Transtibial Amputation with Extended Flap and Bone Bridging

Nerves:

Saphenous vein and nerve:
Find the saphenous vein, the nerve is usually just lateral to the vein. Separate vein and nerve, drawn down nerve and cut, no need to suture ligate this nerve. Ligate the saphenous vein with absorbable suture.

Anterior tibial vessels and the deep peroneal nerve:
Identify and separate the vessels and the nerve. Pull deep peroneal nerve distal and divide. Dissect the anterior tibial vessels, clamp them, and double ligate first with a stick tie, then with a free tie (proximal to first tie).

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.

Expose and ligate superficial peroneal nerve:
In the lateral compartment, the course of the superficial peroneal nerve changes dramatically from proximal to distal. Proximally, it is found between the peroneus longus and peroneus brevis muscle. Distally, it can pierce the fascia and change from the lateral to the anterior compartment. Find the nerve, drawn down and ligate. No need to suture ligate this nerve.

Dissect tibial nerve:
On the undersurface of the deep posterior compartment, the Tibial nerve runs throughout its course with the posterior tibial vessels. It is the largest nerve in the lower leg. Separate form the posterior tibial vessels by opening the perineurium and physically pulling away from the vessels. Clamp the posterior tibial vessels to exclude the nerve. Draw the nerve down and divide. Ligation of this nerve to prevent bleeding from the nerve is controversial. I rarely ligate the nerve, and only do so if I visibly see small vessels that may bleed.

Pull the tibial nerve distally and transect:
Dissect soft tissue away from nerve, drawn down, transect, and allow to retract.

Locate sural nerve and small saphenous vein:
Sural nerve – This superficial nerve runs in the posterior flap, and is located between the skin and the superficial fascia. It runs just lateral to the small saphenous vein. The vein is isolated and ligated. The sural nerve needs to be shortened dramatically so as to position the nerve ending not just away from the incision, but well up posteriorly and not in the tissue covering the distal end of the amputation.

Pull the sural nerve distally (10-15cm) and transect