



**PHYSICIAN**  
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## ACCESS SITES

- 99% via femoral route.
- In rare cases, there is a need to move to a high brachial approach. In the case of an aortic occlusion, in which there is no longer a femoral route, the only way to achieve access is through a high-brachial approach.

## DIAGNOSTIC DEVICES USED

### SHEATH SIZES

Initially, we do not place a sheath; we evaluate with the flush catheter first and decide if an intervention will take place. Once it has been decided that an intervention will take place, we decide what type of system we will use. In the majority of cases, we use a .035-inch system and long 6-F sheaths.

### FLUSH DIAGNOSTIC CATHETERS

We use the Sos Omni flush catheter, which is designed to limit the amount of reflux up the aorta so that the majority of the bolus is concentrated at the level of the renal arteries. This allows for minimizing contrast use by maximizing the diagnostic usefulness of the contrast that is administered.

### SELECTIVE DIAGNOSTIC CATHETERS

We use the Sos Omni selective catheter family as the initial catheter in 99% of our cases. We start with the Omni II (4-F or 5-F system), which is successful 95% of the time. We use this catheter in combination with a guidewire to perform the initial crossing of the lesion.

### DIAGNOSTIC GUIDEWIRES

Bentson guidewire.

### DIAGNOSTIC NOTES

- Very rarely do we use a selective catheter as a diagnostic tool; we usually use the flush catheter to make our diagnosis in the case of an ostial lesion. In a case of fibromuscular dysplasia or intrarenal stenoses, we will perform selective catheterization and injection as part of the diagnostic procedure.

- If the patient has renal dysfunction, it is very important to limit the amount of contrast administered. Only use as much contrast material as is absolutely necessary to obtain the images needed. We use diluted iodinated contrast for almost all diagnostic studies and interventions whether the patient has pre-existing renal failure or not. We try to be very stingy with the amount of contrast we use; sometimes we will perform an entire diagnostic procedure and renal stent placement and will only have used the equivalent of 15 mL of full strength iodinated contrast.
- We always measure pressure gradient across a lesion(s); certainly if it is an ostial lesion. We look to find a pressure gradient that is at least 10% of the peak systolic pressure. We do not look for a specific number because the percentage gradient is more appropriate.

## INTERVENTIONAL DEVICES USED

### INTERVENTIONAL GUIDEWIRES

For ostial lesions, our initial catheterizations are performed using the Sos Omni II (4-F or 5-F system) in 99% of our procedures in combination with a Bentson guidewire to perform the initial crossing of the lesion. If necessary, we will switch to an angled hydrophilic guidewire. Once the Sos Omni has crossed the lesion, we place a stiffer guidewire (ie, a tapered attenuated diameter wire) to allow the balloon or the stent to be brought into position. We usually use an .035-inch system. Sometimes we will use a .014-inch system.

### INTERVENTIONAL SHEATHS OR GUIDE CATHETERS

A long 6-F sheath or any good 6-F sheath will work. It is helpful to have a radiopaque tip mark to be able to see exactly where the sheath is during stent deployment. Smaller sheaths can be used when a .014-inch balloon/stent system is utilized.

### PTA BALLOONS

Most currently available PTA balloons are good to use. We usually use an .035-inch system. Sometimes, we will use a .014-inch system, and then we like to use a mono-rail type of balloon. We usually try to select a balloon size that is 10% larger than the expected diameter of the artery.

### STENTS

Platinum-based, cobalt-based, steel. We try to use a nonferromagnetic type of balloon-expandable stent so that the patient can have a follow-up MRA to evaluate patency.

### OTHER DEVICES

In general, distal protection devices are not used.

### INTERVENTIONAL NOTES

Liberal use of intra-arterial nitroglycerin to prevent spasm.

### IMAGING

- It is very important to image in the appropriate oblique, which shows the lesion in relation to the aortic lumen; this is especially important with ostial lesions.
- It is preferable to image perpendicular to the origin of the renal artery. A cross-sectional image, frequently

obtained from the MRA, will provide a good idea of the angle necessary.

- In cases of fibromuscular dysplasia, we always image the renal artery in two obliques to ensure that we are seeing all of the artery and all of the area(s) of disease.

### OTHER EQUIPMENT USED

- Covered stents or occlusion balloons to use in cases of rupture.
- Snares to retrieve dislodged stents.

### CONTRAST RECOMMENDATIONS

Omnipaque 300, Visipaque (diluted, if your system can handle it).

### PHARMACEUTICALS

- Liberal use of intra-arterial nitroglycerin to prevent spasm.
- We fully heparinize our patients (approximately 5,000 units for an activated clotting time of 250 to 300 seconds)
- 81 mg of aspirin QD.
- Clopidogrel 75 mg PO QD in select patients who demonstrate “sluggish” flow following intervention
- Calcium-channel blocker to prevent spasm (in younger patients).

### TESTS USED

ACT, renal vein renin (rarely used anymore but sometimes helpful). ■