Persistent bilateral sciatic artery: Report of a rare case

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The sciatic artery – a rare finding on autopsy – and continuation of the inferior gluteal artery has been reported previously. On a routine dissection, bilateral persistent sciatic arteries were found in both thighs of a female cadaver. This provided evidence that the sciatic artery follows

In 1832, Green (1) published the first report of the existence of a sciatic artery. Since then, several reports (2-4) have indicated the clinical importance of this artery in terms of aneurysms, hip surgery and blood supply to the lower limbs. There are also reports that the sciatic artery originates from the umbilical artery and may play a greater role when one considers the different branches of the internal iliac artery (5). Unfortunately, students are not exposed to this interesting variation because most embryology textbooks do not even mention the existence of the sciatic artery. The present findings were initiated by students who believe that the accidental discovery of this artery has a pivotal influence on their understanding of the embryology of the vascular supply to the lower limbs.

METHODS AND RESULTS

Dissection of the musculoskeletal system in cadavers was performed in an anatomy class at the College of Medicine,

the sciatic nerve, supplies the back of the thigh and finally joins the popliteal artery near the knee. The profunda femoris artery was completely absent bilaterally. The present report strengthens the view that the sciatic artery plays a major role in supplying blood to the lower limbs in utero and its existence after birth may have significant clinical importance.

Key Words: Blood supply; Embryology; Sciatic artery

Alfaisal University (Riyadh, Saudi Arabia). A persistent bilateral sciatic artery was observed along the sciatic nerve (Figures 1 and 2).

Figure 1 shows the persistent bilateral sciatic artery along the sciatic nerves. These arteries originated from the inferior gluteal arteries and terminated in the popliteal arteries at the back of the knee. Further dissection revealed that there was no profunda femoris artery; otherwise, the femoral artery was normal. Figure 2 shows a close view of the sciatic nerve and artery below the piriformis muscle. The common fibular nerve did not arise at that level.

Figure 1) The bilateral sciatic nerve (A) and sciatic artery (B) at the proximal end of a gluteal dissection. The sciatic nerve is shown again at the distal end

Figure 2) Close view of both the sciatic nerve (A) and artery (B) below the piriformis muscle (C)

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DISCUSSION

Students discovered a persistent sciatic artery (PSA) in a female cadaver during dissection of the lower limbs. The artery was bilateral, complete and provided the majority of the blood supply to both lower extremities.

PSA is a rare congenital anomaly with an incidence ranging from 0.025% to 0.04% of the general population (1-4). During early embryonic life, the sciatic artery supplies blood to the developing limbs. Over time, it regresses and is replaced proximally by the inferior and superior gluteal arteries. The deep muscles of the thigh are then supplied by the profunda femoris artery. In our case, the bilateral profunda femoris artery was completely absent, although the superficial femoral artery remained intact. This is in direct contrast to other studies (1-4) that observed complete agenesis of the femoral artery in the presence of PSA. In addition, the sciatic artery was not affected by aneurysms. Therefore, it is possible to have several developmental vascular deformities associated with PSA. In this context, it is important to determine whether PSA is associated with any other developmental changes of clinical importance. The etiology of such changes obviously remains an interesting area for future research.

Although cases are rare, the students appreciated the embryological and clinical importance of the bilateral PSA.

For example, based on the literature (1-5), the PSA might pose a hazard during orthopedic manipulation, hip joint surgery and transplant surgery; the PSA is also at risk for aneurysm. The present case also strengthens the view that dissection in the anatomy curriculum can be of great value and can have a pivotal influence on the ongoing debate about its efficacy (6).

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