



Use of Intravascular Lithotripsy for Severe Calcification in Endovascular Aortoiliac and Common Femoral Arterial Reconstruction

Sankrit R. Kapoor^{1*}; Rohan Virdee, BMBS^{2*}; Michael Leshen, MD³; Devang Butani, MD³; Sanjiv Virdee, MD³

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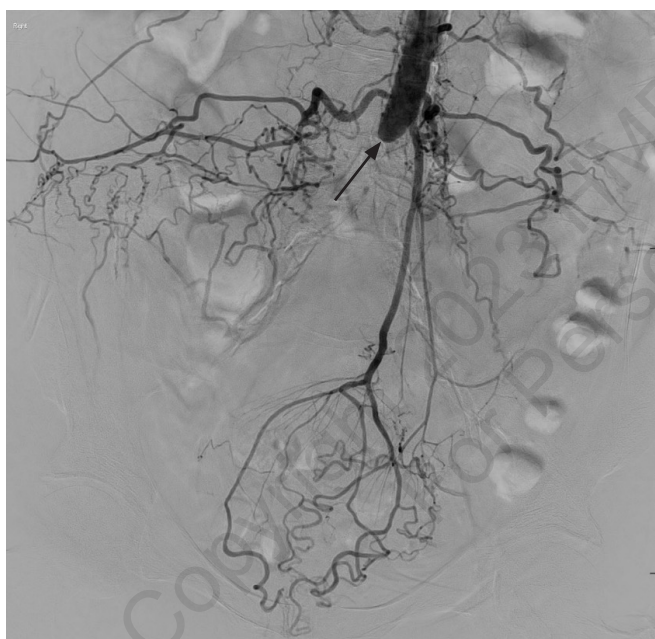


Figure 1. Early intraoperative aortogram. Early DSA aortogram depicting occlusion of the distal abdominal aorta (arrow) and bilateral common and left external iliac arteries. Collaterals from the iliolumbar and inferior mesenteric arteries are also present.

A 62-year-old female with severe lifestyle-limiting claudication and rest pain presented in clinic based on preoperative evaluation with significant inflow disease. Periprocedural brachial aortogram demonstrated extensive abdominal aortoiliac occlusive disease (**Figure 1** and **Figure 2**). The iliac occlusions bilaterally included the common iliac artery (CIA)

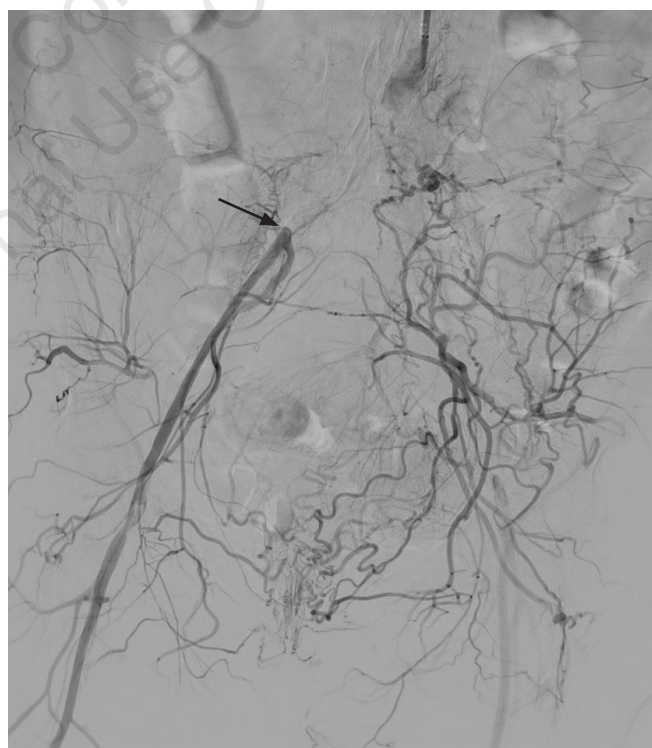


Figure 2. Late intraoperative aortogram. Late DSA aortogram depicting occlusion of the distal abdominal aorta (arrow) and bilateral common and left external iliac arteries.

and left external iliac artery (EIA). Hypertrophied iliolumbar and inferior mesenteric vessels provided collateral circulation. Calcified plaque in the right common femoral artery (CFA) resulted in 85% stenosis.



Figure 3. (A) Right common femoral artery prior to intervention. DSA of the right common femoral artery prior to intravascular lithotripsy. Arrow indicates dense calcifications resulting in severe stenosis. (B) Right common femoral artery following intervention. DSA of the right common femoral artery after intravascular lithotripsy resulting in significant luminal gain.

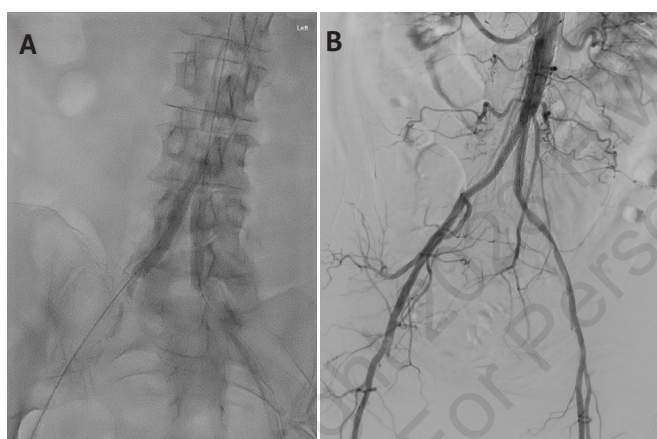


Figure 4. Right common femoral artery following intervention. (A) Fluoroscopy of the right common femoral artery after intravascular lithotripsy resulting in significant luminal gain. (B) Completion of standard and specialty balloon angioplasty and stenting. Final DSA following all treatment showing reconstitution of anatomic arterial vascular flow.

Using brachial access, right CIA and aortic occlusive disease were successfully recanalized. A wire was passed through the right CFA stenosis. Due to the calcified lesion in the right CFA, Shockwave intravascular lithotripsy (Shockwave Medical) was used in preparation for right groin retrograde access via the profunda femoris artery (**Figure 3**). The distal aorta, left CIA, and EIA occlusive disease were successfully recanalized.

Kissing Shockwave balloons were used for heavy calcifications in the distal aorta and CIA (**Figure 4**). Following stenting of the distal aorta and CIA, covered balloon-mounted stents

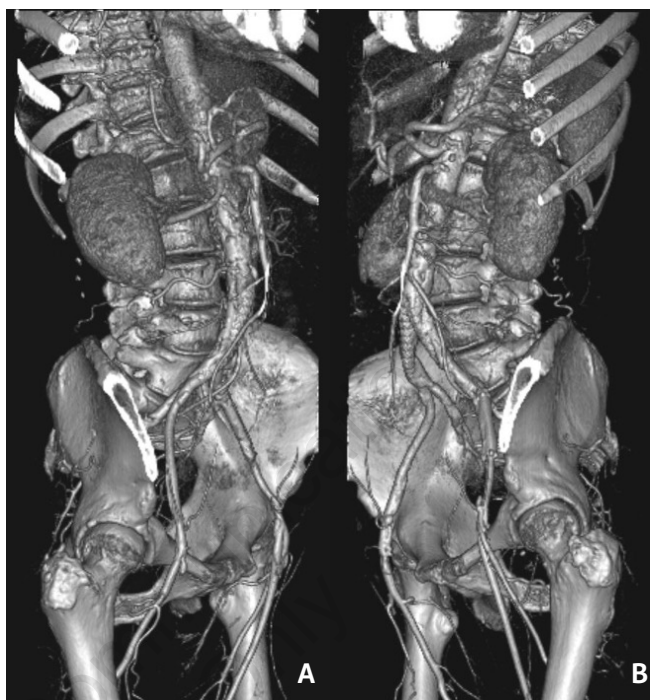


Figure 5. (A) 3D reconstruction of the left external iliac artery. (B) 3D reconstruction of the right external iliac artery detailing patency without stenosis 10 months following intervention.

were employed. The left EIA was treated with a self-expanding covered stent.

Postprocedural angiography and intravascular ultrasound demonstrated no residual stenosis with collateral flow reduction. Same-day and up to 10-month follow-up exams noted overall improvement and no symptom reoccurrence (**Figure 5**).

Angioplasty with kissing stents does not always result in the best patency rate in patients with Trans-Atlantic Inter-Society Consensus (TASC) D lesions, such as those demonstrating severe calcific disease. In the patient described herein, kissing-stent primary patency rate was improved via intravascular lithotripsy prior to stenting in the highly calcified abdominal aortoiliac occlusions. This form of occlusive disease was not previously treated endovascularly due to severe stenosis in the CFA. Intravascular lithotripsy can be useful in modifying normally resistant, calcified plaque morphology to allow endovascular treatment of occlusive disease in the CFA.

*Joint first authors.

From the ¹University of Rochester, Rochester, New York; ²University Hospital Coventry and Warwickshire; and ³Department of Imaging Sciences, University of Rochester Medical Center, Rochester, New York.

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Address for correspondence: Sankrit R. Kapoor, MD, University of Rochester, Joseph C. Wilson Boulevard CMC, Box 275766, Rochester, NY 14627. Email: skapoor7@u.rochester.edu