UNIVERSITY OF LEEDS

Exploring anatomy: the human abdomen

An advanced look at the rectus sheath (I)

Welcome to this video for Exploring anatomy: the human abdomen. This video is going to outline the rectus sheath.

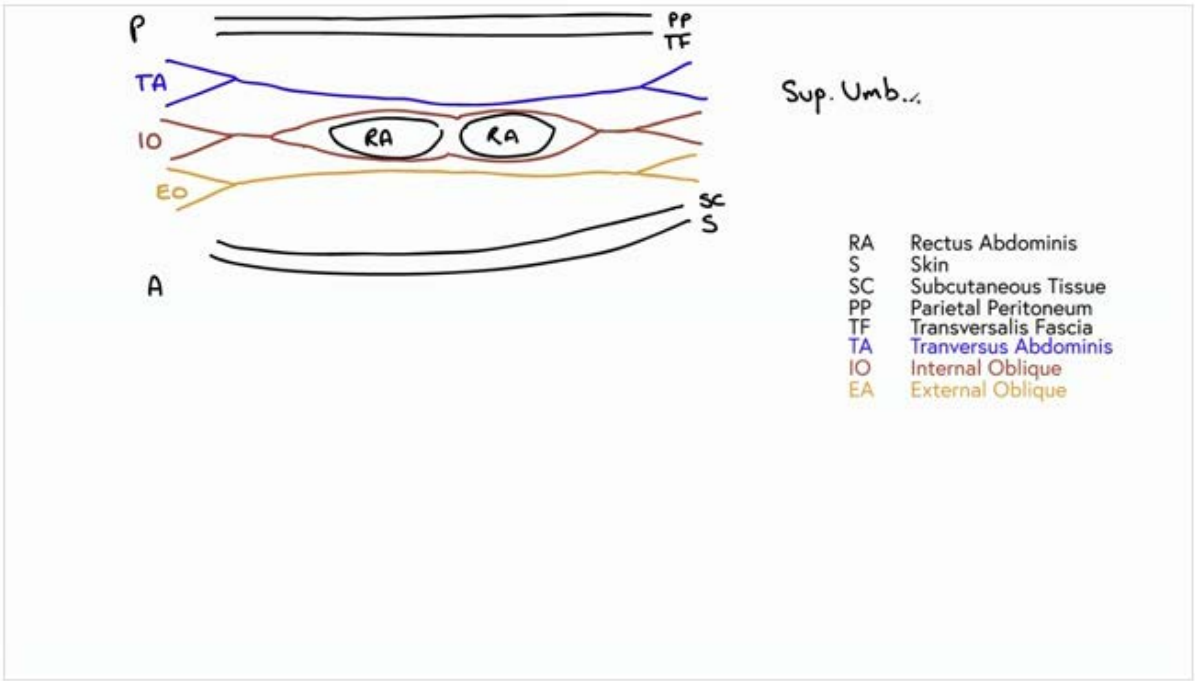
So first of all, let's draw out our two rectus abdominis muscles. So we can see our left one and our right one. Rectus abdominis. These sit either side of the linea alba in the midline. This is a transverse section of these two muscles. So here we have the posterior aspect and here we have the anterior aspect.

Now before we draw in the layers of the rectus sheath, let's add a couple of layers that also form the anterior abdominal wall. So most anteriorly we have a layer of skin. And then slightly deeper to that layer of skin, we're going to have a layer of subcutaneous tissue.

Most posteriorly, we're going to have the parietal peritoneum. And then slightly anterior to the layer of parietal peritoneum we're going to have a layer of transversalis fascia.

So now let's draw in the three muscles, the three pairs of muscles, that form the anterolateral abdominal wall. Most posteriorly, we're going to have transversus abdominis. And then slightly anterior to transversus abdominis we're going to find internal oblique. And then anterior to internal oblique is external oblique. So here we can see external oblique.

Now each of these muscles is going to give rise to an aponeurosis that converges in the midline. And these help to form the linea alba. So let's draw out this aponeurosis coming from external oblique. So here we can see the aponeurosis coming from external oblique and its line anterior to rectus abdominis.



If we were to draw the layer of aponeurosis coming from transversus abdominis we'll see that it's coming posterior to rectus abdominis muscles. So here external oblique is anterior. And here transversus abdominis is posterior. And their layers of aponeurosis are also anterior and posterior.

Internal oblique gives rise to an aponeurosis just like transversus abdominis and external oblique. But this aponeurosis splits into both an anterior and a posterior layer. The posterior layer of internal oblique's aponeurosis runs posterior to rectus abdominis, while its anterior layer is going to run anterior to rectus abdominis muscles.

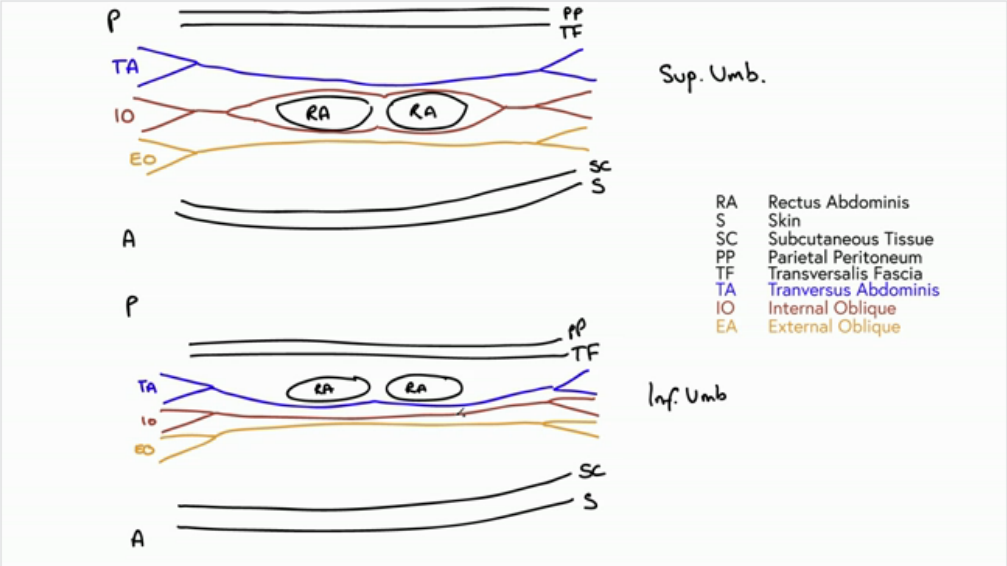
So here at this level of the rectus sheath, we can see that transversus abdominis aponeurosis is posterior, external oblique aponeurosis is anterior. And internal oblique, it's aponeurosis splits into a posterior and an anterior layer. And they go posterior or anterior to the rectus abdominis muscles.

This arrangement is found superior to the umbilicus. So superior to the umbilicus. Now if we were to look inferior to the umbilicus-- especially about a third of the way inferior of the umbilicus, between the umbilicus and the pubic symphysis-- then we'll find a slightly different arrangement of the aponeuroses that form the rectus sheath.

So if we draw these out again, then let's draw our two rectus abdominis muscles out here. So here's our two rectus abdominis muscles. Once again, here is posterior and here is anterior. So let's draw out a layer of skin. Let's draw out a layer of subcutaneous tissue, both anteriorly. And let's draw out the parietal peritoneum and the transversalis fascia most posteriorly. So parietal peritoneum, transversalis fascia, subcutaneous tissue, and skin. And this is going to be inferior to the umbilicus.

So now let's draw out the three anterolateral abdominal wall muscles. We have transversus abdominis. We have internal oblique. And we have external oblique. And these three muscles are also going to give rise to those aponeuroses just like they did above the umbilicus. So if we now draw out these aponeuroses, we can see that they all run anterior to rectus abdominis muscles. So each of the aponeuroses is going to run anterior to rectus abdominis. And this arrangement occurs inferior to the umbilicus.

So superior to the umbilicus we have one, two layers posterior, and one, two layers anterior. Inferior to the umbilicus we have one, two, three layers anterior. Where the two layers of internal oblique's aponeuroses have rejoined to form one and this now lays anteriorly.



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