

## RETROPERITONEAL VERSUS ON A MESENTERY



### RETROPERITONEAL

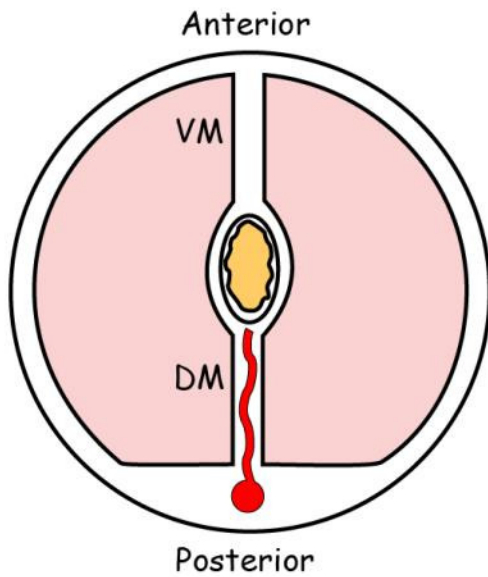
Here the bowel is covered or partially covered with peritoneum



### ON A MESENTERY

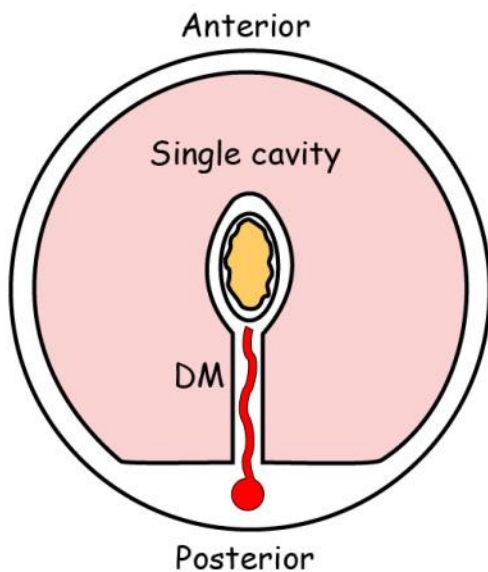
The bowel can only be said to be on a mesentery if the two layers of peritoneum are in contact with each other posterior to the bowel

## PRINCIPLES OF MESENTERY DEVELOPMENT

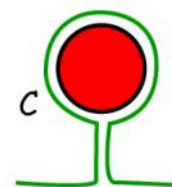


1. At the level of the developing foregut which includes the stomach there are two peritoneal cavities separated by a dorsal and ventral mesentery. The stomach is covered by, and suspended between, the two. Note the access for the blood supply in the dorsal mesentery

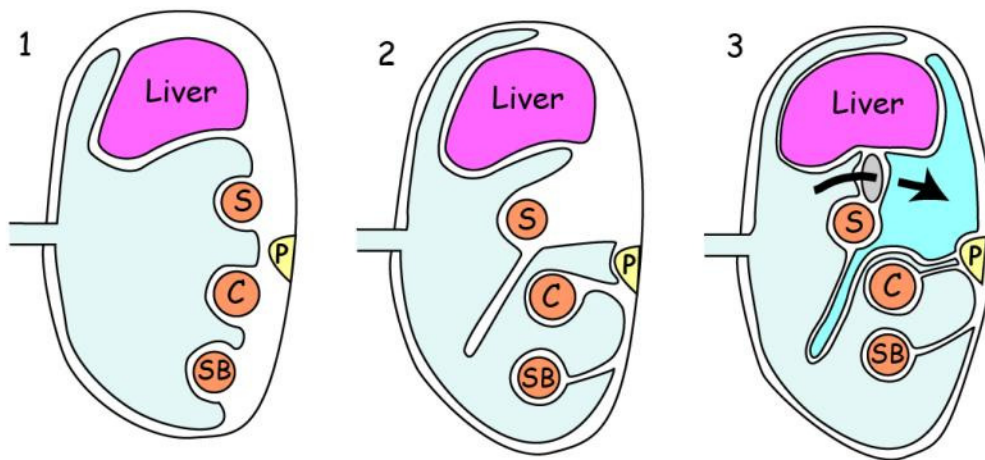
2. There is no ventral mesentery below the foregut and thus the primitive bowel is surrounded by the dorsal mesentery only.



3. This dorsal mesentery can do one of three things. It can regress posteriorly so that the bowel is then retroperitoneal (A), the majority of the duodenum is a good example, or the bowel can fall on its side and the mesentery is absorbed (B), such as the ascending and descending colons. This can be called a pseudo-mesentery. The third alternative is that the mesentery persists (C), such as with the small bowel, and this is described as being "on a mesentery". The length of the mesentery varies throughout the intestine.



## PERITONEAL DEVELOPMENT



This description is a useful way at looking at the result of peritoneal development but it is NOT the way that it actually happens. Imagine that a large, soft balloon is inserted through the umbilicus & blown up within the abdominal cavity so that it covers all the organs (1,2). It extends around the liver as far as it can but is limited by the attachments of the inferior vena cava posteriorly & the bare area around it. It covers the stomach (S), the colon (C), the small bowel (SB) & pancreas (P).

Between the stomach & the colon there is a prolapse of peritoneum which becomes the greater omentum. As the SB moves forwards the peritoneal covering is also dragged to give it a mesentery.

The stomach rotates so that its right side is now facing posteriorly (4 -7). The peritoneum that was on its right side expands posterior to the stomach to become the lesser sac & continues to expand up behind the liver, over the posterior wall of the stomach, onto the superior wall of the transverse colon & half the pancreas. Finally it pushes down between the two layers of the greater omentum to give it four layers.

As the stomach also rotates in a coronal plane (7), the opening of the lesser sac (3) becomes a small hole posterior to the lesser omentum (LO) which is called the aditus (opening) of the lesser sac (foramen of Winslow or epiploic foramen).

The LO is the remnant of the ventral mesentery, joining the stomach to the liver (3) which has developed in the ventral mesentery. Note that the spleen develops in the dorsal mesentery of the stomach & thus must finally be in the far left wall of the lesser sac.

