Vessels:

There are 3 major vessel groups to isolate and securely ligate in the transtibial amputation: the *anterior tibial vessels*, the *posterior tibial vessels* and the *peroneal vessels*. These named vessel groups are typically doubly ligated first with a stick tie through the artery so that it will not pulse off of the vessel. Proximal to this, a free tie is used to avoid the possible bleeding from the stick tie, or the possibility of a small arterial-venous fistula or pseudo aneurysm forming at the stick tie site.

1. The Anterior tibial vessels are located within the anterior muscle compartment, at the deepest or most posterior surface, just anterior to the syndesmotic membrane. They are most easily visualized after transecting the anterior muscles and finding the transected vessels at the posterior aspect of the anterior compartment.
2. The Posterior tibial Vessels are located within the fascia of the deep posterior muscle compartment. They are easily visualized after gently lifting the deep posterior compartment off of the superficial compartment by manually separating the fascial plane between the soleus and deep compartment, starting on the medial edge, at the proximal portion of the flap. If the interval between the soleus and gastrocnemius is entered inadvertently, this becomes obvious when the plantaris tendon comes into view.
3. The Peroneal vessels are also within the deep posterior muscle compartment, but are not as obviously identified as the posterior tibial vessels. They lie lateral to the posterior tibial vessels, and are between the FHL muscle and the PT muscle, very close to the deep edge of the fibula. The large veins are occasionally torn during the transection of the fibula, and occasionally bleeding that appears to be coming from the fibula, is actually coming from the peroneal veins. If this is the case, placing a bone hook into the fibula, and lifting the limb by the fibula allows the peroneal vessels to fall away from the bone so they can be clamped more proximally and ligated at the site of bleeding under direct visualization.