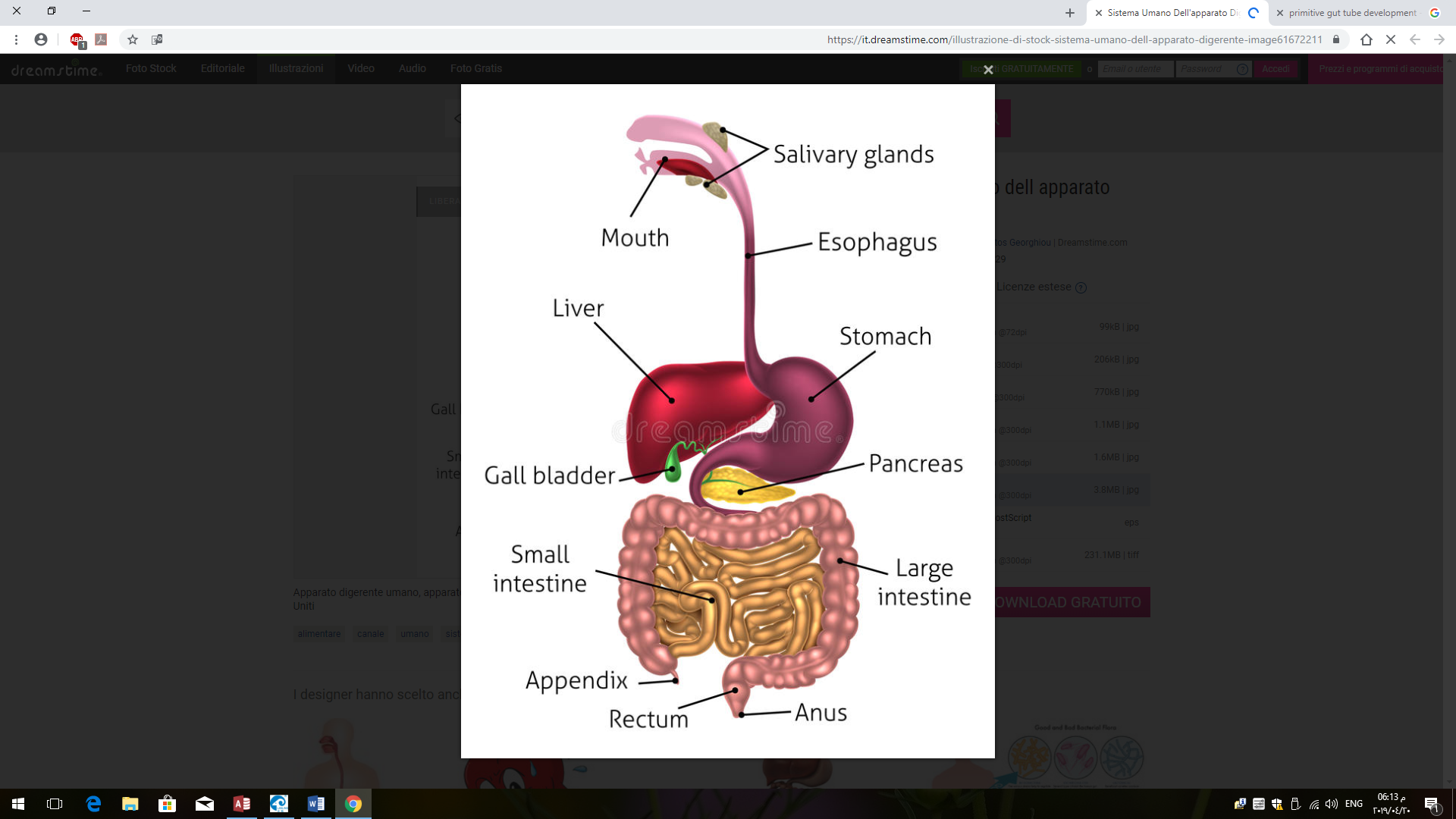
**Lec.19**

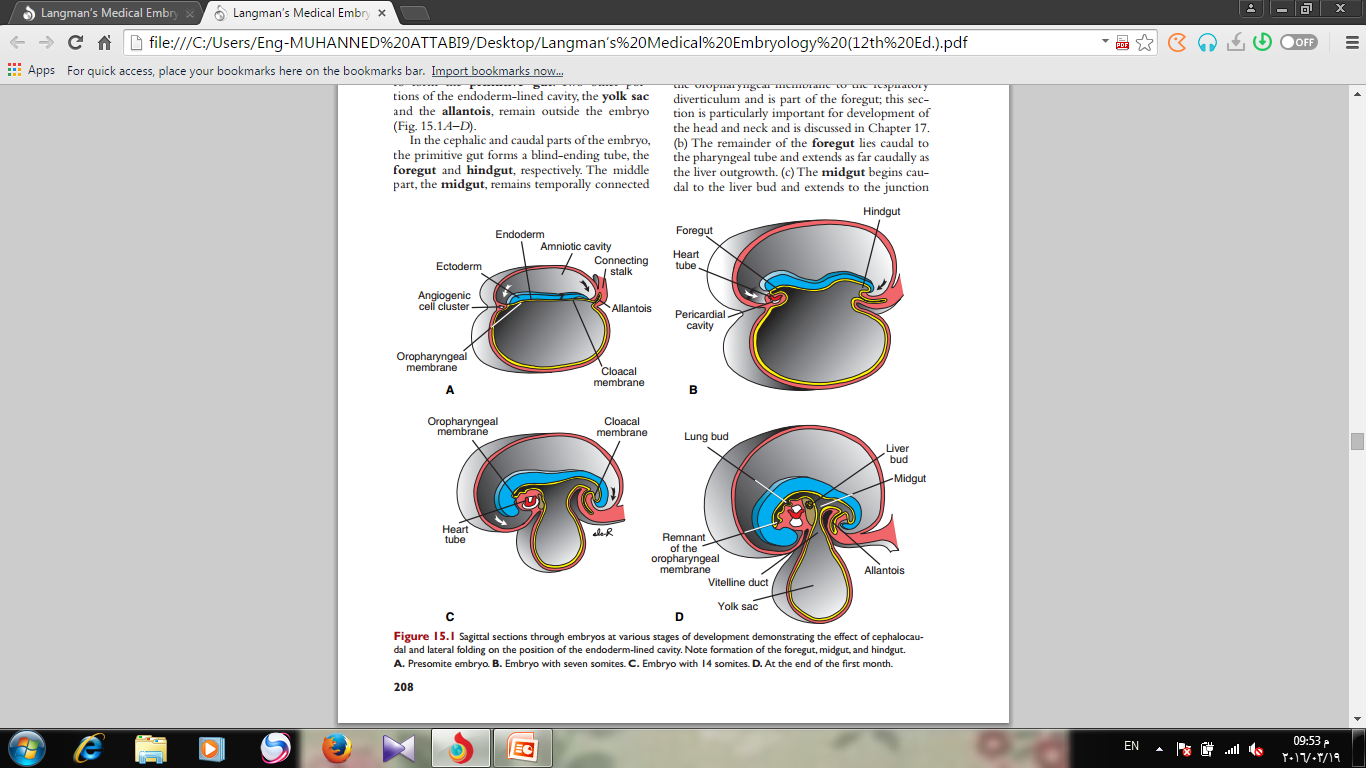
**Dr. Hulal Saleh**

**GIT development**

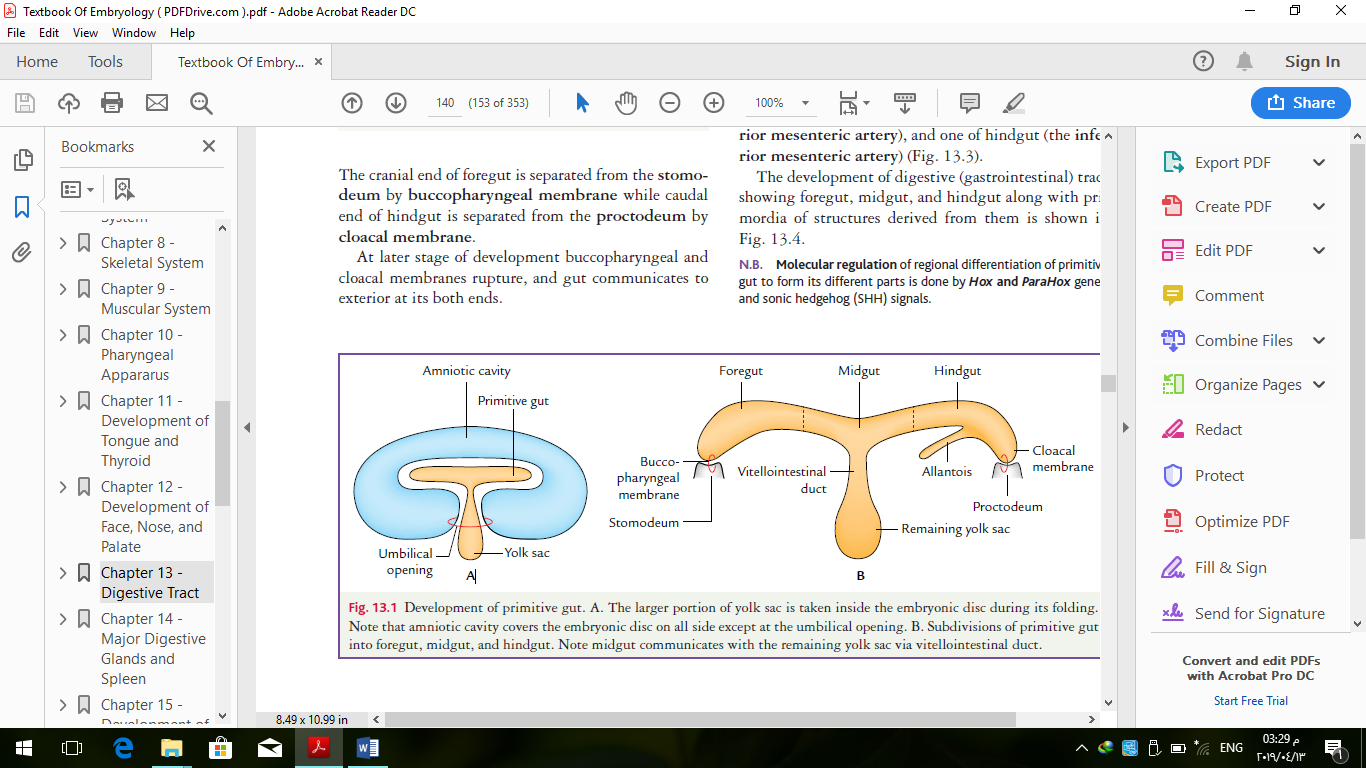


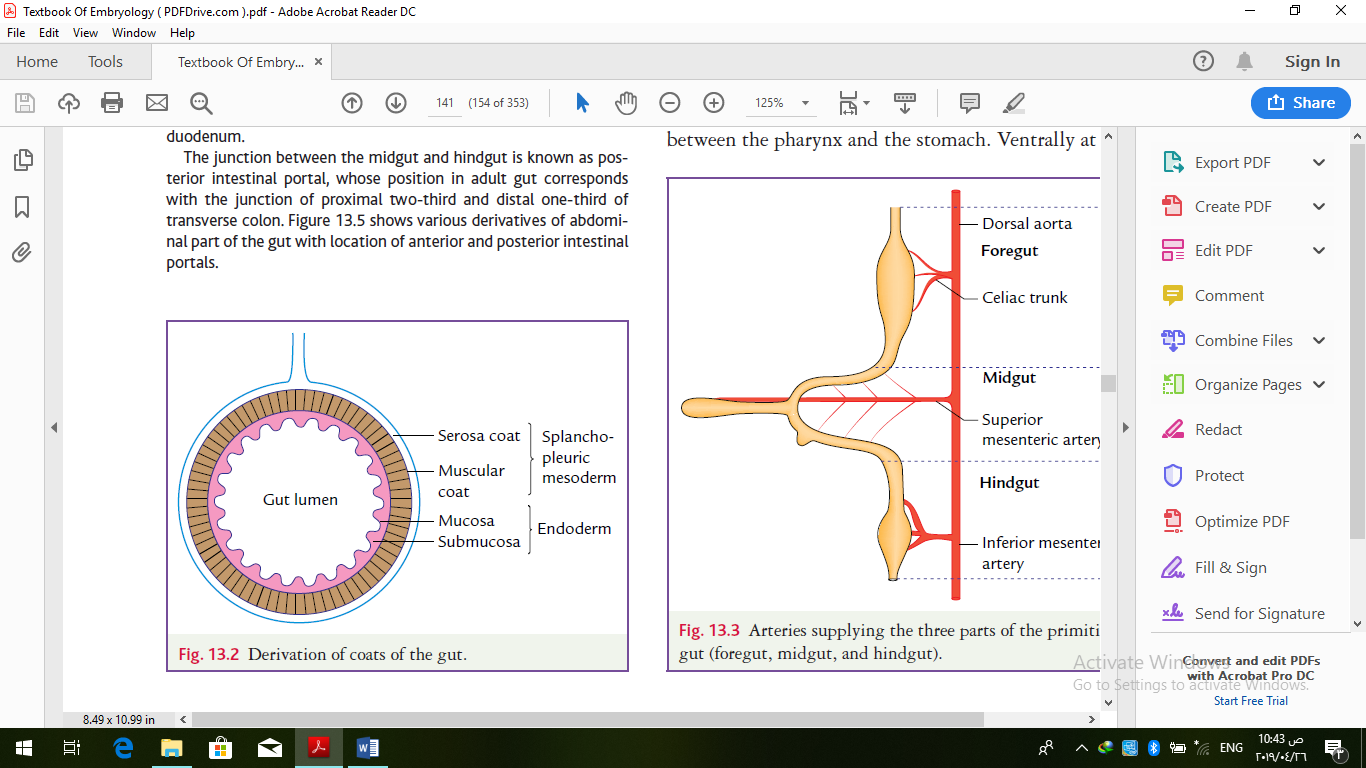
The **primitive gut tube** is formed from the incorporation of the dorsal part of the yolk sac into the embryo due to the craniocaudal folding and lateral folding of the embryo.

The primitive gut tube extends from the **oropharyngeal membrane** to the **cloacal membrane** and is divided into the foregut, midgut, and hindgut.



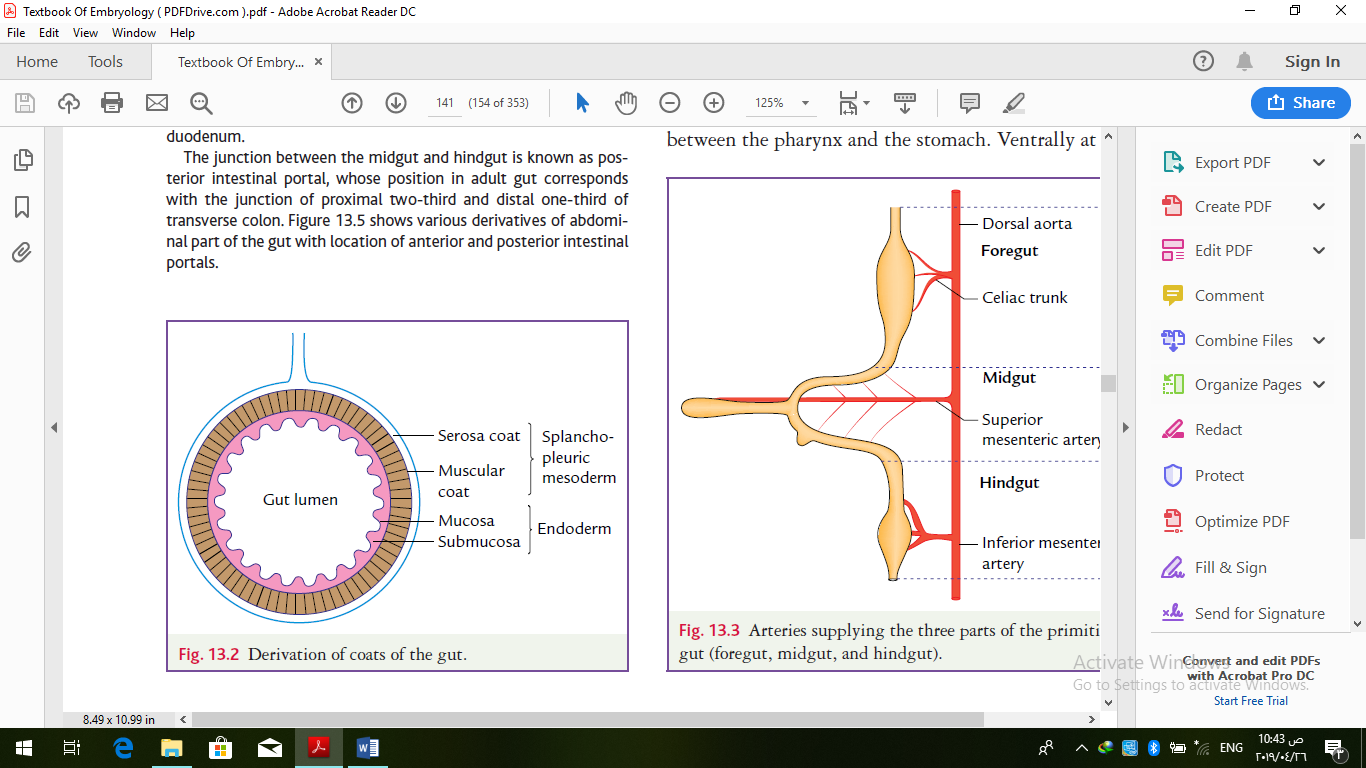
The part of gut cranial to this communication (embryo with the yolk sac) is called **foregut**, part caudal to this communication is called **hindgut**, and part intervening between foregut and hindgut is called **midgut.**





At later stage of development buccopharyngeal and cloacal membranes rupture, and gut communicates to exterior at its both ends.

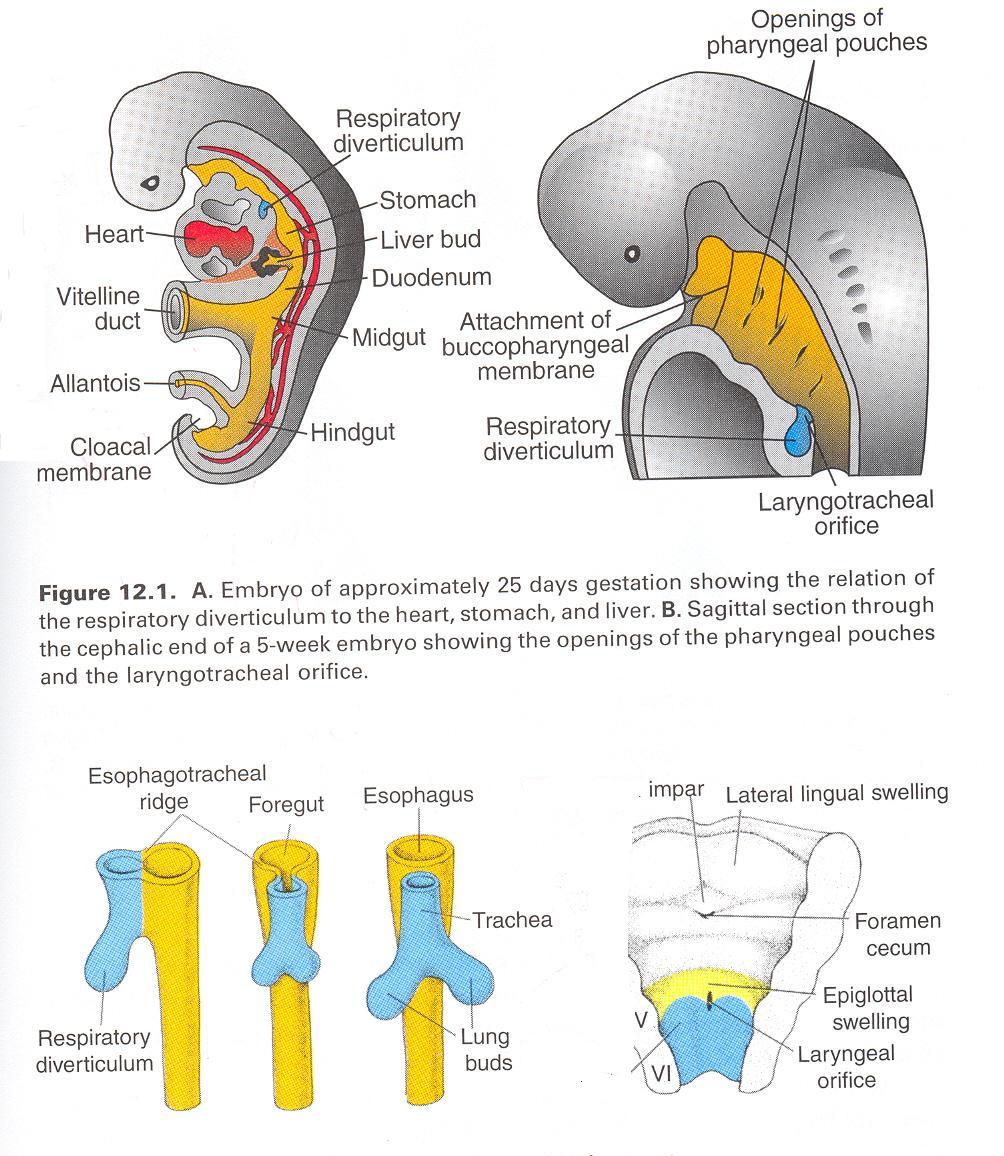
The epithelium of the digestive system and the parenchyma of its derivatives originate in the endoderm; connective tissue, muscular components, and peritoneal components originate in the visceral mesoderm.



**The foregut**

The **foregut** gives rise to the esophagus, the trachea and lung buds, the stomach, and the duodenum proximal to the entrance of the bile duct.

In addition, the liver, pancreas, and biliary apparatus develop as outgrowths of the endodermal epithelium of the upper part of the duodenum. The foregut is divided into the esophagus dorsally and the trachea ventrally by the **tracheoesophageal folds**, which fuse to form the **tracheoesophageal septum**.



The **midgut** forms the primary intestinal loop, gives rise to the duodenum distal to the entrance of the bile duct, and continues to the junction of the proximal two-thirds of the transverse colon with the distal third.

At its apex, the primary loop remains temporarily in open connection with the yolk sac through the vitelline duct. During the sixth week, the loop grows so rapidly that it protrudes into the umbilical cord (physiological herniation)

During the 12th week, it returns into the abdominal cavity. While these processes are occurring, the midgut loop rotates 270° counterclockwise .

Remnants of the vitelline duct, failure of the midgut to return to the abdominal cavity, malrotation, stenosis, and duplication of parts of the gut are common abnormalities.

The **hindgut** gives rise to the region from the distal third of the transverse colon to the upper part of the anal canal; the distal part of the anal canal originates from ectoderm.

The hindgut enters the posterior region of the cloaca (future anorectal canal), and the allantois enters the anterior region (future urogenital sinus).

The urorectal septum will divide the two regions and breakdown of the cloacal membrane covering this area will provide communication to the exterior for the anus and urogenital sinus.

