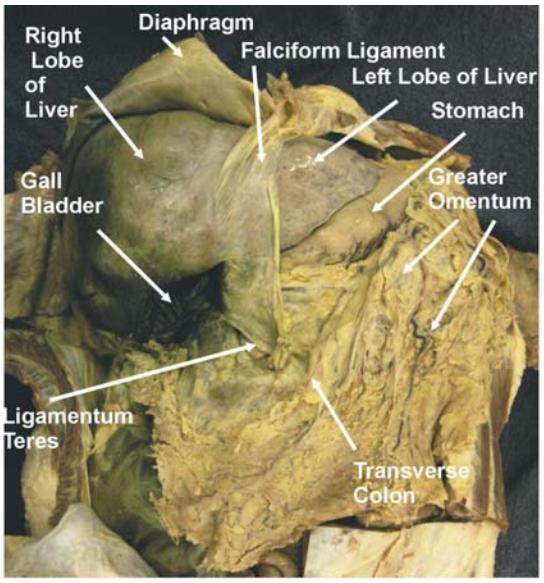
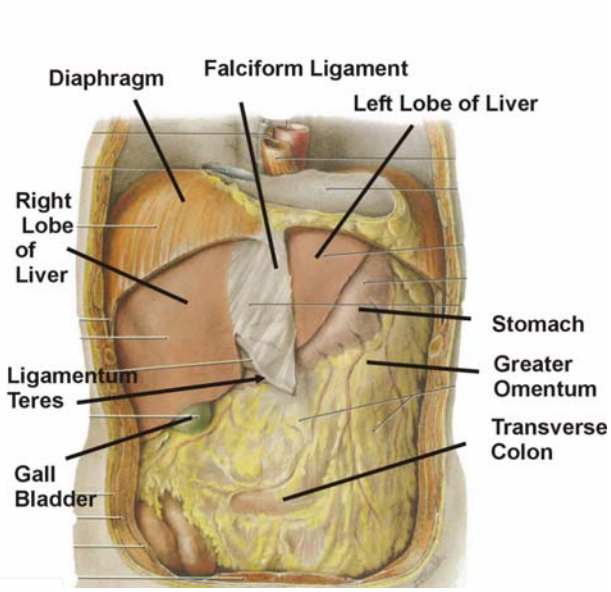
TIPS ON TAKING THE ABDOMEN PRACTICAL 2018

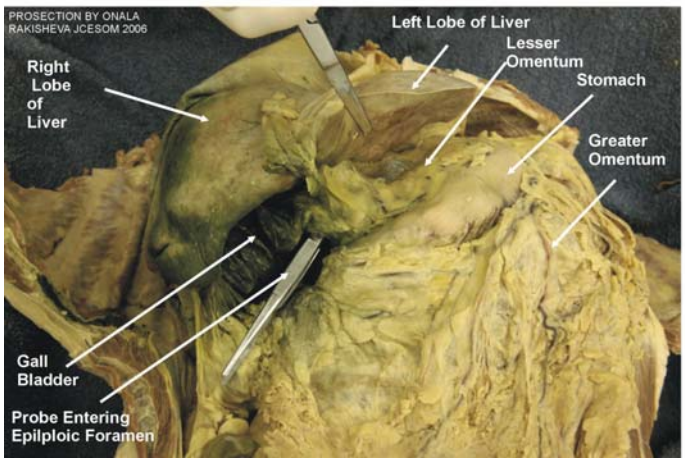
1) ORIENTATION - LOOK FOR THE STOMACH

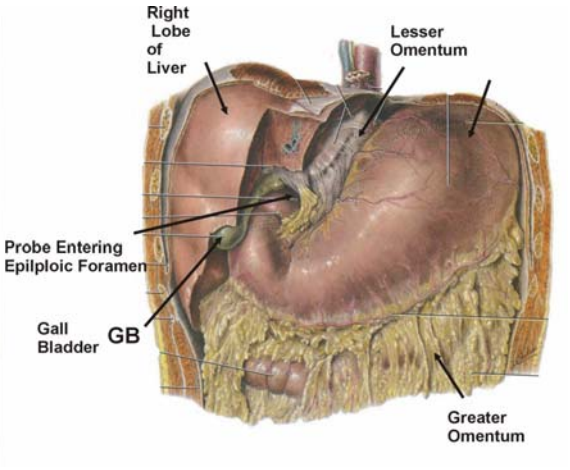
The prosection below is an isolated abdomen and pelvis (no thorax); anterior muscular wall removed/reflected; the diaphragm is lifted up. The membrane projecting from the anterior side of the liver is the Falciform ligament (derivative of ventral mesentery). The thickened structure in the lower edge of the Falciform ligament is the Ligamentum teres (Round Ligament, remnant of fetal Umbilical vein).



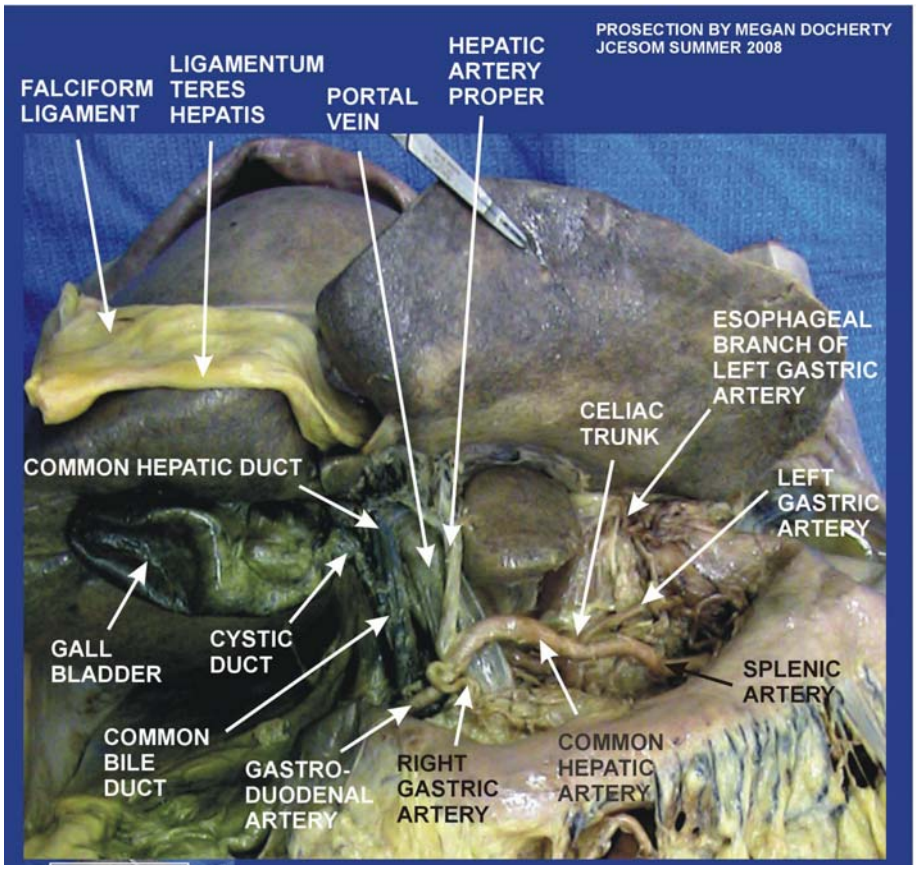


2) EPIPLOIC FORAMEN IS CLASSIC QUESTION - Lift up liver to see Lesser Omentum - Lesser Omentum connects Liver and Lesser Curvature of Stomach (note: it all looks like mush; just find the stomach)





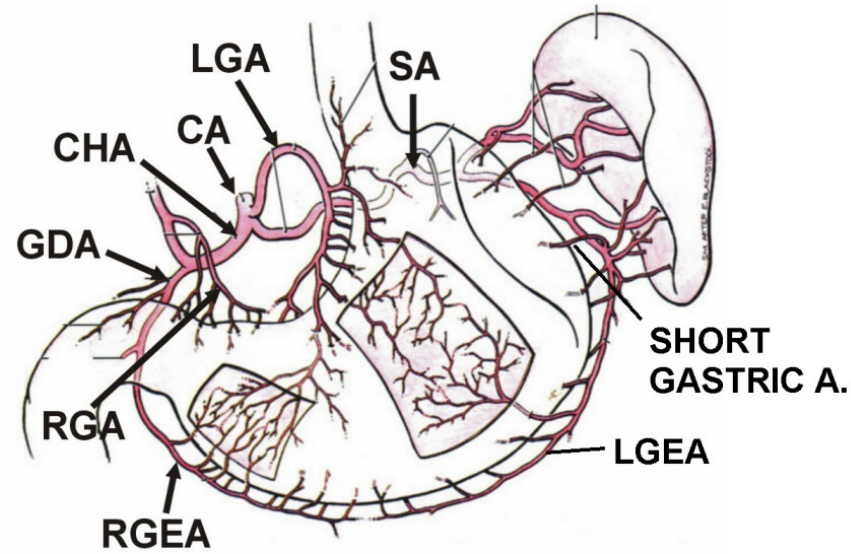
3) DISSECTION OF LESSER OMENTUM TO SHOW STRUCTURES ENTERING PORTA HEPATIS AND CELIAC TRUNK



Once you are oriented, look in the space between the Stomach and the Liver. There should be structures passing toward the liver (at the Epiploic foramen) in the porta hepatis. The green thing is Common Bile Duct. It is formed from the Cystic duct (from the Gall bladder) and the Common Hepatic duct. The larger (maybe blue) thing is the Portal Vein. The round thing giving off branches is the Hepatic Artery (from the Celiac Trunk, see below). It will give off the Cystic artery to the gall bladder and then divide into the Right and Left Hepatic arteries.

4) **CELIAC TRUNK - <u>With the Stomach in place, you are probably looking at the Celiac trunk, which can be seen after removing the Lesser Omentum.</u> The key is to first locate the stomach and the transverse colon; then look at where the rest of the intestines are**. With the stomach in place, the transverse colon is below the Greater curvature of the stomach.

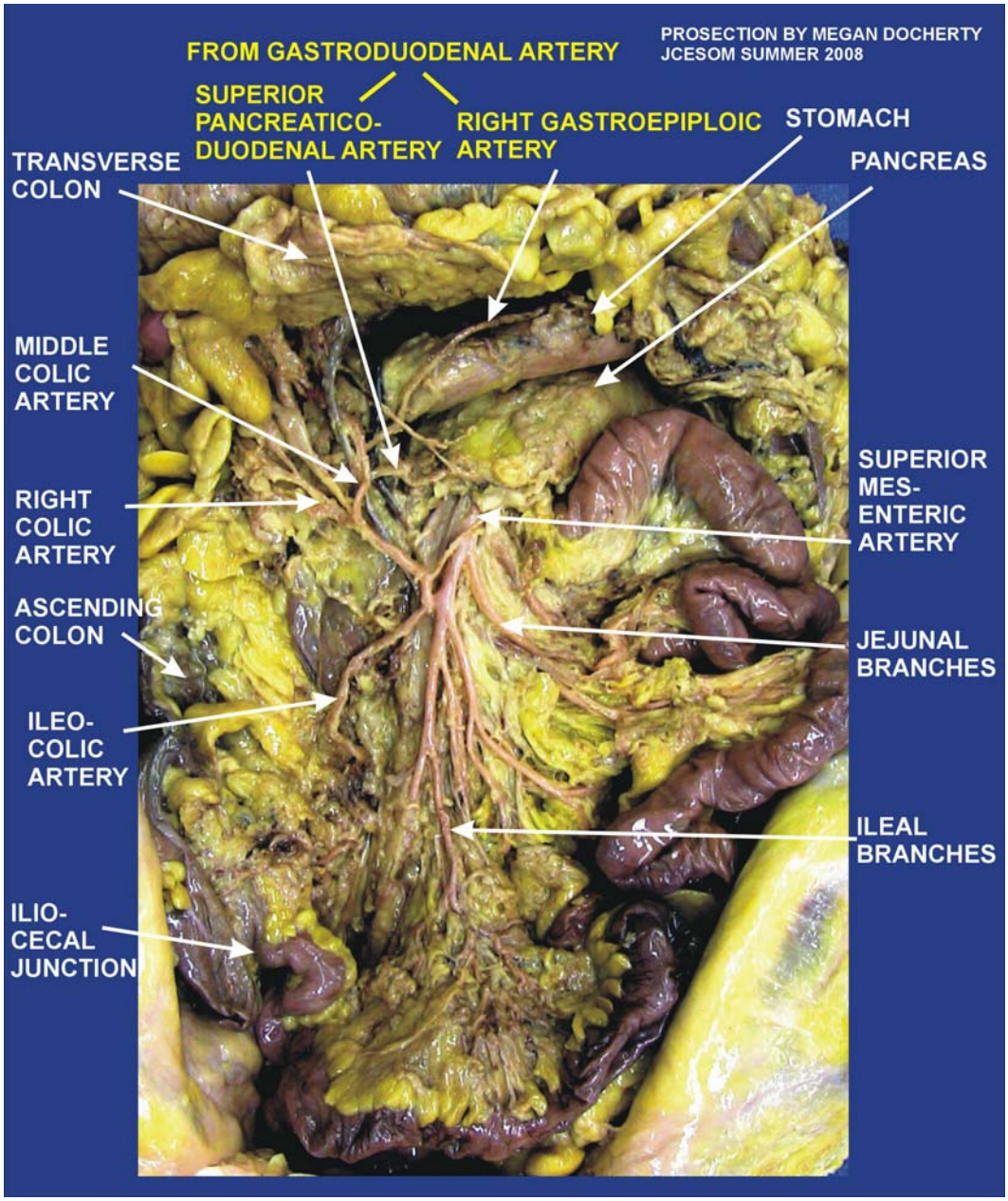
Celiac trunk - The trunk arises above the lesser curvature of the stomach; the origin of the celiac is usually shown with the stomach in place. The three main branches of the Celiac trunk are the Left Gastric (LGA), Common Hepatic (CHA) and Splenic (SA) Arteries.



So you think it is the Celiac artery (CA and you are correct). Then it is good to remember the naming of arteries to the stomach. The arteries are called **Gastric if there are on the Lesser (inner) curvature of the stomach, and Gastroepiploic if they are on the Greater (outer) curvature of the stomach**. The Left Gastric (LGA) comes from the Celiac, the Right Gastric (RGA) from the Hepatic (Proper) artery; the Left Gastroepiploic (LGEA) comes from the Splenic artery (SA) and the Right Gastroepiploic (RGEA) comes from the Gastroduodenal (GDA). There are also **Short Gastric** arteries that are an exception: they come from the **Splenic artery** (this has been a frequent question).

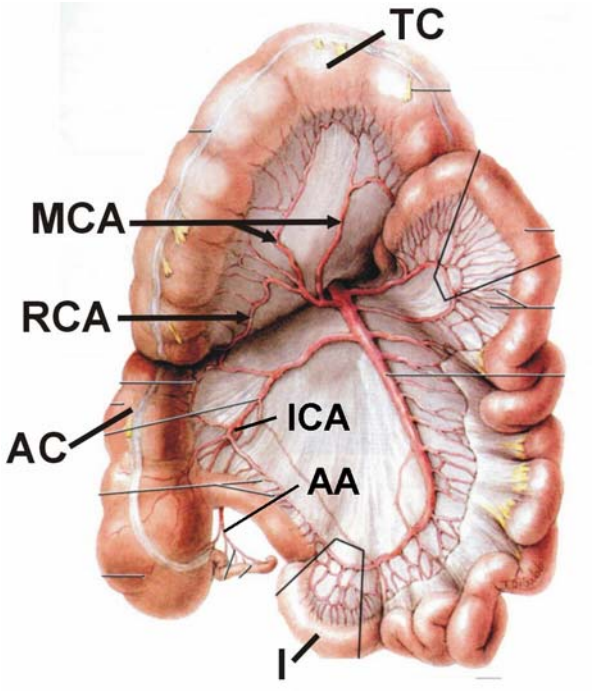
With that in mind, you can answer other questions about the branches of the Celiac artery. The Splenic is relatively gigantic and courses posterior to the stomach (so you can't see it unless you lift up the stomach). The Splenic typically has a tortuous course (remember the Facial artery?) so the stomach can expand. The Common Hepatic is usually largest. It gives rise to the Gastroduodenal and the Hepatic proper. In the anterior view, the Gastroduodenal disappears behind the pylorus of the stomach. It will give rise to the Right Gastroepiploic and arteries to the Duodenum.

5) SUPERIOR MESENTERIC ARTERY - If the stomach is lifted up you are probably looking at the Superior Mesenteric Artery. If the Stomach is lifted, the Transverse Colon is lifted as well and you can (often) see the Pancreas.



The Superior Mesenteric Artery comes off just below (inferior to) the Celiac Trunk. However, to see it you usually have to lift up the stomach (pull it superiorly so you see the posterior side of the stomach). Then you see the Superior Mesenteric Artery coursing down and giving off many, many branches. You can see the small intestines on both sides of the Superior Mesenteric artery.

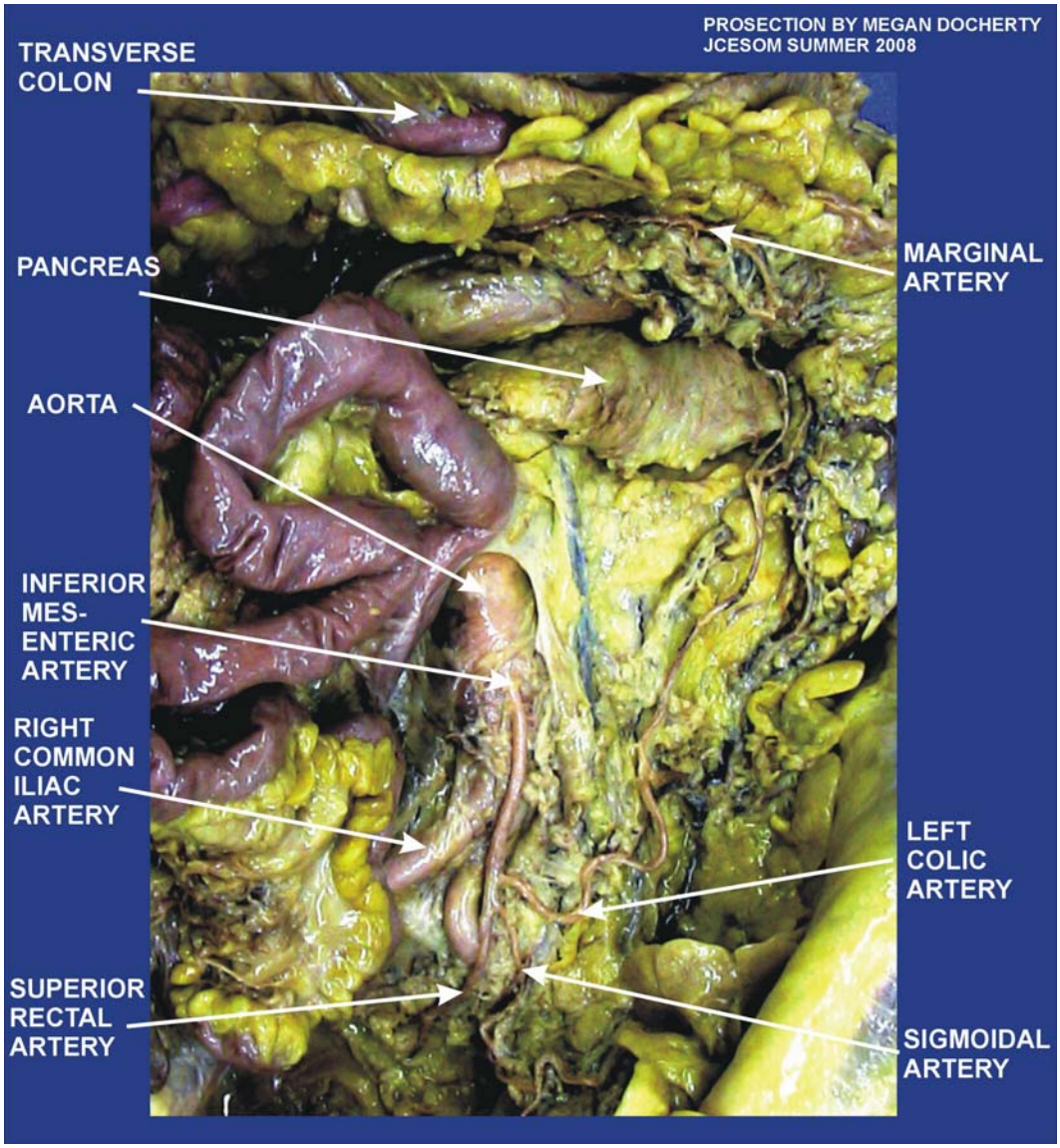
However, the names are easy. First, there are branches to the duodenum. They are little and tricky but important. The Inferior Pancreaticoduodenal artery anastomoses with the Superior Pancreaticoduodenal artery from the Gastroduodenal (ultimately from the Celiac Trunk). This is **important because it represents the point of anatomosis between the Celiac and Superior Mesenteric arteries.**



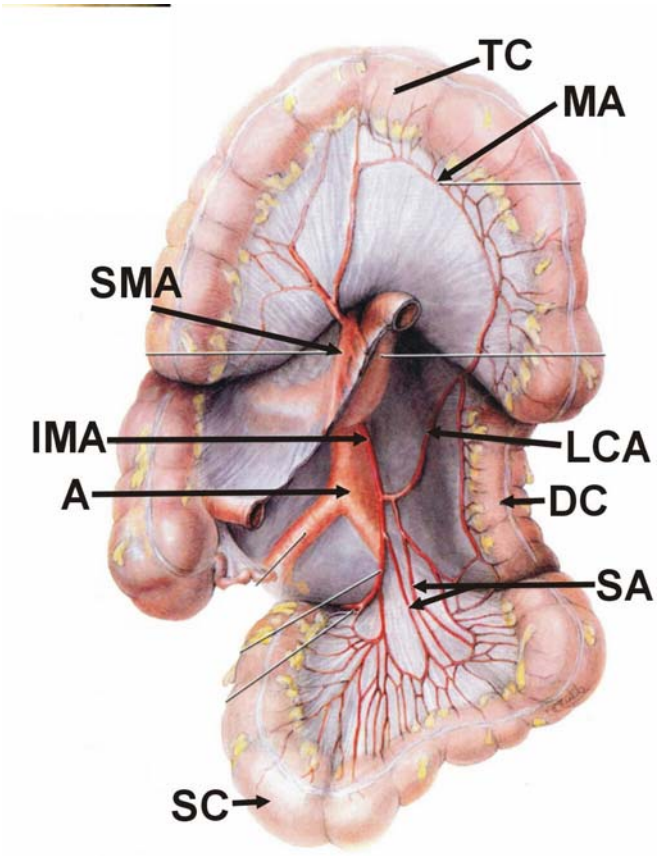
The remaining branches are big and generally named for where they are going. The intestinal branches go the small intestine (I in diagram above, distinguish them according to the location and the vasa recta and arcades at the point they join). The Ileocolic artery (ICA) goes to the junction of the Ileum and Cecum (and gives rise the Appendicular artery (AA) which is found behind the Cecum). The Superior Mesenteric artery then gives off the Right Colic artery (RCA) to the Ascending Colon (AC) and the Middle Colic artery (MCA) to the Transverse Colon (TC). On the practical, you name the arteries by the segment of the large intestine to which they go.

6) INFERIOR MESENTERIC ARTERY To see this, the small intestines have to be pulled laterally (typically to the cadaver's right). You should now be looking at the Aorta. The Inferior Mesenteric comes off some distance down from the Superior Mesenteric and often looks like it arises above the point where the Aorta bifurcates into the Common Iliac arteries.

SMALL INTESTINE IS PULLED TO THE RIGHT



The branches from the Inferior Mesenteric are easy: The Left Colic (LCA) goes to the descending colon (DC). It gives off the Marginal artery (MA). This gets asked a lot and it courses along the Transverse colon and anastomoses with the branches of the Middle Colic. **This is the important anatomosis between the branches of the Superior and Inferior Mesenteric arteries.**



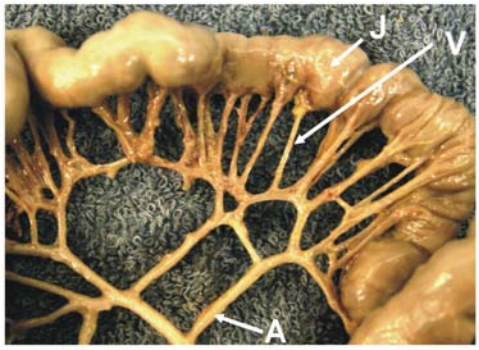
The other branches of the Inferior Mesenteric are the Sigmoid arteries (SA). These are attached to the Sigmoid colon which is part of the large bowel that has a mesentery and is separated from the posterior wall. The Superior Rectal arteries look like they are disappearing into the abyss (pelvis). **The Superior Rectal arteries anastomose with the Inferior Rectal arteries (from the Internal Iliac artery).** This is near the end of the gut.

7) ARTERIAL ARCADES - This is a classic question and a little tricky. The arterial branches going to the small intestine anatomose with each other repeatedly forming arcades. However the branches that come off the arcades and go to jejunum and ileum are relatively straight (vasa recta). The rule is that jejunum has long vasa recta and less extensive arcades, the ileum has short vasa recta and many, many arcades.

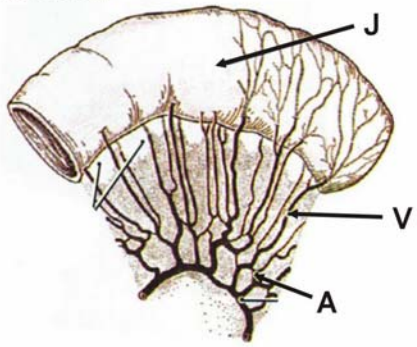
ARTERIAL ARCADES

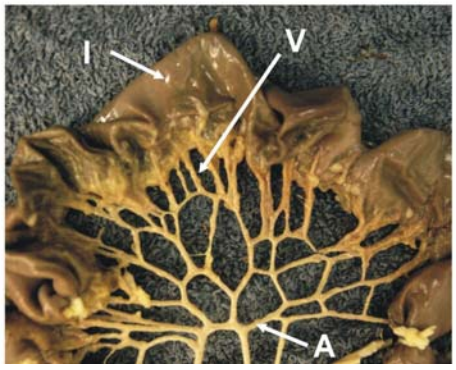
TOP : JEJUNUM AND ILEUM
MIDDLE: JEJUNUM (J):
1. LONG VASA RECTA (V)
2. LESS EXTENSIVE ARTERIAL ARCADES (A)
3. THICKER WALL

BOTTOM: ILEUM (I):
1. SHORT VASA RECTA (V)
2. MORE NUMEROUS ARTERIAL ARCADES (A)
3. THINNER WALL

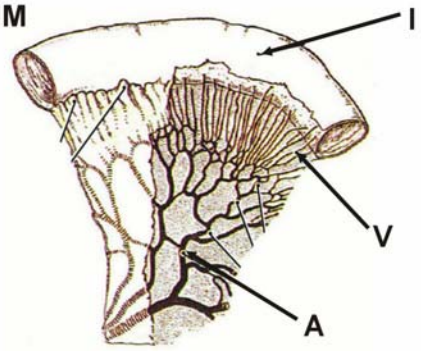


JEJUNUM





ILEUM



8) **Other tricky things** - Look for the:

Portal vein - The single most important vein. It typically forms from the union of the Splenic and Superior Mesenteric veins (the Inferior Mesenteric joins the Superior or does something else). The way you tell this is by looking at the tag and then following where the veins are coming from or going to (typically this question gets asked with the Stomach lifted up, in the view like the Superior or Inferior Mesenteric arteries). You should be able to see the aorta in this view. The Portal Vein is the structure headed toward the liver. The Splenic Vein heads toward left. The Inferior Mesenteric Vein heads down.

Lumbar arteries - branches from the Aorta to the posterior Wall
Testicular or Ovarian arteries - off the Aorta disappearing into the Pelvis
Left Testicular or Ovarian vein (courses to the Left Renal vein) - a favorite
Suprarenal arteries - (the adrenal glands look like mush on top of the kidneys)
Celiac ganglion - looks like something grey and fibrous in front of the Aorta about where the Celiac artery is coming off.
Bare area of the liver - looks like nothing except for little margins of peritoneum generally surrounding the opening for the Inferior Vena Cava.

GOOD LUCK!