

Exploring anatomy: the human abdomen

An advanced look at the peritoneum – greater and lesser sac: transcript

So what I want to do now is move on to look at the greater sack and the lesser sack. So to do this, we need to look at the image on the screen, which is of a sagittal section through the abdominal cavity. So here we have the anterior aspect. Here we have the posterior aspect.

So here we have the anterior abdominal wall, the posterior abdominal wall. Here we have the diaphragm, we've got various organs drawn in, the liver, the stomach, the pancreas, the duodenum, transverse colon. We've got a part of the small intestines, let's say the jejunum, and we've got the bladder, and the rectum here.

So let's start off by drawing in the layer of parietal peritoneum that's running along the anterior abdominal wall. So here we've got a layer of parietal peritoneum running on the anterior abdominal wall. It then goes over the superior surface of the bladder. Forms a pouch between the bladder and the rectum in the male and it form a pouch between the bladder and the uterus, and uterus and the rectum in the female. We'll look at these pouches when we go on to the pelvis and perineum later on in the further screen casts.

And then the peritoneum runs toward the posterior abdominal wall. Coming from the posterior abdominal wall, we're going to find we have a double layer of peritoneum, the mesentery, that is going to suspend the small intestines within the peritoneal cavity.

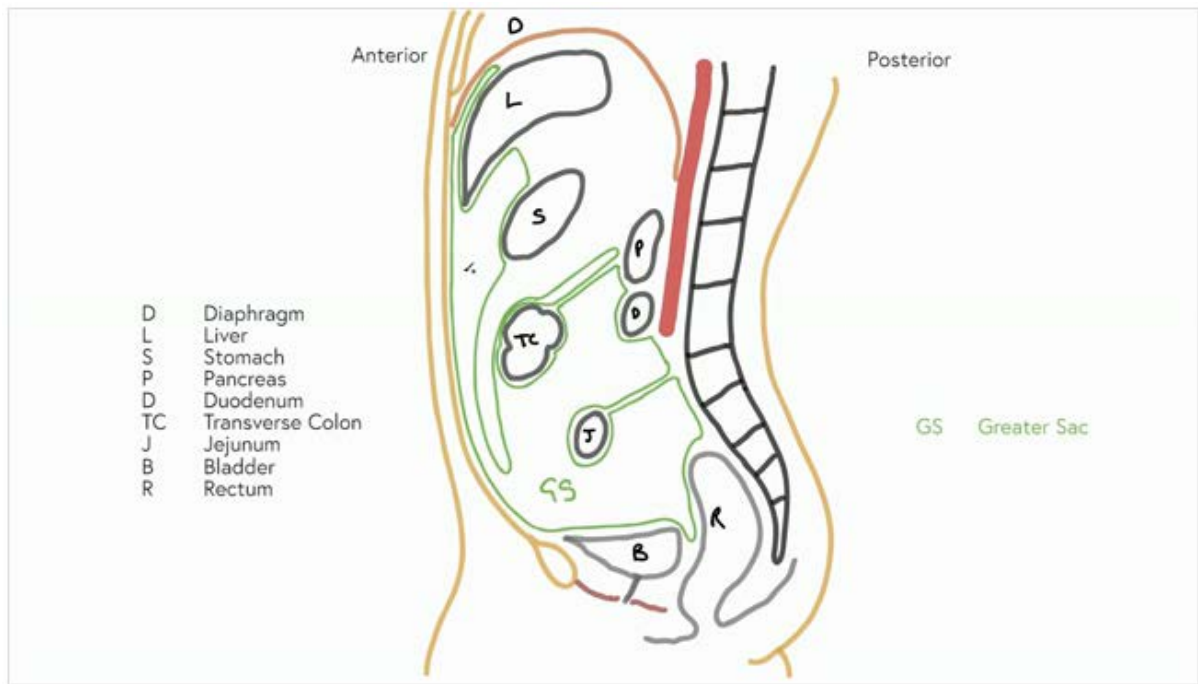
So here we have a piece of jejunum suspended via this double layer of peritoneum, which is the mesentery. And we then have this layer of peritoneum running on the posterior abdominal wall. It lies anterior to the duodenum and then anterior to the pancreas.

So here we can see this layer of peritoneum that is essentially lining the abdominal pelvic cavity. At various points there's some reflections so here it's forming the mesentery that's suspending the small intestine. If we follow this up towards the diaphragm, we can see it's lining the underside of the diaphragm. It then runs towards the liver and then we have visceral peritoneum running on the diaphragmatic surface of the liver. And then going under onto this visceral surface.

So here we have this reflection of peritoneum from the liver. And this is known as our coronary ligament, anterior coronary ligament. The peritoneum-- this piece of visceral peritoneum-- is then reflected from the liver and heads towards the lesser curvature of the stomach. And this is forming one of the layers of the lesser omentum. We'll come back to the lesser omentum in a moment.

This layer then runs over the stomach, where it then leaves the stomach and goes and forms the greater omentum. Remember the greater omentum has got this anterior layer here, which then doubles back on itself and forms this posterior layer that runs over the surface of the transverse colon. so we can see it running over the surface of the transverse colon here.

And it then heads towards the pancreas. It heads towards the pancreas and it then reflects back to form the transverse mesocolon. So we can see, on the anterior surface of the pancreas, we have the root of the transverse mesocolon. The transverse mesocolon is going to suspend the transverse colon. And here we can see this layer of peritoneum completely enveloping the transverse colon.



So what we can see is various pieces of peritoneum that have been reflected from the anterior or posterior abdominal wall from organ to organ to suspend various organs within the peritoneal cavity. And what we've created by this completely enclosed space is the greater sac. So here we can see all within the boundary of this green line is the greater sac.

We now need to look at the formation of the lesser sac. So to do this, we can start on the surface of the liver again. So again we have a layer of peritoneum on the surface of the liver. It's reflected to the diaphragm and it then runs back along the diaphragm. What we've created here is the posterior coronary ligament.

And here we can see, this layer of peritoneum is now running over the pancreas. And it then runs-- joins to this layer of peritoneum that was coming from the greater omentum towards the posterior abdominal wall. It runs alongside this layer and then runs along the inside of the posterior and anterior layers of the greater omentum.

So here we can see it's running along the anterior layer, along the inside surface of the anterior layer. And it's approaching the greater curvature of the stomach. It's then going to run along the greater curvature of the stomach, runs under the posterior surface. And then it runs towards the lesser curvature, where it joins the lesser omentum to form this double layer, which then runs along the visceral surface of the liver.

And what we've created now is this lesser sac, omental bursa. Great sac and the lesser sac. The lesser sac can also be known as the omental bursa. And the omental bursa has both a superior and an inferior recess.

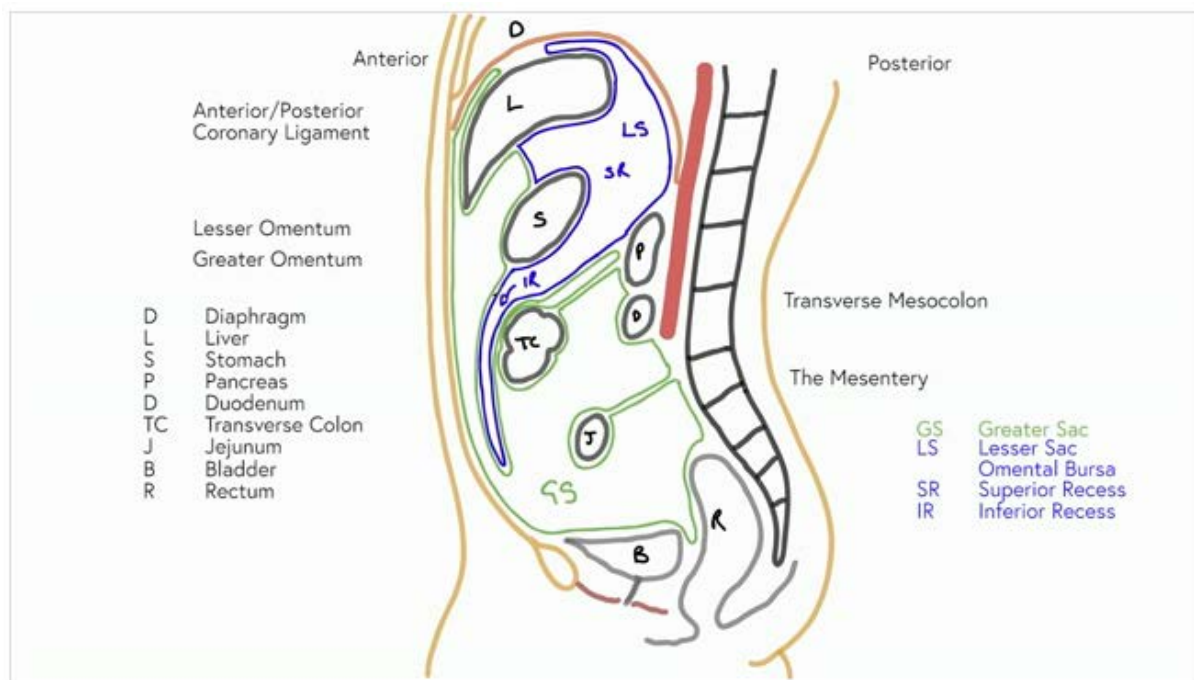
The inferior recess passes down in between the layers of the greater omentum. So the inferior recess is going to pass down in this direction. And here we can see the superior recess. So the superior recess and the inferior recess of the omental bursa.

We just need to name these various ligaments and various pieces of mesentery that I've identified. So if we look here, we've got the mesentery. So the mesentery is suspending the small intestines. Here we've got the transverse mesocolon. Transverse mesocolon.

Here and here we have the anterior and posterior coronary ligaments. Coronary ligaments. Here we have the lesser omentum. Now the lesser omentum is going to be split into the hepatoduodenal and the hepatogastric ligaments running from the liver to the first part of the duodenum, which we can't see here. And the liver up to the lesser curvature of the stomach.

And then we've got the greater omentum. The greater omentum that's running from the greater curvature of the stomach. It's then doubled back on itself so it runs over the transverse colon.

Importantly, we can then see that if we were to draw a section across the abdominal cavity in between the stomach and the transverse colon, you can see there's one, two, three, four, five, six layers of peritoneum. If we're inferior to the transverse colon, you can see there's one, two, three, four layers of peritoneum. Now in life these layers will fuse together.



So the inferior recess is really just a potential space as the greater omentum will fuse. But we do have these four individual layers. And it's important you appreciate how they come to form these various ligaments and mesenteries.

[end of transcript]