Case Report

Stenting of Iliac Artery through Brachial Approach

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Abstract:

In some 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. We are reporting a case of iliac artery stenting through brachial approach.This technique is safe and effective. It provides enough support for stiff balloon or stent catheter to be advanced through this long sheath.

Key Words: *Brachial access, stent.*

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Introduction:

Iliac artery stenting is an accepted therapy for aortoiliac artery disease.[1-3] Standard approaches for iliac artery stenting are retrograde ipsilateral femoral artery and antegrade contralateral crossover femoral artery access. Antegrade crossover access is preferable in case of contralateral iliac artery occlusion which are poorly approachable from retrograde access.[4] Ipsilateral retrograde approach has the disadvantage of using the more difficult arterial puncture site, which is distal to occluded segment. In many cases, it is difficult or impossible to navigate the guide wire intraluminally through the occlusion, which may result in extensive dissection of the vessel wall. Particularly in the region of aortic bifurcation, it can be extremely difficult to reenter from the subintimal space into the true lumen and in fact, this situation has been described as one of the most common reasons for failure of an interventional recanalization attempt.[5] To avoid the previously described situation, it is better to approach the occlusion antegrade using either crossover or transbrachial approach.

Technique:

A 6F brittle tip sheath (Cordis, Johnson & Johnson Medical,Miami Lakes,FL,USA) was inserted into left brachial artery. A standard 5F Judkin's right diagnostic catheter was inserted over a 260cm ·035" Road runner wire (Cook Medical, Bloomington, IN ,USA) through the sheath. The catheter was navigated down to the aortic bifurcation. In order to facilitate the advancement of the stent without the risk of dislodgement and to check the position with low contrast dose, a 6F 90 cm shuttle flexor introducer long sheath (Cook Medical, Bloomington, IN,USA) was advanced over the Roadrunner wire until it reached at the affected common iliac artery ostium. Then with the help of support catheter (4FX110cm, Balton, Polland) Roadrunner wire was used to cross iliac lesion. Predilatation was made. Primary stenting was performed.

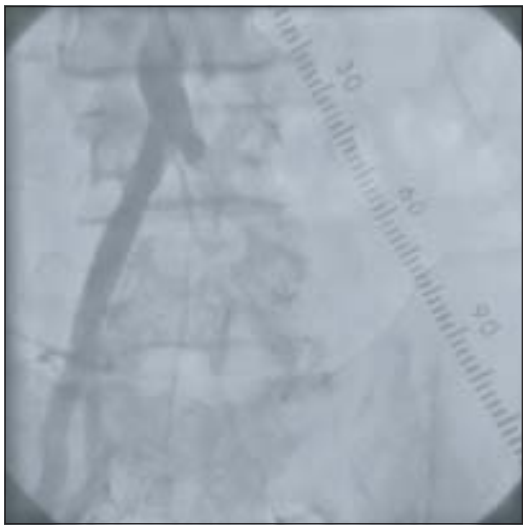

Fig.-1: *left common iliac artery showing 100% stenosis*

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In a preliminary series of 5 cases (mean age 61 years) having unilateral Iliac artery occlusion, the above described technique has shown promise due to 100% immediate success. Balloon expandable stent was used in four cases and another one received self expandable stent. Two patients have got temporary acute occlusion of puncture site. After few hours it disappeared and distal pulses reappeared. This technique is useful in patients having 1) occlusion not amenable to ipsilateral retrograde or contralateral crossover approach, 2) physical contraindication to femoral puncture (severe obesity, recent orthopedic surgery).

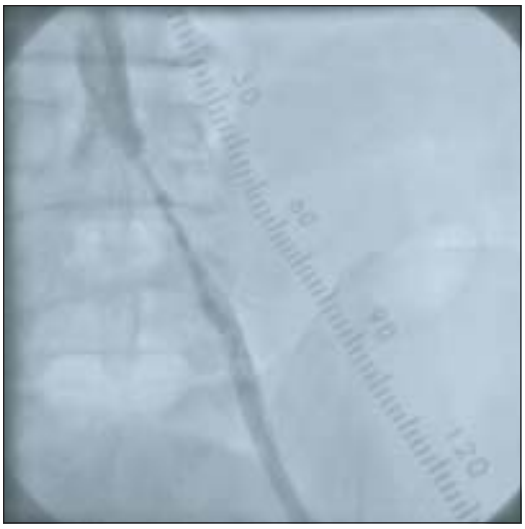

Fig.-2: *Left common iliac artery after balloon angioplasty.*

Fig.-3: *Left common iliac artery after stent implantation.*

Discussion:

In some 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 aneurysm repair.[6] 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. [7] have reported a case of radial access for unilateral 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.

During crossing the lesion with Roadrunner wire, it is advisable to support the catheter with a diagnostic catheter (4Fr X 110 cm straight angiography catheter. Balton,PoIland) to improve its pushability. To avoid crossing of the aortic arch with the attendant risk of cerebral embolization, and to have more direct access to the descending aorta, the left brachial approach should be used whenever possible. After percutaneous puncture of brachial artery and navigation of a wire into the descending aorta, a 90-cm-long, 6-F sheath is placed with the tip directly engaging the stump of the common iliac artery occlusion. As per experience, this is a very stable and straight approach that allows every kind of catheter manipulation to the iliac arteries and provides a lot of support and pushability. Because all devices that are typically needed for an iliac recanalization procedure, including balloon-expandable and self-expanding stents, are available as 6-F-compatible products, transbrachial procedures can be accomplished entirely through the brachial sheaths without the need for additional access sites. To avoid puncture site related complications in our

practice, the sheath was removed immediately after the procedure, and the puncture site was managed by manual compression. Several large series reported lower complication rates for femoral catheterization, though it was recognized that complications of brachial access were far less likely to be life threatening than their femoral counterparts .Contemporary studies demonstrate brachial complication rate that are essentially equivalent or lower than those for femoral access. Refined techniques, improvement and downsizing of device technology and routine use of anticoagulants are responsible for this encouraging trend.

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