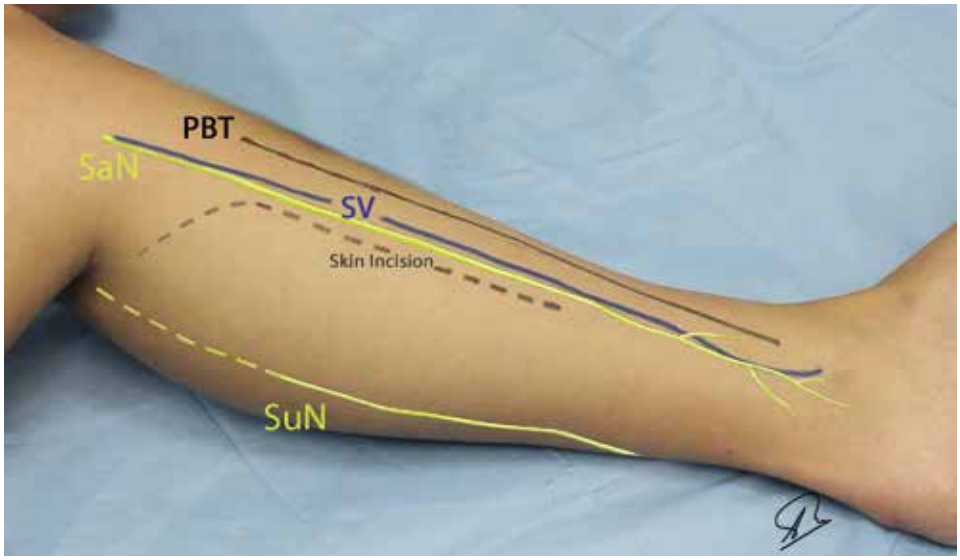

Figure 7.50. Markings and references: The posterior border of the Tibia (PBT) is first marked out. 2 or 3 cm posterior to that border, the greater saphenous vein (SV) and the saphenous nerve (SaN) course distally from the thigh to the posterior aspect of the ankle tuberosity. Between both gastrocnemius muscles, the sural nerve (SuN) courses distally to the lateral aspect of the ankle and is accompanied by the lesser saphenous vein. The skin incision is outlined 2 cm behind the saphenous vein and nerve and curved up posteriorly to facilitate access to the muscular head of the gastrocnemius.

LATERAL GASTROCNEMIUS FLAP

The patient is positioned supine with the ipsilateral hip elevated to maintain the limb in a slight internal rotation and the knee slightly flexed. Incision is marked parallel to, and 2 cm behind the posterior border of the fibula and can also be extended proximally to the popliteal fossa.

Elevation

The flap is best raised with the patient in the supine position, with the hip abducted, slightly flexed and externally rotated and the knee also partially flexed. Elevation of the muscle is best done under controlled ischemia, by using an inflatable tourniquet. Muscle incisions and section are rather bloody and this will challenge precise identification and isolation of the pedicles.

The heads of both of the gastrocnemius muscles form the lower triangle of the popliteal fossa, with its vertex marking the boundary between each gastrocnemius body, which is also separated by a fibrous septum. Deep in between the medial and lateral bodies the sural nerve is found. The medial gastrocnemius is clearly differentiated in the upper third from the underlying soleus muscle. The long tendon from the plantaris muscle is also identified and helps with finding the plane of elevation.

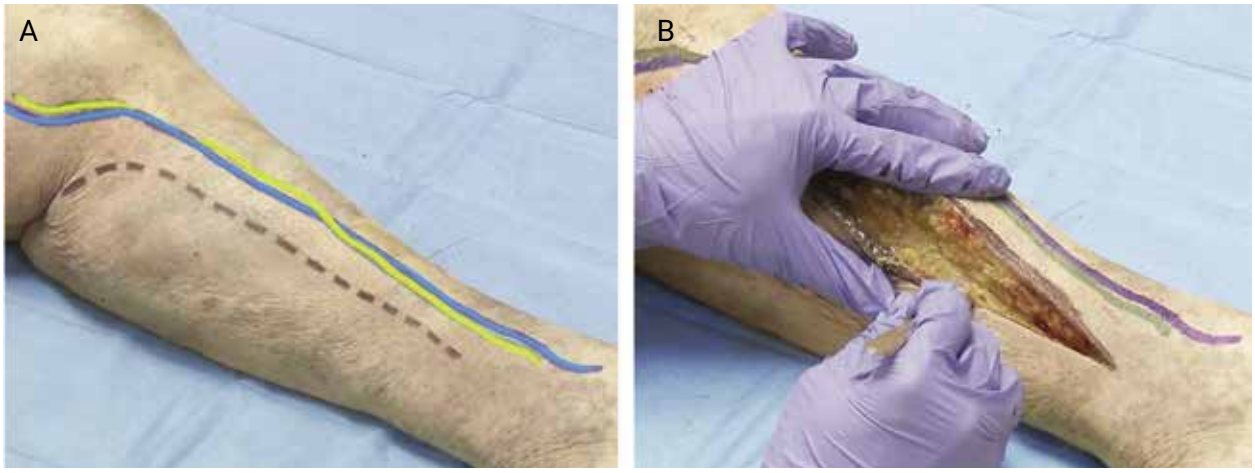

Figure 7.51. A) Saphenous nerve and vein should be preserved, so they are traced about 2-3 cm from the tibial medial border and the incision marked on the medial side of the calf. B) Incision is made deep to the fascia, which is left attached to the skin.

Figure 7.52. A) Subfascial dissection proceeds posteriorly all along the incision, to expose the muscle. B) The belly of the gastrocnemius muscle is completely exposed and dissected free from the fascia until the midline is reached and the fibrous septum is found. Deep inside, the sural nerve is seen. It should be dissected free the muscle and respected.

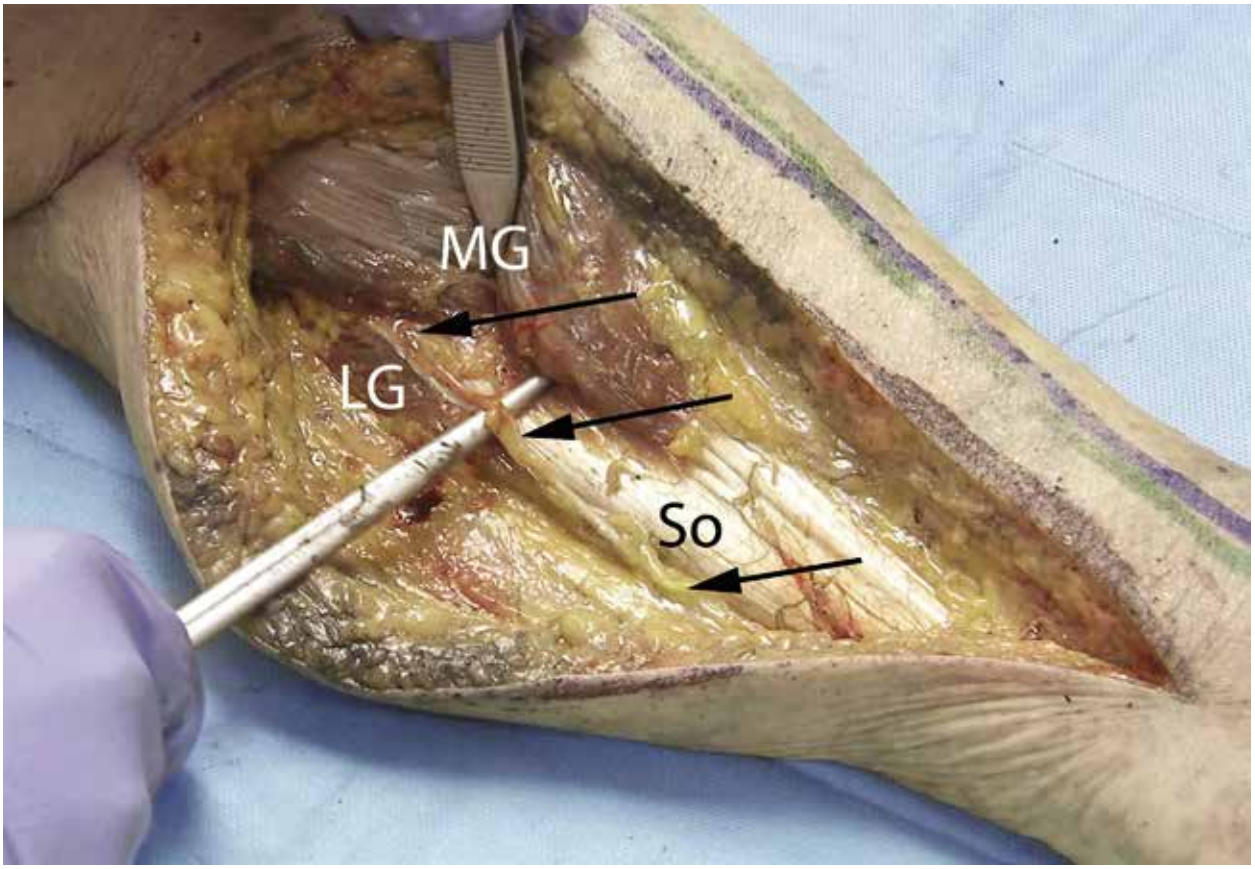

Figure 7.53. In between the Medial gastrocnemius (MG) and lateral gastrocnemius (LG) lies the upper portion of the sural nerve (black arrows). Soleus muscle (So) is seen deep inside.

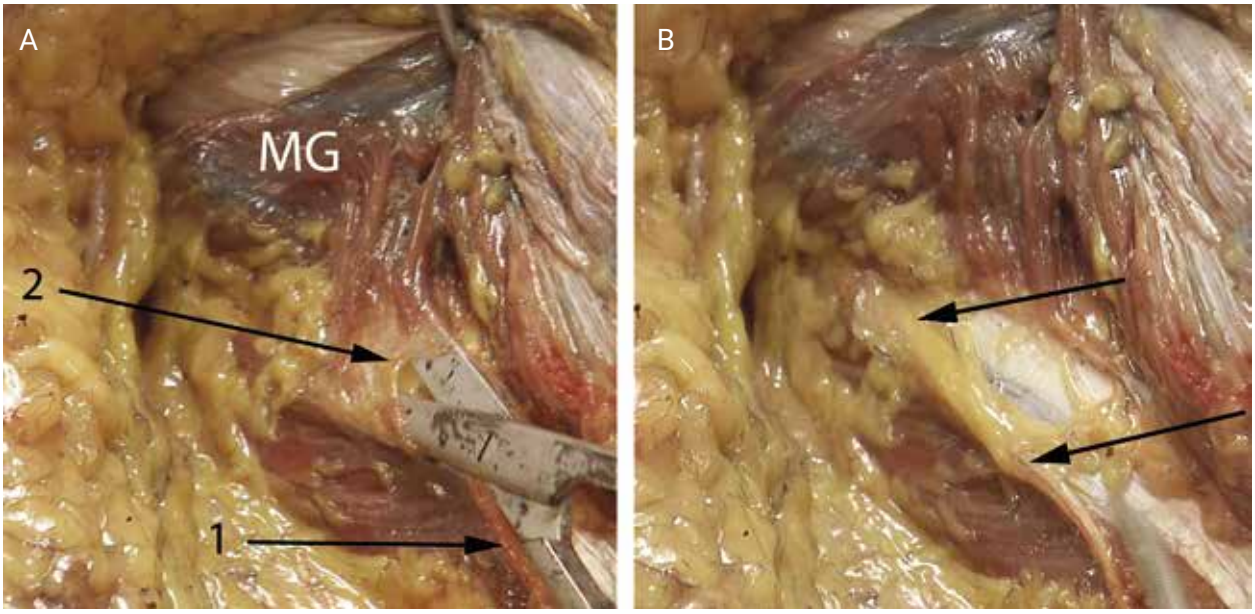

Figure 7.54. A) Occasionally, the sural nerve (1) courses inside a fibrous tunnel (2) that should be opened to be traced and keep the nerve respected from the Medial gastrocnemius (MG) elevation.

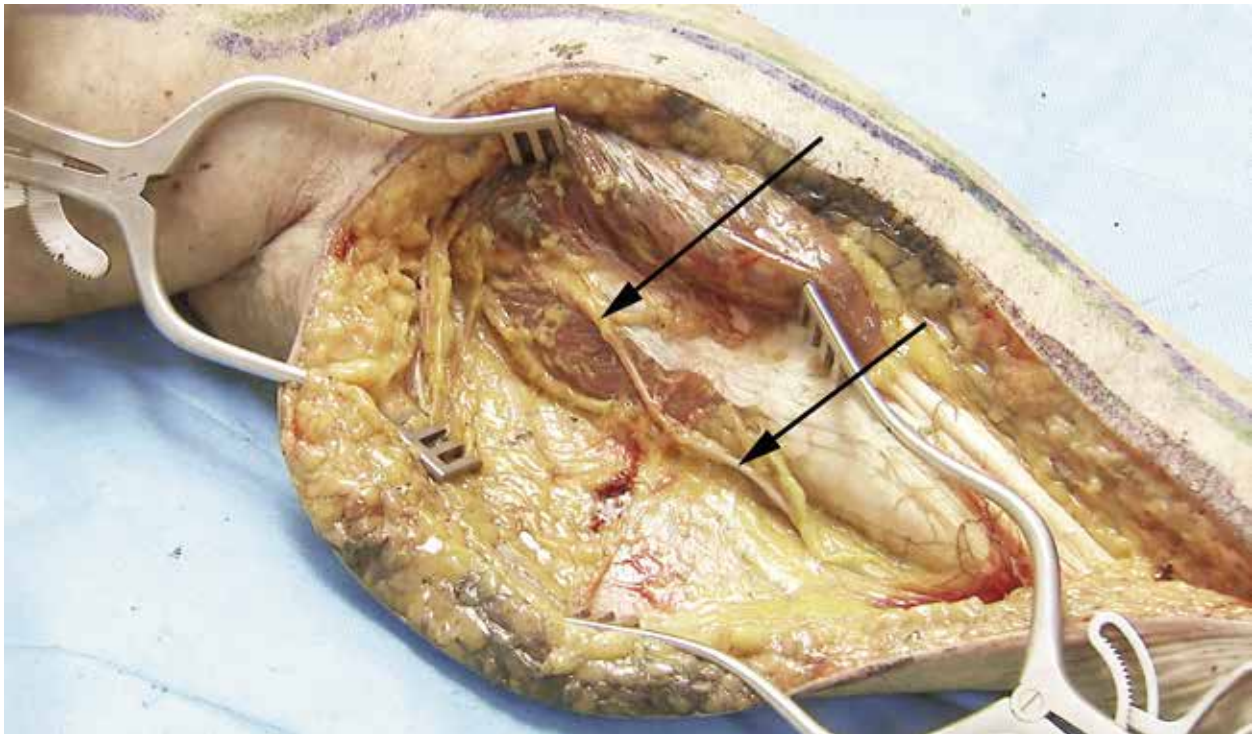

Figure 7.55. The posterior cutaneous flap is rejected and the sural nerve (arrows) can be seen running over the soleus muscle between both gastrocnemius muscles. It is kept apart towards the posterior aspect to initiate the elevation of the muscle belly.

Figure 7.56. A) Distally, elevation of the common tendon of the gastrocnemius from the soleus is easily achieved by blunt dissection. B) Proximally, the medial body has to be freed with knife or scissors.

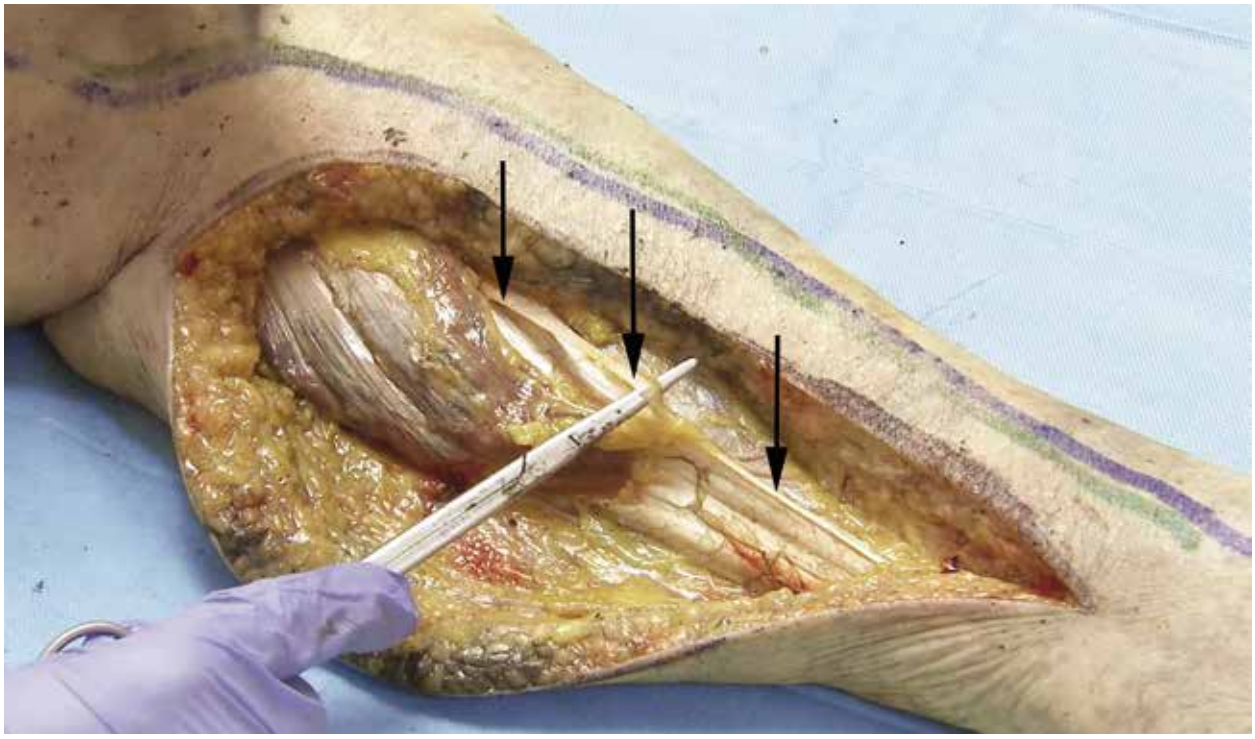

Figure 7.57. The right plane of dissection between the gastrocnemius and soleus muscles is confirmed by the presence of the long, narrow tendon of the plantaris muscle (arrows).

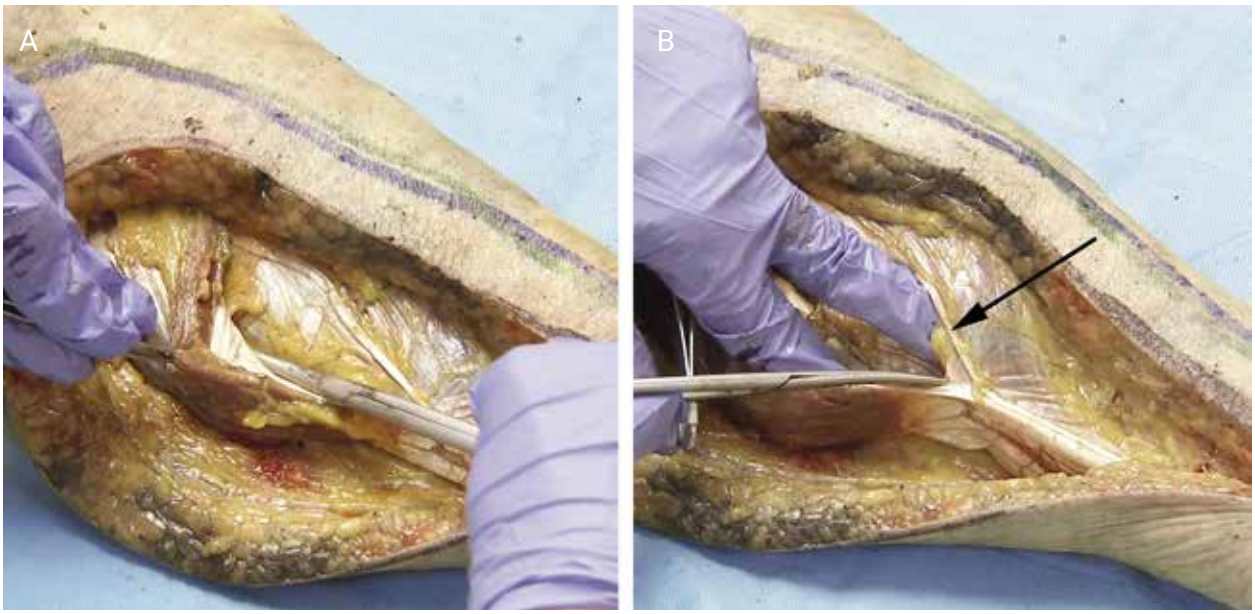

Figure 7.58. Medial to the long tendon of the plantaris muscle, gastrocnemius elevation is easily done with blunt scissors. Any perforator vessel traversing this plane is ligated and divided.

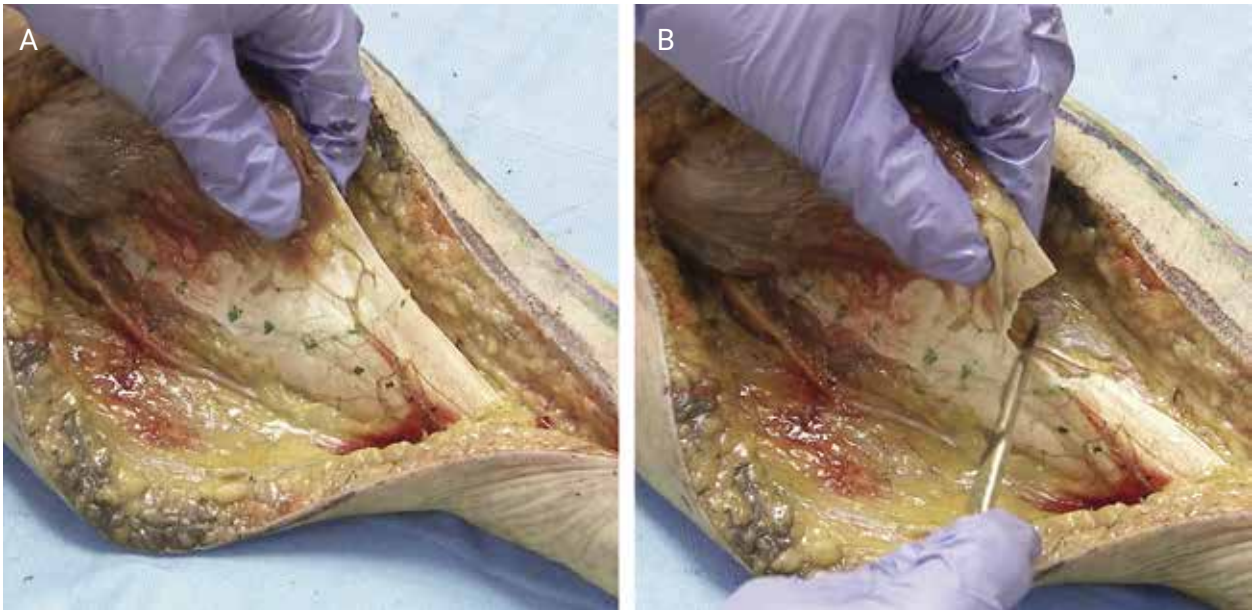

Figure 7.59. The common tendon of the gastrocnemius is elevated and split into two segments: the one that is included with the medial gastrocnemius and the one which remains attached to the soleus muscle and the common Achilles tendon.

Figure 7.60. Finally, elevation is completed towards the popliteal zone. However especial care has to be taken laterally where the pedicle enters the muscle.

Figure 7.61. The muscle usually rotates with facility but if it is still short, fasciotomies at different levels can be performed (exclusively the fascia). This enables some 2 or 3 cm more length.

Occasionally, the flap can be further mobilized by transferring the muscle under the tendons of Gracilis and semitendinous muscle. This manoeuvre effectively allows the muscle to reach the proximal aspect of the knee or distal part of the anterior femur. However, under these tendons the proximal part of the muscle will be tight and at risk of becoming congested or ischemic.