Brachial access technique for aortoiliac stenting revisited

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Abstract We report a modified technique to perform iliac artery stenting through the brachial artery access. A 6F Brite tip sheath (Cordis, Jonhson & Jonhson Medical, Miami Lakes, FL, USA) is inserted into either brachial artery and a standard 4F Judkins Right diagnostic catheter was inserted over a 260 cm 0.038” Terumo Stiff wire (Terumo Corp, Tokyo, Japan) through the sheath. The catheter is navigated down to the aortic bifurcation, and after selecting the common iliac artery ostium, the wire is navigated through the lesion and advanced to the ipsilateral superficial femoral arteries. The catheter should be then moved forward over the wires beyond the lesion and the Terumo guidewire is replaced by two 0.038” 260 cm Supracor wires (Boston Scientific Corporation, San Jose, CA, USA). In order to facilitate advancement of the stent without risk of dislodgement as well as to check the position with low contrast dose injection, a 6 F (or 7F if large stent is selected) 90cm Shuttle Flexor introducer long sheath (Cook Group, Bloomington, IN, USA) should be advanced over the Supracor wire until it reaches the common iliac artery ostium. A road-map technique can be used to check the ostium position in order to properly deploy the selected stent. This technique promises to be safe and effective offering more support than guiding catheter technique; moreover it reduces the stress on the arterial vessel at the subclavian site and enables a stiff balloon or stent catheter to be advanced even through a very elongated and calcified aorta without the risk of stent dislodgement. (J Geriatr Cardiol 2007;4:78-9.)

Key Words brachial access; percutaneous; angioplasty; stent; endovascular; peripheral vascular disease

Introduction

At this present time, iliac artery stenting is an accepted therapy for aorto-iliac artery disease with or without superficial femoral artery involvement. Standard approaches for iliac artery angioplasty and stenting are the retrograde ipsilateral femoral artery access and the antegrade contralateral cross-over femoral access. Bilateral retrograde access is preferable in the case of bilateral aortoiliac stenosis, whereas the antegrade crossing-over access is preferable in cases of contralateral iliac artery occlusion which are poorly approachable from the retrograde access.

In the elderly patient subset, due to tortuosity of femoro-iliac vessels, iliac artery stenting through femoral access may be frequently cumbersome or very challenging. We propose an alternative technique to perform iliac artery stenting in the elderly patients, using the brachial approach.

Technical note

A 6F Brite tip sheath (Cordis, Jonhson & Jonhson Medical, Miami Lakes, FL, USA) is inserted into either brachial artery and a standard 4F Judkins Right diagnostic catheter was inserted over a 260 cm 0.038” Terumo Stiff wire (Terumo Corp. Tokyo, Japan) through the sheath. The catheter is navigated down to the aortic bifurcation. After selecting the common iliac artery ostium, the wire is manipulated through the lesion and advanced far into the ipsilateral superficial femoral artery. The catheter should then be moved forward over the wires beyond the lesion where the Terumo guidewire is replaced by two 0.038” 260 cm Supracor wires (Boston Scientific Co, San Jose, CA, USA). In order to facilitate the advancement of the stent without the risk of dislodgement and to check the position with low contrast dose injection, a 6 F (or 7F if large stent is selected) 90cm Shuttle Flexor introducer long sheath (Cook Group, Bloomington, IN, USA) should be advanced over the Supracor wire until they reach the common iliac artery ostium. A road-map technique can be used to check the ostium position in order to properly deploy the selected stent.

In a preliminary series of 10 patients (mean age 76±10.9 years, 6 patients with iliac artery tight stenosis, 4 patients with iliac artery occlusion), the above described technique (Figure 1) has shown promise due to 100% immediate success even with kissing stenting and no immediate or in-hospital vascular complication, allowing for both correct balloon-expandable (7 patients) and self-expandable stents (3 patients) deployment. The technique may be useful in...
elderly patients and in particular in: 1) patients with stenosis or occlusion not amenable to ipsilateral antegrade or contralateral cross-over approach; 2) patients with contralateral occluded femoral bypass and ipsilateral stenotic common femoral artery scheduled for hybrid endovascular/vascular management; 3) patients with physical contraindication to femoral puncture (severe obesity; recent orthopedic surgery, etc).

**Discussion**

In rare cases the iliac artery occlusive disease cannot be approached through standard access. The preferred access sites are the ipsilateral retrograde femoral and the contralateral antegrade cross-over although occasionally these approaches do not allow an effective engagement of the lesion, especially when there is a total occlusion or complex aortoiliac lesion. New alternative access sites have been proposed for a wide spectrum of endovascular interventions, such as the radial approach for renal and carotid interventions and axillary approach for subclavian and aortic aneurysmal repair. Unfortunately, the axillary route often requires surgical cut down and the diameter of the radial artery should be carefully evaluated before the procedure in order to minimize arterial complications when large sheaths are to be used. Recently, Flachskampf et al. have reported a case of radial access for monolateral iliac stenting. A brachial access may have the advantage of being able to accommodate larger sheaths and is more likely to be effective in reaching the aortoiliac district in most patients. The disadvantage of having to use stiff guide wires, especially in the case of a calcified and elongated aorta, such as ours, may be corrected by using a protective 4F catheter and replacing the catheter with at least an 85 cm long sheath. This technique promises to be safe and effective in elderly patients offering more support than guiding catheter technique; moreover it reduces the stress on the arterial vessel at the subclavian site and enables a stiff balloon or stent catheter to be advanced even through a very elongated and calcified aorta without the risk of stent dislodgement.

**References**