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Revascularization of a chronic total occlusion of the infra-renal aorta in a patient with triple vessel disease: Report of a case treated by endovascular approach

Mahek K. Shah, Khalid Chaudhry, Isaac Opoku-Asare, Rahul Sinha and Sean Janzer
Einstein Medical Center, USA

Introduction: Total occlusion of the infrarenal aorta has an estimated prevalence of <0.1%. Bypass surgery and aortic endarterectomy are considered the standard treatment for aortoiliac occlusive disease (AIOD). Catheter based endovascular approach is an alternative in patients at unacceptably high risk for surgery and is associated with lesser morbidity and faster recovery.

Case: A 54 year old African American male with history of lumbar radiculopathy, polysubstance abuse and 20 years of smoking presented with severe left leg pain and an inability to walk for over 3 weeks. He also complained of substernal chest pain two days ago that was exertional. On exam, the left foot was cold and both his feet had only faint doppler signals without palpable pulses.

An electrocardiogram revealed ST segment elevations with T wave inversion in leads II, III and aVF. A 2D echocardiogram showed an ejection fraction of 20-25% with severe hypokinesis of the anterior, anteroseptal and apical walls. A CT scan of the chest and abdomen showed a chronic complete infra-renal aortic occlusion and major collateral blood supply to the bilateral common iliac arteries from the internal mammary arteries (IMA). He received a coronary angiogram demonstrating severe narrowing of the left anterior descending, second obtuse marginal and ramus intermedius arteries that were stented. Within 3 days, he developed an in-stent thrombosis of the ramus intermedius artery that was successfully restented.

The blood pressure in his lower extremity was unmeasurable. He acquired a severe infection of his left lower extremity that acutely worsened with a rapid decline in his mental functions. An emergent angiogram of the left lower extremity demonstrated an acute thrombosis of the superficial femoral artery. Using a wildcat catheter, endovascular revascularization of the occluded aorta was achieved and a self expanding stent was placed. Percutaneous angioplasty of the left common and external iliac arteries was also performed due to severe atherosclerosis. A balloon dilatation and revascularization of the mid superficial femoral artery re-established blood flow in the the left lower extremity. Post-procedure, the infection continued to worsen and he received a left above knee amputation that was followed by a prolonged recovery.

Discussion: Collateral blood supply via bilateral IMA to the lower extremities meant that using the left IMA for coronary revascularization would compromise blood supply to the lower extremity. Hence, the patient underwent percutaneous angioplasty of the stenosed coronary arteries. An endovascular approach was preferred for recanalizing the aorta even in the acute setting, keeping in mind the high risk for surgical mortality in this case. When applied to the appropriate anatomical problem, the results of iliac angioplasty/stent placement rival open surgical results but its application in proximal occlusive disease is controversial with lack of long-term follow-up data.

Biography

Mahek Shah did his Medical Graduation at Seth GS Medical College, India. And after he moved to US and he is currently doing his Internal Medicine resident at Einstein Medical Centre, Philadelphia. His main research area is Cardiology and he had done many projects in Cardiology during his training period.

shahmahe@einstein.edu