Persistent Sciatic Artery. Case Report

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Summary: A case of a persistent sciatic artery in a 60-year-old Japanese man is reported. The right persistent sciatic artery (5 mm in diameter) was joined to the internal iliac artery proximally and to the popliteal artery distally. The terminal vessel of the femoral artery (3 mm in diameter) was connected to the sciatic artery at the popliteal fossa.

Persistence of the sciatic artery is a rare vascular anomaly. It and its aneurysms have been discovered incidentally during angiography, apart from anatomic descriptions of cadaver dissection (Cowie et al., 1960, Joffe, 1964, Wirght, 1964, Blair and Nandy, 1965, Bower et al., 1977, Esaki et al., 1980, Freeman et al., 1986, Nishizawa et al., 1987, Noblet et al., 1988). The incidence of sciatic artery found on angiography is estimated to be approximately 0.025% to 0.06% (Mayschak and Flye, 1984, Zaccaria et al., 1986). A recent review of the world literature (Noblet et al., 1988) reports a total of 71 cases of the sciatic artery. Twelve anatomic descriptions of the anomaly in Japanese cadavers have been reported so far (Adachi, 1928, Yamada et al., 1965, Emura et al., 1991). We present one additional case that was found during dissection practice for students at Okayama University Dental School in 1991.

Right persistent sciatic artery was found in the cadaver of a 60-year-old Japanese man (Fig. 1). In this case, the persistent sciatic artery began as a direct continuation of the internal iliac artery (Fig. 2). The artery coursed like an inferior gluteal artery, entering the thigh through the lower part of the greater sciatic foramen to the gluteal region (Fig. 3). The artery (5 mm in diameter at the exit of the greater sciatic foramen) descended along the posterior side of the thigh accompanying the sciatic nerve and then became the popliteal artery at the popliteal fossa. The artery received a much reduced femoral artery that passed through the adductor hiatus at the lower part of the popliteal fossa (Fig. 4). The popliteal artery was a continuation of the persistent sciatic artery coursing through the popliteal fossa; it then divided in typical manner into anterior and posterior tibial arteries at the distal border of the popliteus muscle (Fig. 4). The peroneal artery arose from the posterior tibial artery and was of somewhat larger diameter than usual, but showed no apparent anomalous conditions.

The right femoral artery (3 mm in diameter at the first part) began immediately distal to the inguinal

The sciatic artery represents persistence of the sciatic portion of the embryonic dorsal axial artery and failure to develop anastomoses with the ventral femoral network (Arey, 1954, Donovan and Sharp, 1984). Because of this, the sciatic artery demonstrates various anatomic variations. According to Bower et al. (1977), the sciatic artery is designated as “complete” when its caliber shows little diminution in its course from the internal iliac to the popliteal artery. Conversely, the sciatic artery is incomplete if its continuity is broken, or if its anastomosis with either the internal iliac artery or the popliteal artery is by small collaterals. Kawaguchi et al. (1979) subdivided Japanese complete sciatic artery into two types: in the first type the femoral artery is slender
and does not anastomose with the popliteal artery, and in the second type the femoral artery is also slender but anastomoses with the popliteal artery. In a “third type” of sciatic artery the femoral artery is present and is normal in size, and the terminal vessel of the femoral artery is joined to the sciatic artery at the popliteal fossa (Bower et al., 1977, Golan et al., 1986, Emura et al., 1991). Our case agrees with the third type of complete sciatic artery.

The sciatic artery is a clinically significant anomaly. The sciatic artery has been associated with various pathologic entities: “crooked leg,” hemihypertrophy of the pelvis and leg, short leg, atherosclerosis, obstruction, and aneurysm (Bower et al., 1977). The incidence of aneurysm of the sciatic artery is quite high, having been estimated to be 14% to 35% (Bower et al., 1977, Noblet et al., 1988). The reported aneurysms have been located under the gluteus maximus at the level of the greater trochanter. Clinically, the aneurysms can produce swelling and tenderness of the buttock or may cause distal embolization (Donovan and Sharp, 1984). However, the etiology of these aneurysms is not clear.

References

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