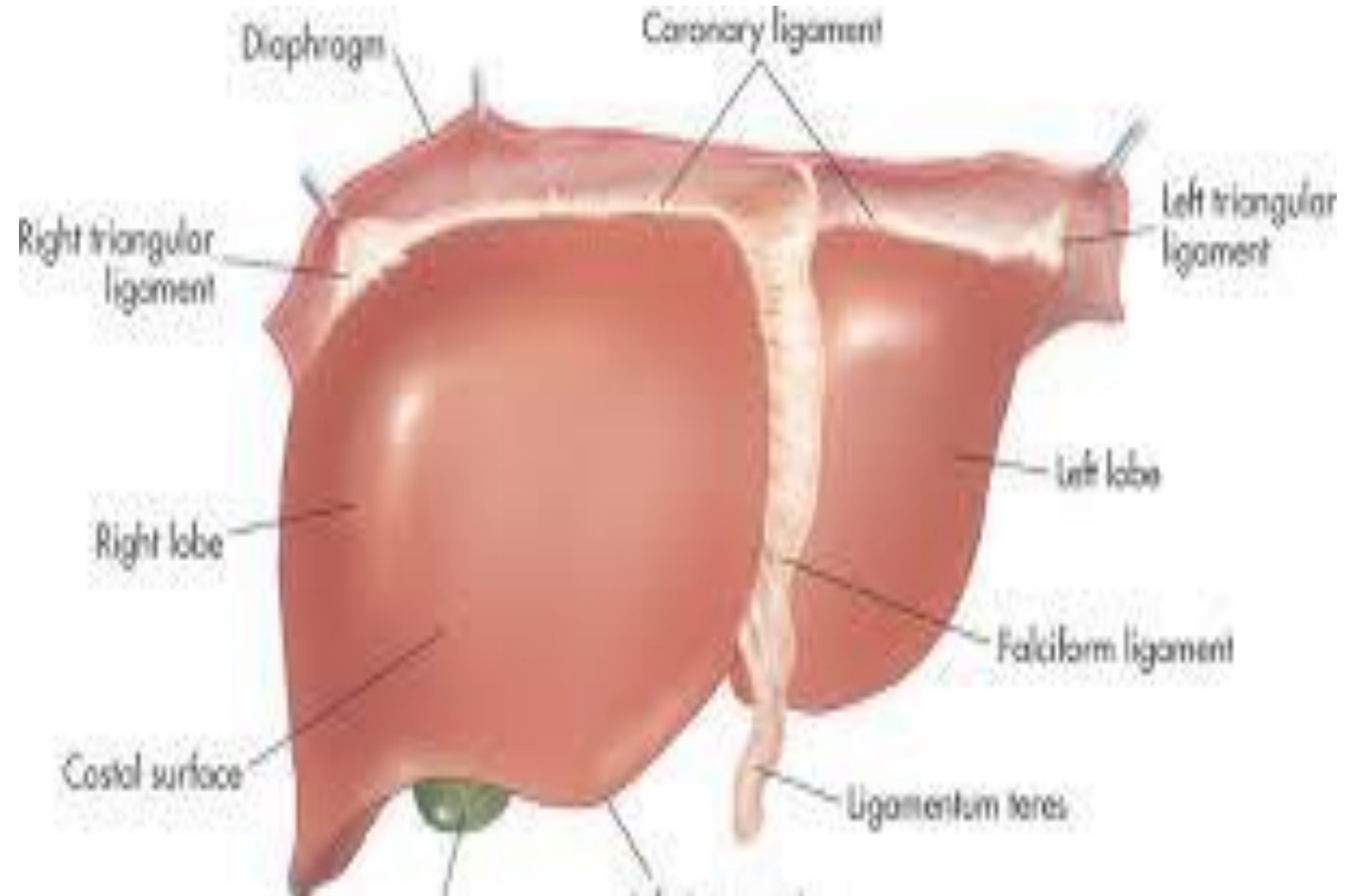
**OMENTUM** – attaches the stomach to the body wall

**CORONARY LIGAMENT** – Attaches the liver to the diaphragm

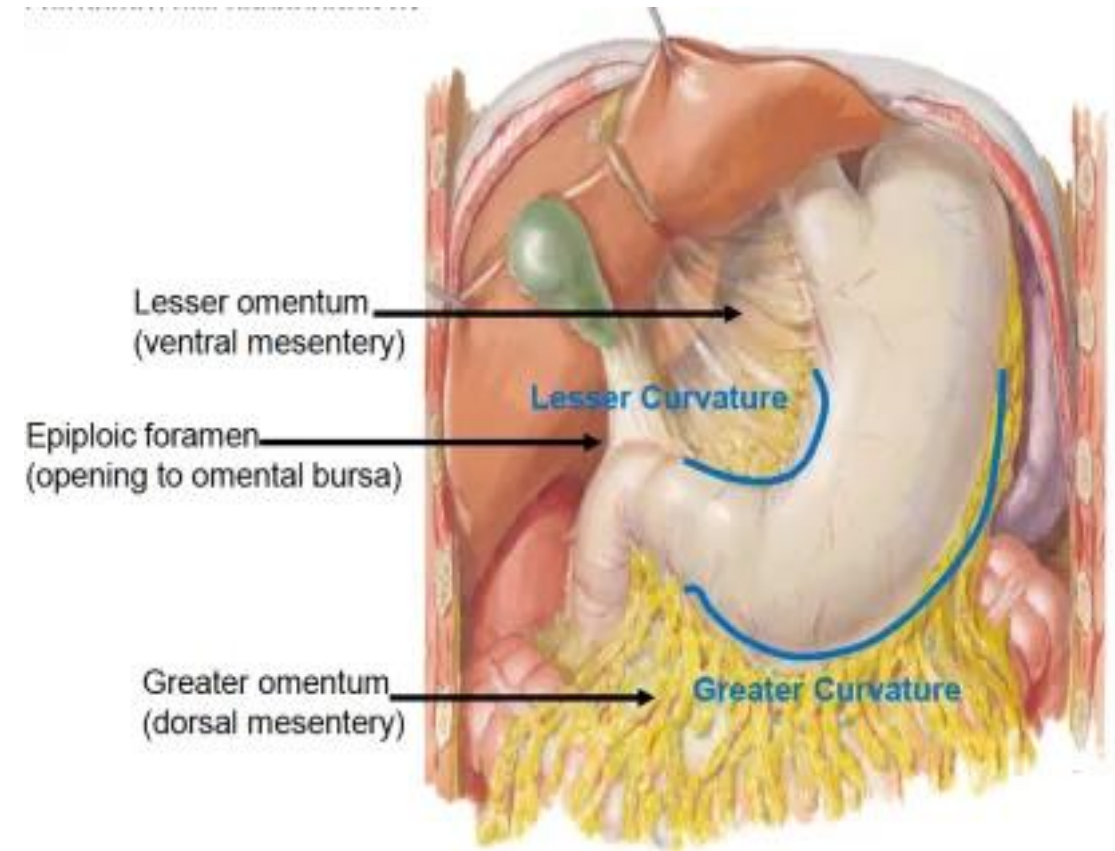
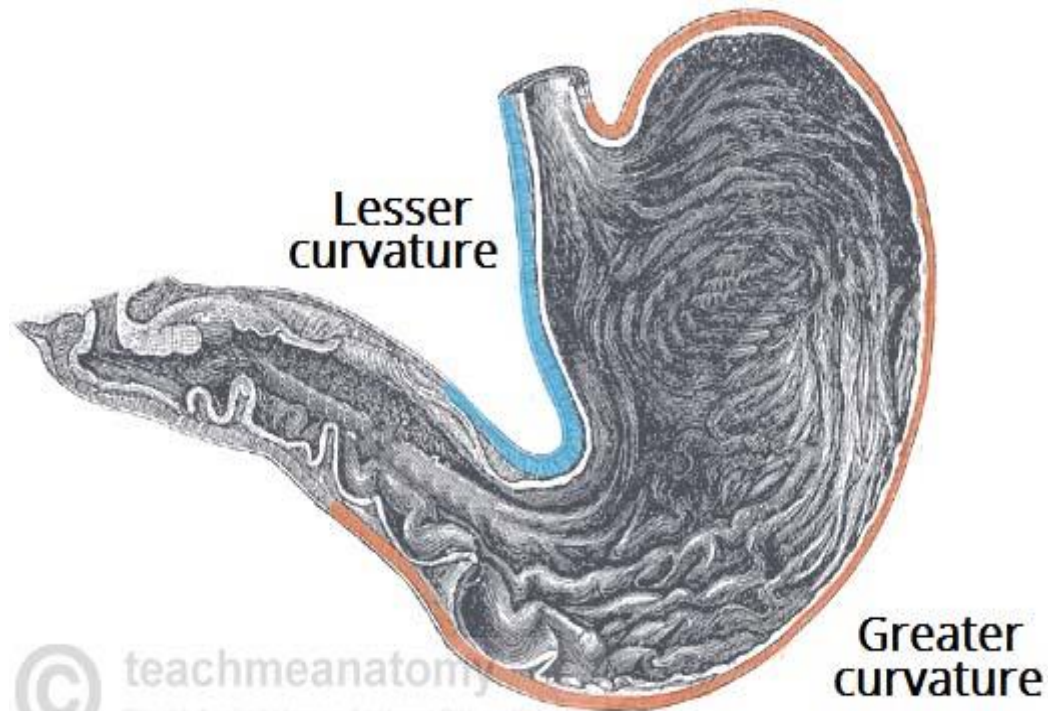
# POSITION OF CORONARY LIGAMENT



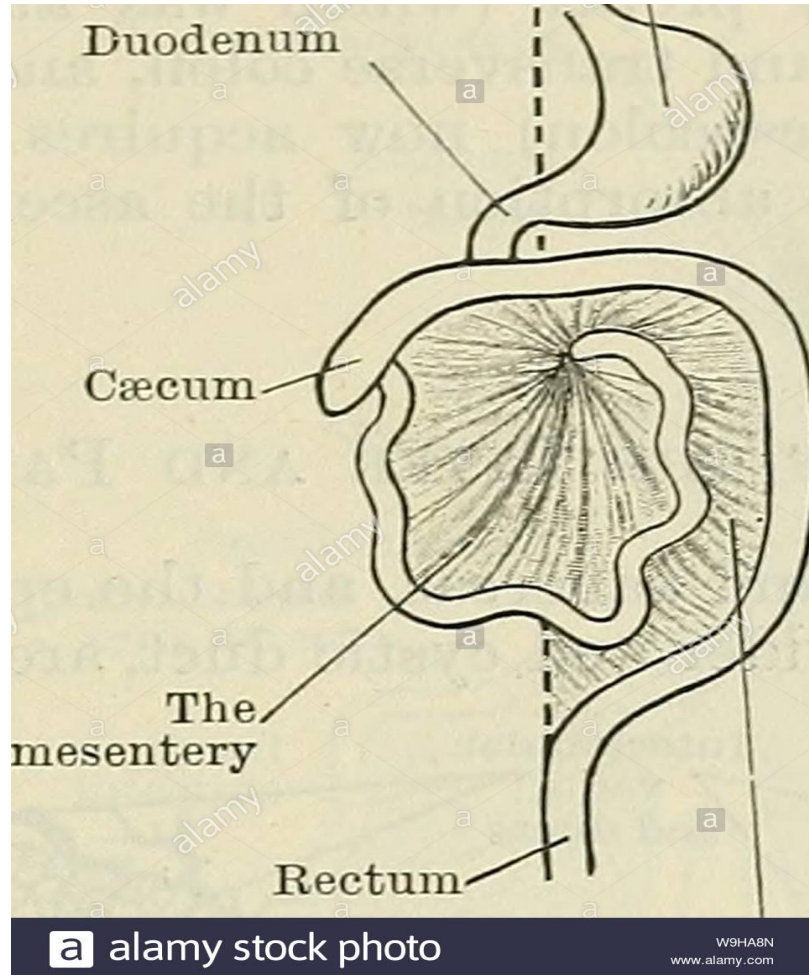
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# GREATER AND LESSER OMENTUM



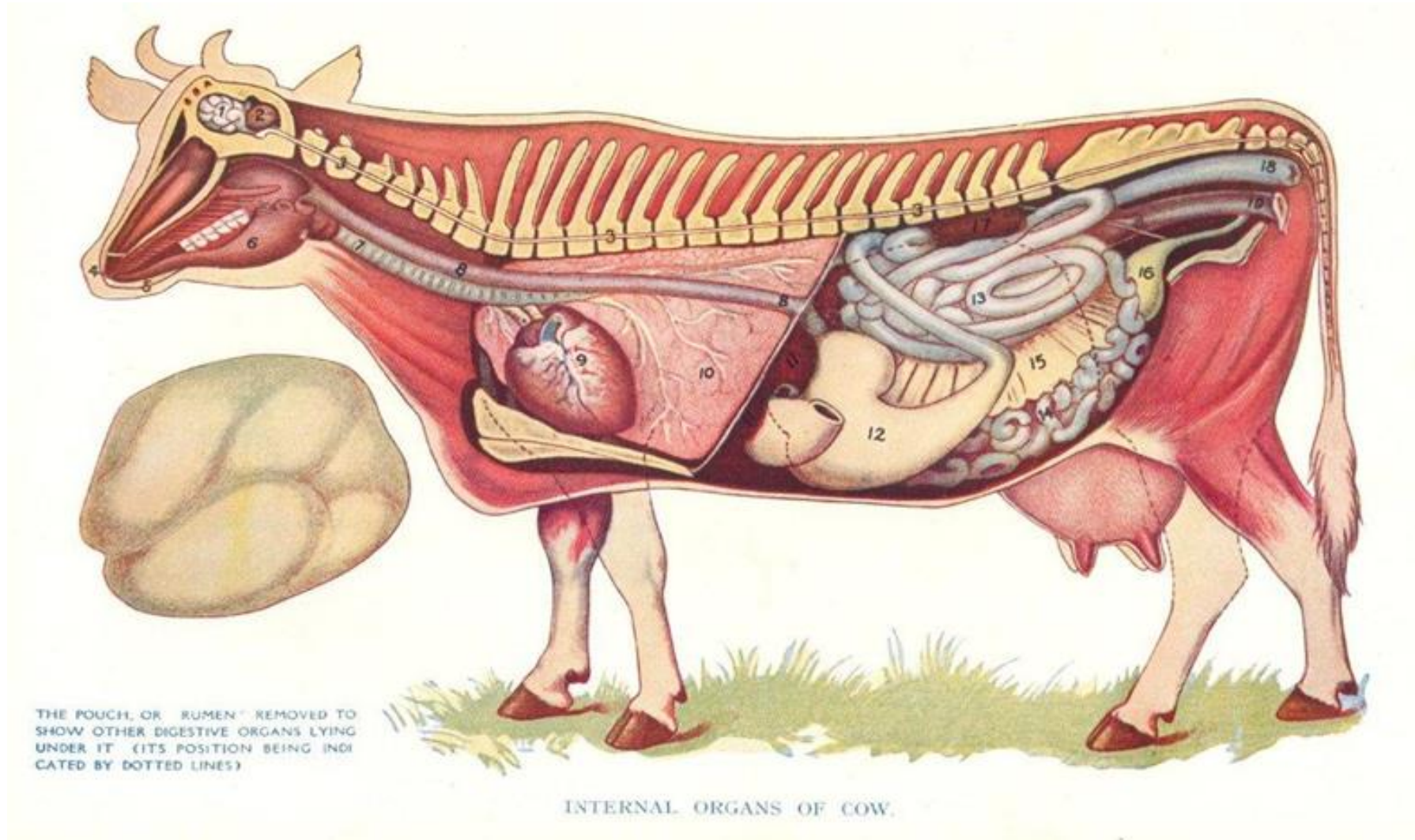
# MESENTERY (AREOLAR CONNECTIVE TISSUE)



# IMPORTANCE OF THE CAVITIES

- i. Contain and protect delicate organs
- ii. Provides more room for organ development
- iii. Provides more surface area for diffusion of gases, nutrients, and wastes into and out of organs
- iv. Provides an area for storage
- v. Facilitates increased body size
- vi. To allow organs to change in size & shape as they perform their functions.
- vii. Prevent adhesions among organs to move relative to one another

# summary



# Summary – other cavities

