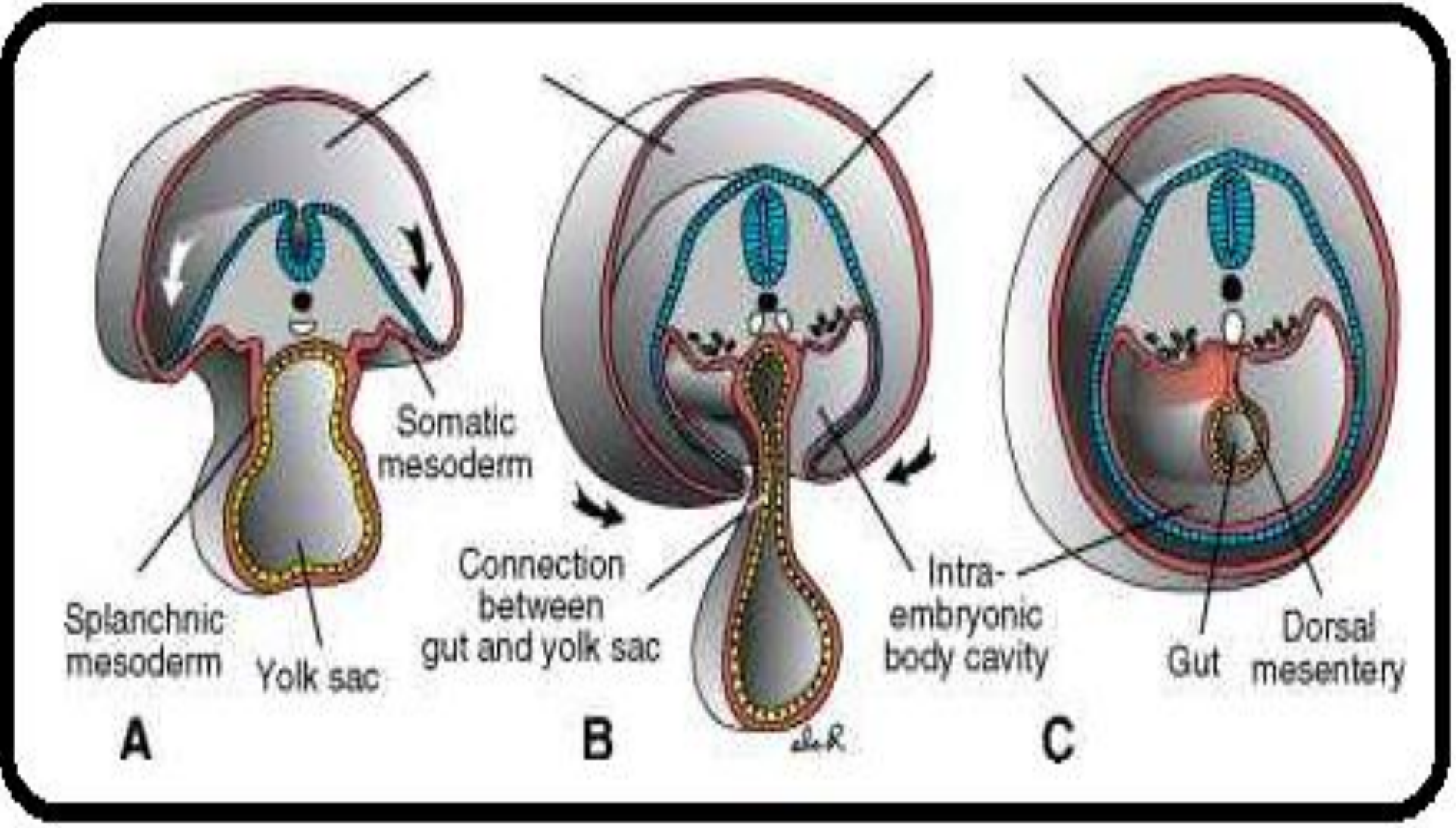

بسم الله الرحمن الرحيم

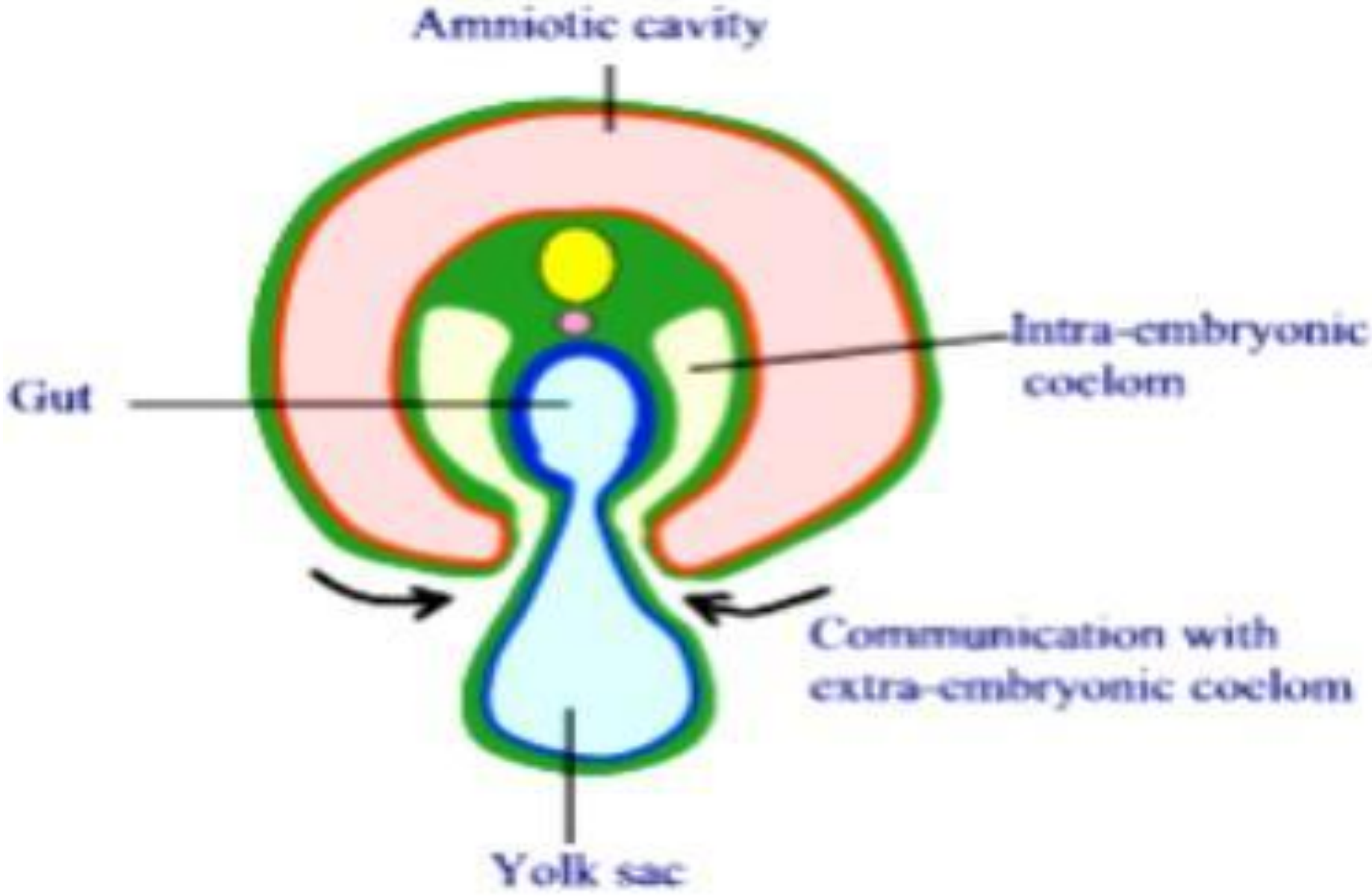
1. Folding of embryonic disc

- During 4th week a significant event in the establishment of body-form is folding.
- Folding converts flat trilaminar embryonic disc into a cylindrical embryo.
- Folding occurs in both **longitudinal** and **transverse** planes. • The longitudinal and transverse foldings occur simultaneously.

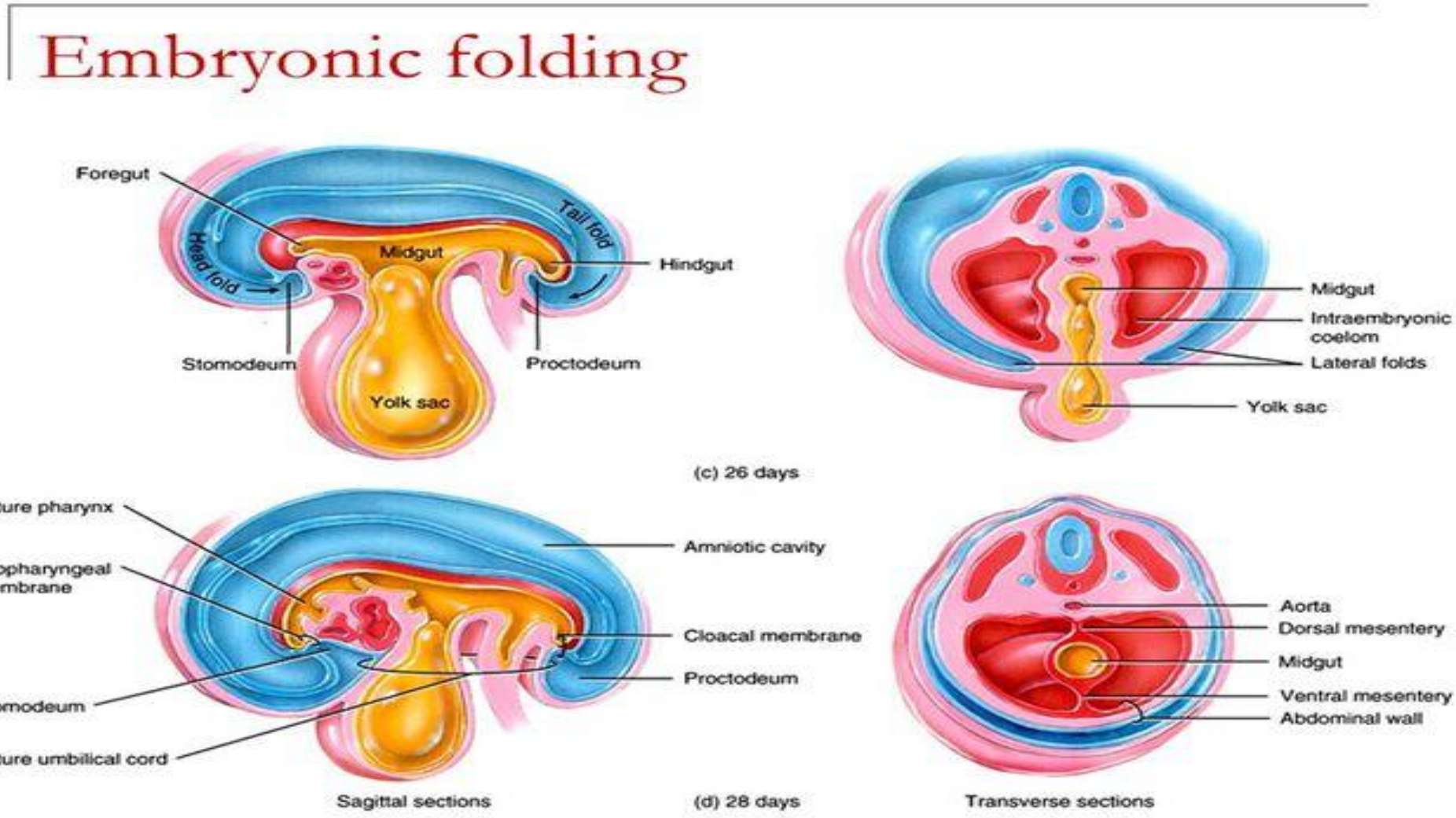
Result of transverse folding the gut is separated from yolk sac. It also narrows the umbilical ring. Help in formation of Ventral body.



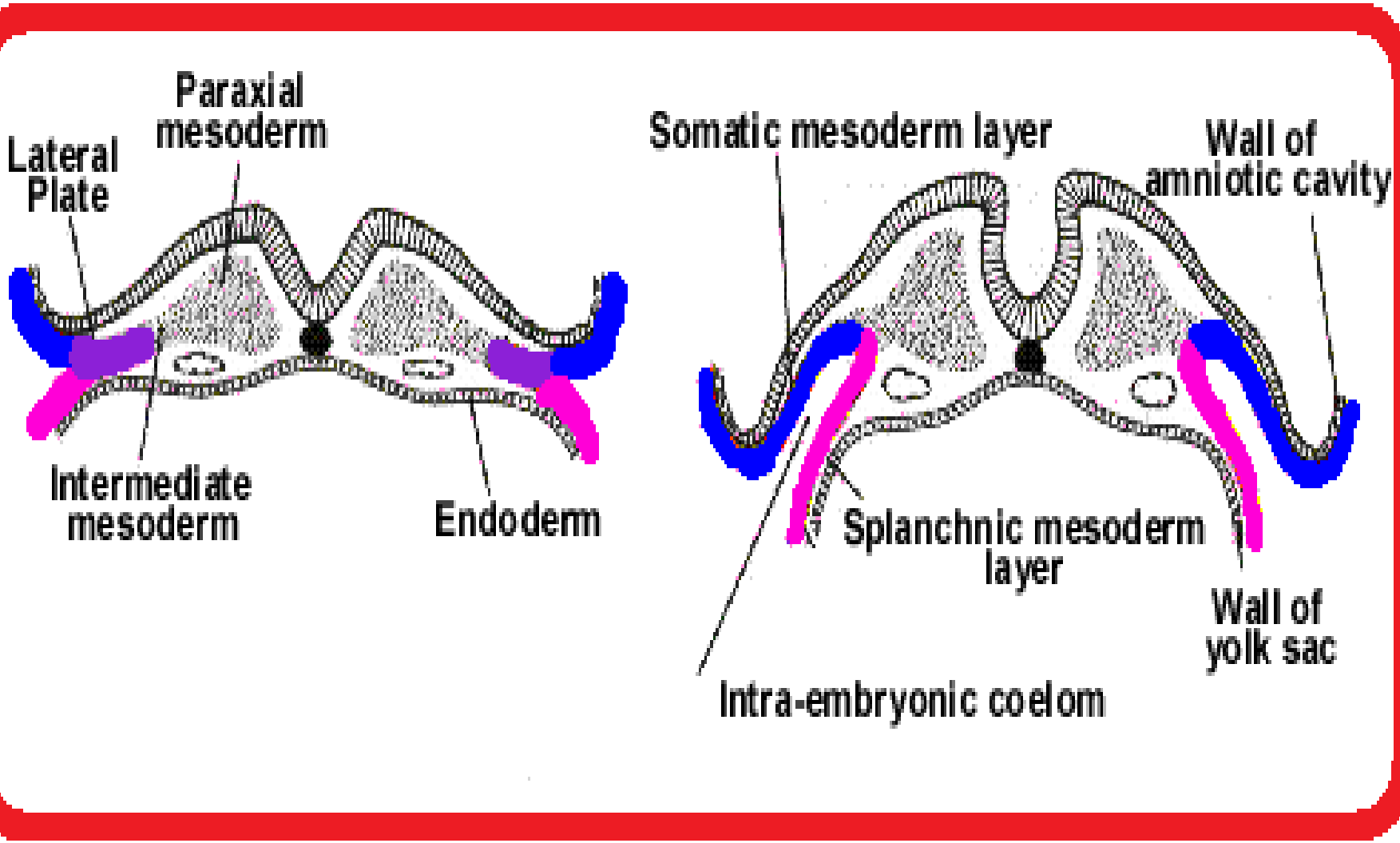
Lateral or transverse folding of embryo.



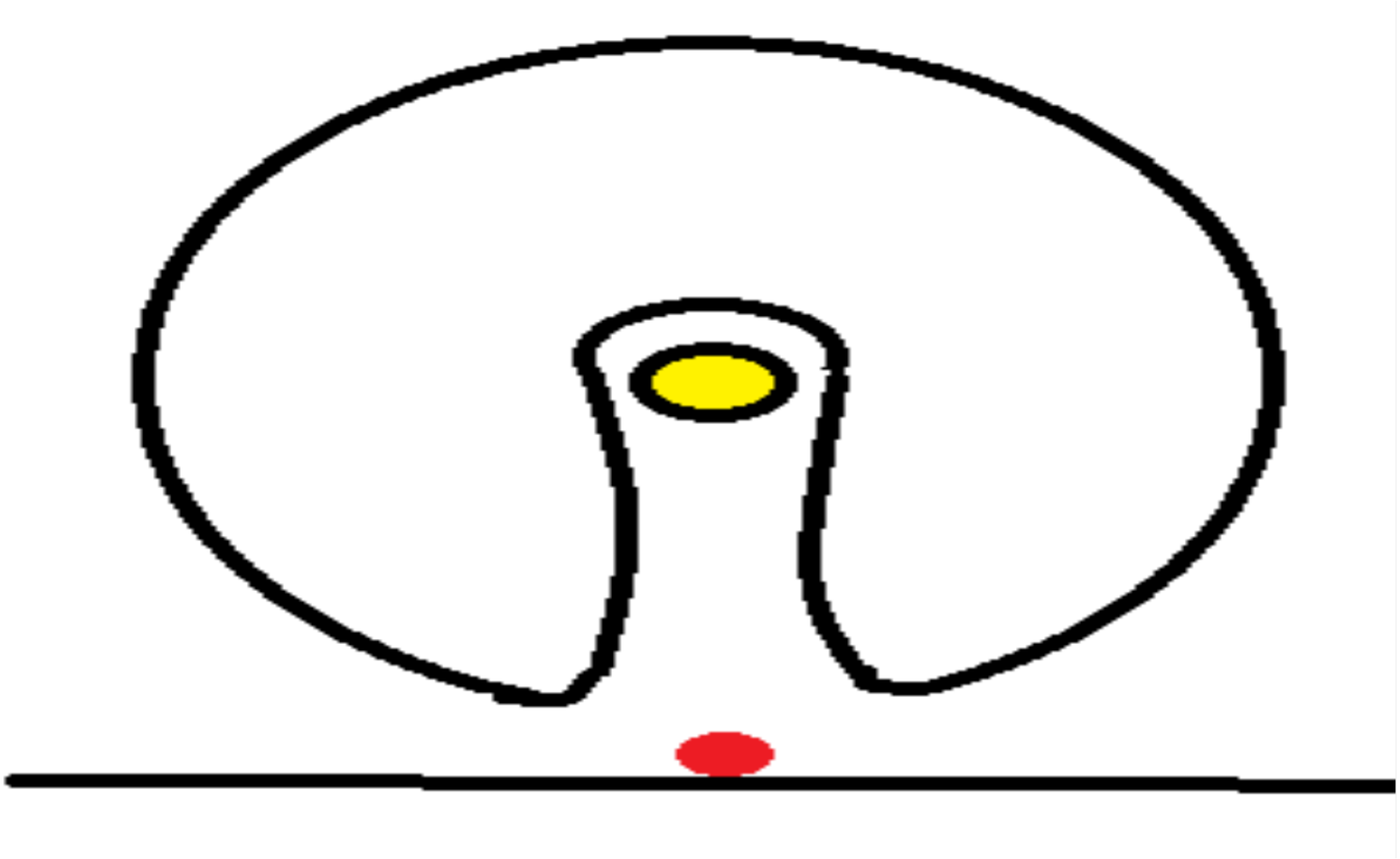
The longitudinal folding is due to rapid growth of CNS. It pushes the pericardial cavity and diaphragm proximally and ventrally.



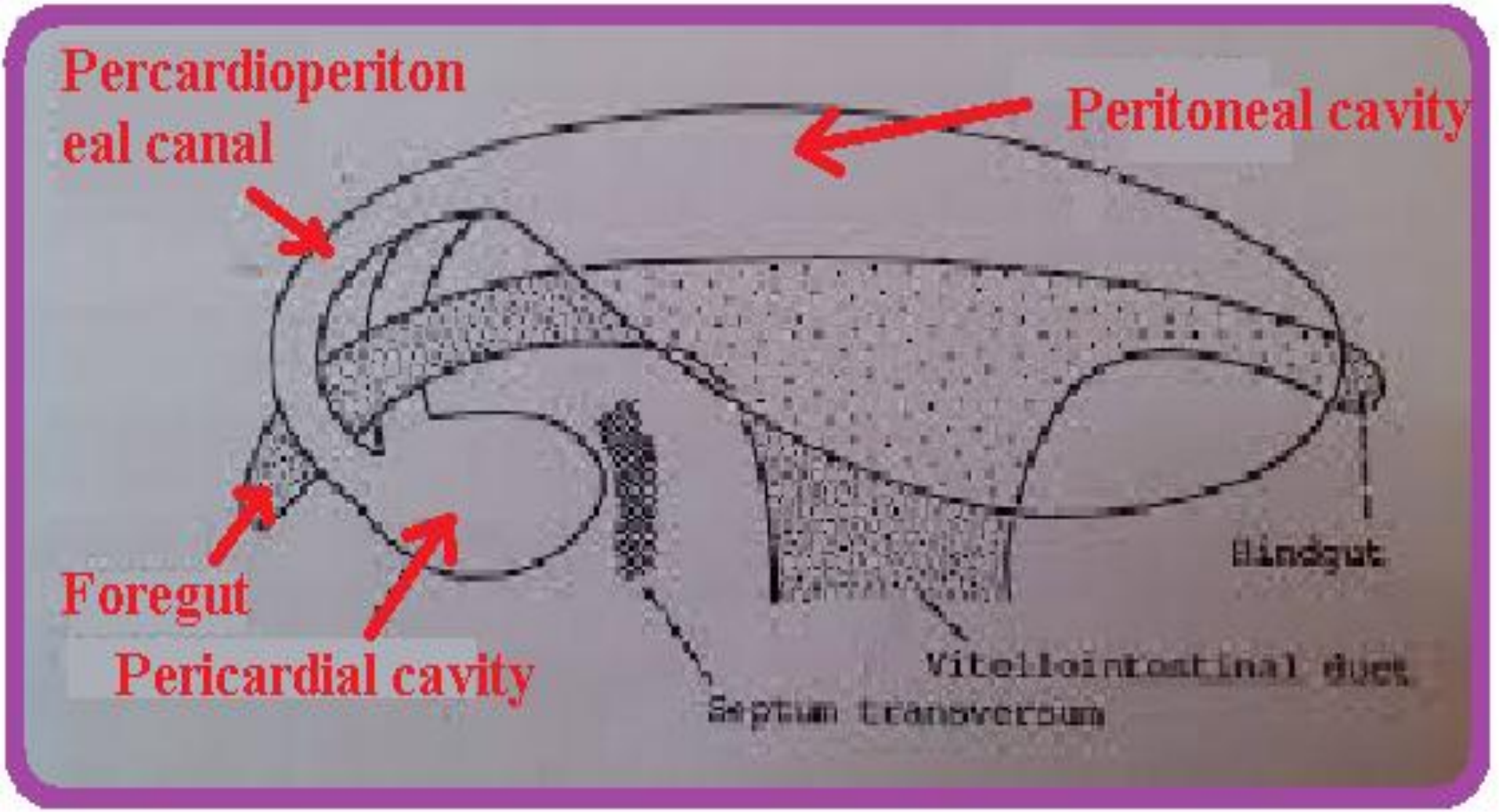
Visceral layer lateral plate mesoderm derivatives form visceral pericardium, visceral pleura and visceral peritoneum and parietal layer form parietal pericardium, parietal pleura and peritoneum .



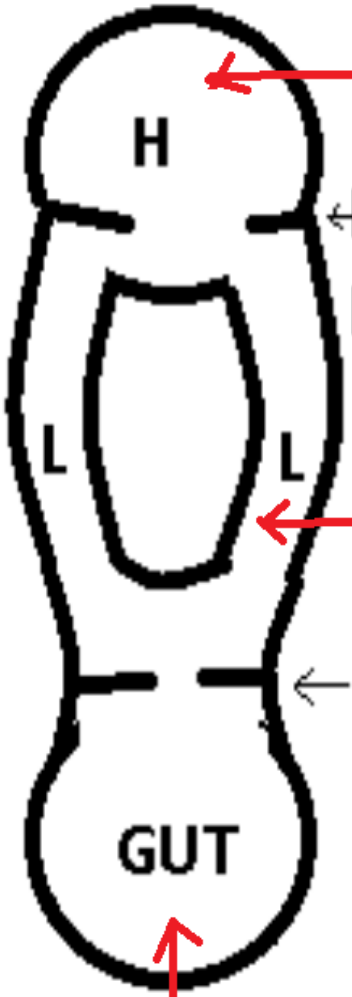
2. Cavities & Pericardio-peritoneal canal and its fate.



After folding a single intra embryonic cavity develops which further differentiate into pericardial, pleural and peritoneal cavity as result of Pleuropericardial membrane and Pleuroperitoneal membranes.



INTRA-EMBRYONIC CAVITY



Pericardial cavity

PLEURAL PERICARDIAL FOLD

Saeparate lungs cavity from heart cavity

Pleural cavity

PLEURO PERITONEAL MEMBRANE

(Part of diaphragm)

Peritoneal cavity

Lateral plate mesoderm that is involved in forming the body cavity.

The space created between the two layers of lateral plate mesoderm constitutes the intra embryonic coelom(cavity)

(a) THE PARIETAL LAYER

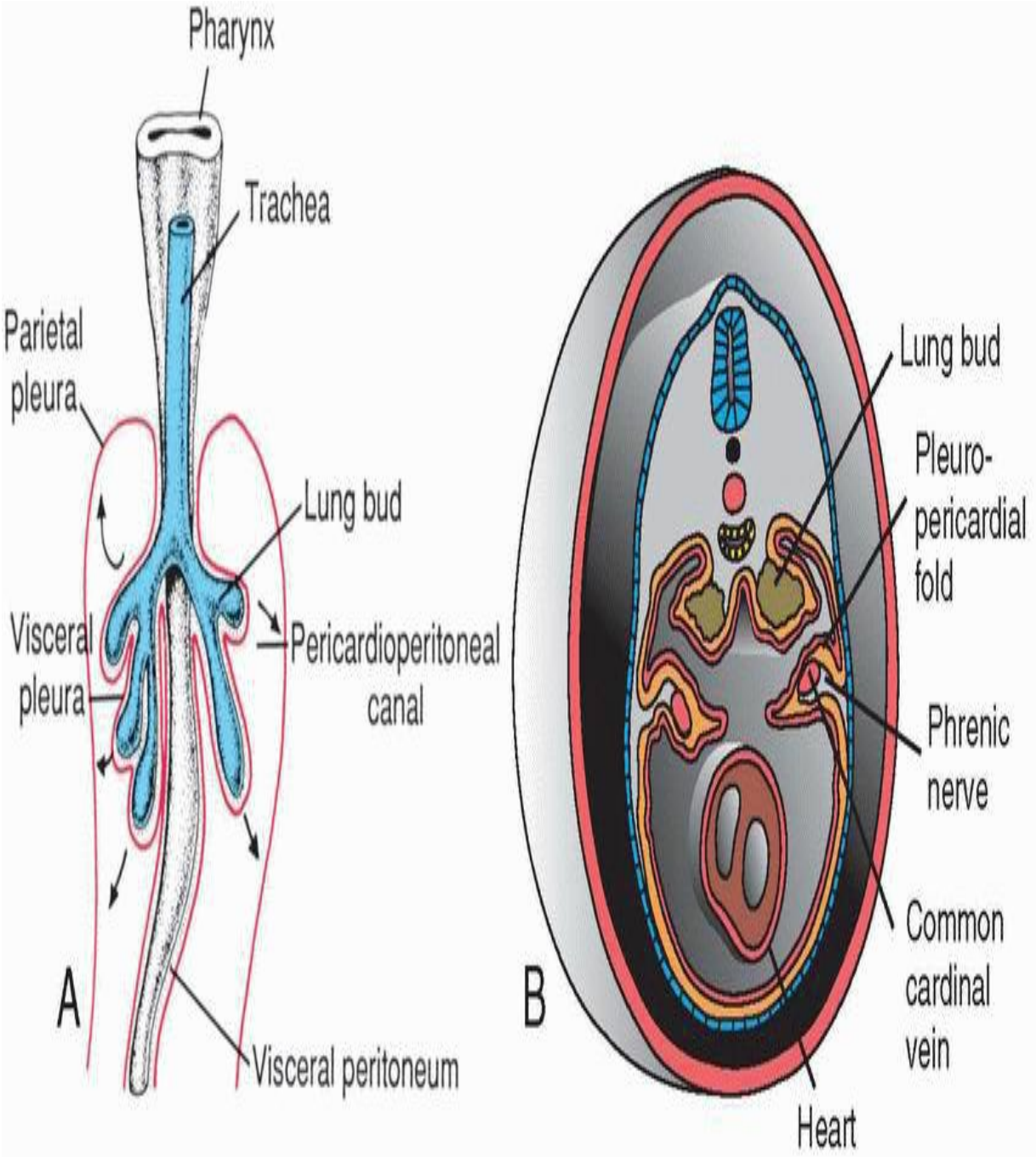
It form parietal pericardium, parietal pleura , parietal peritoneum.

(b) THE VISCERAL (SPLANCHNIC) LAYER

It form visceral muscles and visceral pericardium, visceral pleura and visceral peritoneum.

The space between them form pericardial, pleural and peritoneal cavities.

Expansion of the lung buds into the pericardioperitoneal canals. At this stage, the canals are in communication with the peritoneal and pericardial cavities. A. Ventral view of lung buds. B. Transverse section through the lung buds showing the pleuropericardial folds that will divide the thoracic portion of the body cavity into the pleural and pericardial cavities.



The intraembryonic coelom begins to develop near the end of the third week. By the fourth week, it appears as a horseshoe-shaped cavity in the cardiogenic and lateral mesoderm. The curve of the cavity represents the future pericardial cavity and its lateral extensions represent the future pleural and peritoneal cavities.

During folding of the embryonic disc in the fourth week, lateral parts of the intraembryonic coelom move together on the ventral aspect of the embryo. When the caudal part of the ventral mesentery disappears, the right and left parts of the intraembryonic coelom merge to form the peritoneal cavity.

As peritoneal parts of the intraembryonic coelom come together, the splanchnic layer of mesoderm encloses the primordial gut and suspends it from the dorsal body wall by a double-layered peritoneal membrane, the dorsal mesentery.

The parietal layer of mesoderm lining the peritoneal, pleural, and pericardial cavities becomes the parietal peritoneum, parietal pleura, and serous pericardium, respectively.

Until the seventh week, the embryonic pericardial cavity communicates with the peritoneal cavity through paired pericardioperitoneal canals. During the fifth and sixth weeks, folds (later membranes) form near the cranial and caudal ends of these canals.

Fusion of the cranial pleuropericardial membranes with mesoderm ventral to the esophagus separates the pericardial cavity from the pleural cavities. Fusion of the caudal pleuroperitoneal membranes during formation of the diaphragm separates the pleural cavities from the peritoneal cavity.

THANKS