

MRA of Pedal Arteries

Clinical History

The patient was a 50-year-old Caucasian male, bodyweight 68 kg, with a past medical history of left-sided minor tissue loss (gangrene in the first digit of the left foot), ischemic stroke and dysphasia. He was taking diclofenac, alprostadil, enoxaparin and an antibiotic ointment.

MR Imaging

MR scans were carried out in 2002 on a Philips 1.5 T whole-body scanner. Time-of-flight MR angiography was performed (data not shown). The TOF MR angiogram suggested an occlusion of the posterior tibial artery with refilling of the lateral plantar arch. However, due pronounced artifacts, the delineation of the small arteries was not sufficiently clear and did not permit a concise diagnosis. In addition to TOF MRA, steady-state MR angiography of the foot, following intravenous injection of gadofosveset was performed.



Fig. 1. The figure shows an image obtained with early-phase 3D gradient echo MR angiography (TE 2.0, TR 6.2, NEX 1, flip angle 25°, slice thickness 1.8 mm, field of view 260 x 170 mm, matrix 320 x 320) after i.v. bolus injection of gadofosveset.

Comment on Fig. 1

This MR angiogram shows occlusion of the distal posterior tibial artery (white arrow) and refilling of the lateral plantar arch by collaterals (red arrow).

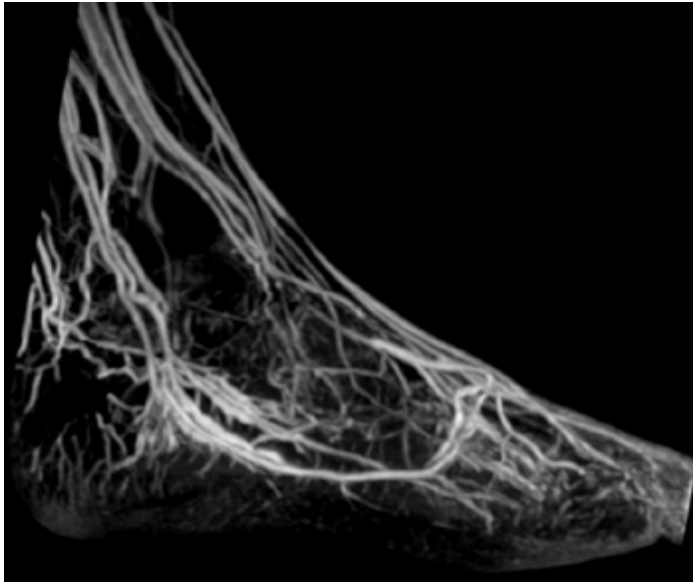


Fig. 2. This figure shows an image obtained with steady-state 3D gradient echo MR angiography (TE 2.2, TR 7.0, NEX 1, flip angle 30°, slice thickness 0.8 mm, field of view 280 x 210 mm, matrix 320 x 320, fat saturation), started 3 minutes 55 seconds after the prior sequence with the blood pool agent.

Comment on Fig. 2

This steady-state MR angiogram shows the vast amount of detailed information available in enhanced MR angiography. Both small vessels and venous anatomy can be depicted in detail.

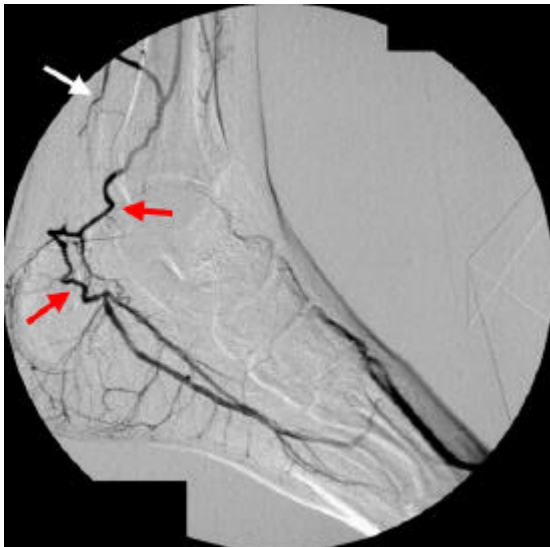


Fig. 3. This invasive angiogram shows the occlusion of the posterior tibial artery (white arrow) and the filling of the lateral plantar arch by collaterals (red arrows).

MR Diagnosis: Occlusion of the distal posterior tibial artery with filling of the lateral plantar arch by collaterals.