Managing Recurrent Aortoiliac Occlusive Disease

BY KEITH JONES, MD, AND ROSS MILNER, MD

Aortoiliac occlusive disease, or Leriche syndrome, is a form of peripheral vascular disease involving the infrarenal aorta, aortic bifurcation, and iliac vessels. Atherosclerotic plaque obstructs blood flow in these vessels and can create distal embolization. Symptoms include buttock claudication, erectile dysfunction, or, in the case of embolization, distal ischemia.

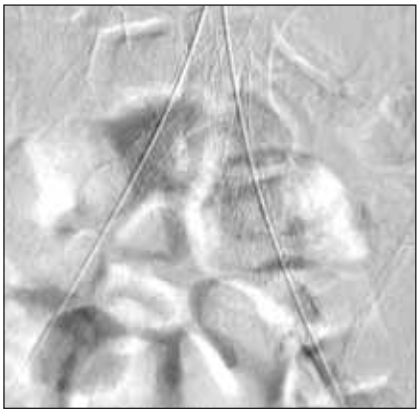

Figure 1. Plain film during angiographic imaging showing the previously placed kissing iliac stents.

PERCUTANEOUS INTERVENTION OR OPEN REPAIR?

There are a number of approaches for managing aortoiliac occlusive disease including open surgical intervention (thromboendarterectomy or aortobifemoral bypass), which can be associated with increased morbidity and mortality rates. Other approaches include percutaneous intervention with angioplasty and stenting, which is less invasive, associated with quicker recovery, lower morbidity and mortality rates, and a shorter hospital stay.[1-5] However, along with the beneficial effects of percutaneous intervention, there are potential complications. These complications include restenosis, vessel perforation, intimal dissection, and pseudoaneurysm formation. Reintervention for these complications can be associated with a great deal of complexity and difficulty. In this case report, we highlight the management of restenosis in a patient with kissing aortoiliac stents.

CASE REPORT

A 54-year-old man with a past medical history significant for hypertension, hyperlipidemia, and tobacco use had previously undergone bilateral common iliac artery angioplasty with kissing bare-metal aortoiliac stenting. At the 3-month follow-up visit, the patient reported significant improvement in symptoms. At 1-year follow-up, the patient was found to have recurrent, disabling claudication of his left lower extremity. For this reason, the patient was scheduled for diagnostic arteriography with the possibility of therapeutic intervention. Abdominal aortography was performed and showed the bilateral common iliac artery kissing stents (Figure 1).

The right stent was found to be mildly stenotic but with good flow into the right internal and external iliac arteries. On the left, there was occlusion of the stented region with reconstitution of the internal and external iliac arteries on the left side via collaterals (Figure 2).

Nonselective imaging of the lower extremities revealed a widely patent common femoral artery and profunda femoris artery on the left (Figure 3), as well as a widely patent superficial femoral artery down to the left of the below-knee popliteal artery. Nonselective imaging of the right lower extremity revealed similar findings.

A Quick-Cross catheter (Spectranetics Corporation, Colorado Springs, CO) and Glidewire (Terumo Interventional Systems, Somerset, N) were used to cross the occlusion of the left common iliac artery stent without difficulty. A 6-mm X 4-cm angioplasty balloon (Medtronic Invatec, Frauenfeld, Switzerland) was used to treat the in-stent stenosis on the right and the occlusion on the left side with a kissing-balloon inflation technique.

Because of the residual stenosis within the right-sided stent as well as a high-grade stenosis in the left-sided stent, the decision was made to place an additional stent. An 8- X 38-mm iCast covered stent (Atrium Medical Corporation, Hudson, NH) was selected for the right, and an 8- X 59-mm iCast covered stent was selected for the left side. These were brought to a location just above the previously placed stents and were inflated simultaneously with a kissing-stent technique. Arteriography was performed and revealed a significant improvement in antegrade flow on both sides (Figure 4).

DISCUSSION

Kissing angioplasty and stenting of aortoiliac occlusive disease has proven to be a safe and effective procedure. However, the long-term patency rates of percutaneous

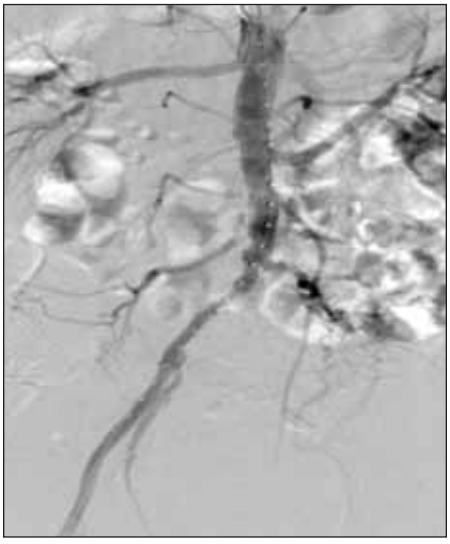

Figure 2. Abdominal aortogram revealing the occluded left common iliac stent with reconstitution of the external and internal iliac arteries on the left side.

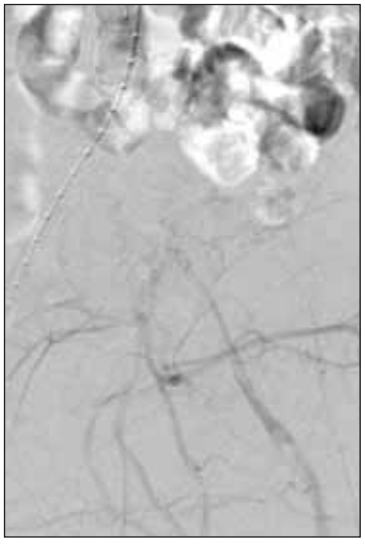

Figure 3. Lower extremity imaging revealing widely patent left common femoral, profunda femoris, and superficial femoral arteries.

Figure 4. Completion angiogram after placement of a covered stent.

interventions as compared to their open counterparts have not been established. There are several small studies in the literature showing decreased 5-year patency rates with endovascular intervention as compared to an open approach. As more endovascular interventions are being performed for aortoiliac disease, it is likely that subsequent percutaneous interventions will become necessary to combat restenosis and maintain patency. One other area of ongoing research involves the use of balloon-expandable covered stents versus bare-metal stents (BMS).

Advantages of Covered Stents Over BMS

The Advanta V12 (Atrium Medical Corporation) (not available in the United States) is a premounted covered stent that is composed of radial expandable stainless steel struts that are completely encapsulated with a patented microporous layer of expandable polytetrafluoroethylene film. This covered stent was used in the randomized, multicenter, prospective COBEST trial, which compared BMS with balloon-expandable covered stents.[6]

The COBEST Trial

The recent results of the COBEST trial demonstrated that patients treated with balloon-expandable stents had less binary restenosis, greater freedom from stent occlusion, lower amputation rates, and lower complication rates as compared to BMS treatment in patients with TASC C and D lesions. No significant difference was observed in overall patency rates in patients treated with covered stents versus BMS with TASC B lesions. The COBEST trial also revealed that patients treated with BMS in this study experienced a five-fold increase in target lesion revascularization. The results provided by this trial offer another option for management of aortoiliac occlusive disease and show an advantage of covered stents over BMS for specific types of iliac lesions.

CONCLUSION

Iliac artery interventions can be complicated by symptomatic restenosis. In-stent stenosis can be treated with several different approaches. We demonstrate the utility of covered stent technology to treat this complex presentation. ■

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