Clinical utility of magnetic resonance angiography for femoro-popliteal arterial occlusive disease

U YETKIN, K ERGUNES, A OZELCI, T GOKTOGAN, A GURBUZ

Citation

Abstract
Magnetic resonance angiography (MRA) has recently become instrumental in the diagnosis of arterial disease and is gaining an important role in the study of planning revascularization. In this study we present clinical utility of magnetic resonance angiography for femoro-popliteal arterial occlusive disease.

INTRODUCTION
Magnetic resonance angiography (MRA) permits noninvasive vascular assessment (1). In the patients with occlusive disease, the femoropopliteal vessels can be classified as patent, moderately stenotic, severely stenotic, or occluded with MRA (2).

CASE PRESENTATION
Our case was a 71 years old patient and MRA image was consistent with occlusive lesions of bilateral superficial femoral arteries (Figure 1). Diagnosis of occlusive and/or severe stenotic lesions secondary to arteriosclerosis obliterans (ASO) at the segment between the common-superficial-profunda femoral and popliteal arteries and evaluating the MR angiographics to plan the revascularization operation was performed.

In the same patient MRA of popliteal artery and distal part showed that popliteal arteries and anterior and posterior tibial arteries and peroneal arteries are in normal calibrations and all patent. We performed successful bilateral femoro-popliteal bypass operation with 8mm-80cm ringed e-polytetrafluoroethylene graft and postop 5th day he was discharged. All distal pulses were patent.

DISCUSSION
MRA is a safe and accurate assessment of the lower extremity arterial system in patients with occlusive disease. Sensitivity, specificity, and accuracy of intraarterial MR angiography in the characterization of significant stenoses or occlusions were 92%, 94% and 93%, respectively, in
femoro-popliteal arteries (3).

In the study of Yucel et al., MRA and conventional arteriography was performed in 25 patients who underwent routine arteriography for symptomatic atherosclerotic occlusive disease of the lower extremity (4). MRA was performed from the distal abdominal aorta through the popliteal trifurcation. The native arterial tree was divided into nine segments; each segment was assessed for patency (defined as stenosis < 50% of arterial diameter), moderate stenosis (50%-69%), severe stenosis (70%-99%), or occlusion (100%). In all 206 segments examined, the sensitivity of MR angiography in diagnosis of occlusion was 100%; the specificity, 98%. All long occlusions were correctly classified (4).

The objectives of the study of Zorger et al. were to show the feasibility of intraarterial MRA of the infrainguinal arteries and to compare the accuracy of intraarterial MRA with selective intraarterial digital subtraction angiography for the detection of stenoses. Fifteen patients underwent digital subtraction angiography and intraarterial MRA. For the detection of significant stenoses (≥ 50% stenosis), the overall sensitivity and specificity for the femoropopliteal vessels were 92.4% and 91.7%. For the complete leg, sensitivity and specificity were 92.2% and 88.6% (5).

In conclusion; MRA has a high sensitivity for detecting femoro-popliteal arteries stenoses. MRA allows a fast, safe, and accurate assessment of the arterial system in patients with arteriosclerosis and can be considered an alternative to DSA in the management of patients with steno-obstructive disease of the peripheral arteries (6).

References
Author Information

Ufuk YETKIN
Clinical Deputy Chief, Assoc. Prof. in CVS, Department of Cardiovascular Surgery(CVS), İzmir Atatürk Training and Research Hospital

Kazim ERGUNES
Specialist in CVS, Department of Cardiovascular Surgery(CVS), İzmir Atatürk Training and Research Hospital

Ahmet OZELCI
Specialist in CVS, Department of Cardiovascular Surgery(CVS), İzmir Atatürk Training and Research Hospital

Tayfun GOKTOGAN
Specialist in CVS, Department of Cardiovascular Surgery(CVS), İzmir Atatürk Training and Research Hospital

Ali GURBUZ
Clinic Chief, Assoc. Prof. in CVS, Department of Cardiovascular Surgery(CVS), İzmir Atatürk Training and Research Hospital