



Tips and Tricks in Aortailiac Lesions

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Abstract

Aorta iliac lesions are classified as TASC C and TASC D lesions according to the transatlantic consensus document (TASC II) classification. Although surgery is primarily recommended for these lesions, endovascular treatment has an important place as an alternative treatment option. With endovascular treatment of aorta iliac lesions, the 10-year vein patency rate is over 70%. In this article, we talked about technical tips and tricks that contribute to endovascular treatment with a high success rate.

Keywords: Aortailiac lesion; Endovascular treatment; Success, Tip; Trick

Introduction

Aortailiac lesions are classified as TASC C and TASC D lesions according to the transatlantic consensus document (TASC II) classification. Although surgery is primarily recommended for these lesions, endovascular treatment has an important place as an alternative treatment option [1]. Aortailiac lesions are evaluated under the title of peripheral artery disease and increase the risk of morbidity and mortality. Therefore, we wrote a review titled 'Tips and Tricks in Aortailiac Lesions'.

Leriche Syndrome

It is defined as stenosis in bilateral common iliac arteries at the level of bifurcation or infrarenal aortic stenosis and is a serious cause of morbidity. Typical symptoms are claudication, leg pain and pallor with loss of femoral pulses and impotence in men. In patients with this syndrome, the left internal mammary artery is one of the alternative collateral pathways that provide lower extremity perfusion. Due to collateral flow, the diameter of this artery may reach 3 cm [2-5]. Using this artery in coronary bypass may cause severe lower extremity ischemia in patients with lower extremity peripheral artery disease. Surgery is the basic treatment method and endovascular treatment can be performed in class 2b in patients who cannot be operated due to severe comorbidities.

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Key points in practical approach to aorta iliac lesion

If an infrarenal aortailiac lesion is present, the aortailiac bifurcation and external iliac arteries can be visualized with 10-12 ml / second injection of 25-30 ml of contrast agent using a 4-5 F pigtail catheter placed at the level of the renal artery. Anatomically, the L1-L2 level is the ideal level for visualizing the aortailiac lesion, and contrast angiography can be performed with any catheter with a side hole other than the pigtail catheter. If there are eccentric lesions, lateral angles of 20-30 degrees can be selected for imaging. If we want to evaluate the relationship between internal and external iliac arteries, we can do this imaging with a caudal 20 degree angulation and an oblique 20 degree angulation. In order to detect hemodynamically significant stenosis in stenosis between 50-75% angiographically, the translational pressure gradient should be measured by retracting the manual catheter. Some sources mention a value of 30 mmHg related to translational pressure values for a hemodynamically significant lesion. Strictures of 50% and above are considered serious in European guidelines. If the aortailiac lesion is considered severe, the lesion can be intervened with ante grade or retrograde intervention.

Ante grade approach is an approach in which ipsilateral or contralateral intervention can be performed in the direction of

blood flow. Retrograde approach is an approach in which ipsilateral intervention can be performed in the opposite direction to the blood flow. In the ante grade approach, the success of reaching and passing the lesions is high. In this approach, pedal lesions can be accessed more easily. While duplex ultrasound guided puncture with micro junction injector has the advantage of getting the best results, it has disadvantages such as long learning time, high radiation exposure, unsuitable for obese patients, high risk of hematoma and high dissection risk. The risk of occlusion of the internal iliac artery in the ante grade approach is higher than in the retrograde approach.

Although the retrograde approach has disadvantages such as poor support in passing the lesions, limited guide wire and balloon length, it has advantages such as less dissection possibility and less side branch loss. Sometimes the ipsilateral femoral artery may be diseased, and in this case or in total occlusions without stump, it may be necessary to use the contralateral approach. In the ipsilateral or contralateral ante grade approach or in the ipsilateral retrograde approach, there are 23 cm sheets of 6,7,8 F as well as longer sheets of 45,60,90,120 cm. In the contralateral approach, long sheets are usually sent over this wire after a 0.035 inch stiff wire is placed before the lesion through the internal mammalian artery guiding catheter. Supracor or super amplatz is generally used as hard wire. Sometimes the bifurcation angle may be sharp and the internal mammalian artery guiding catheter may not pass, which can be overcome by a combination of micro catheter and hydrophilic wire. After the long sheath is placed, it is tried to pass the lesion with 0.018 inch or 0.035 inch wires with microcatheter support. 0.035 inch hydrophilic wires such as Poseidon, Zip wire, Glide wire and Road runner can be used in the aortailiac lesion. However, if the stenosis is too high and the passage of the wire is difficult, the lesion can be relieved with coronary balloons by passing the lesion with 0.014 inch hydrophilic wires. Micro catheter passage over the wire can sometimes be difficult in iliac occlusions, which can be overcome by balloon dilatation. In the aortailiac lesion, the wire can be advanced intraluminal, sub intimal or hybrid. In total occlusions, the distal cap of the atherosclerotic plate is softer than the proximal cap. In addition, there is soft thrombotic material in the middle of the plate that is less organized than the proximal and distal. Therefore, in the retrograde approach, since the distal of the plate is soft, the wire moves more easily and dissection is less common. Therefore, the loss of side branches is less. We mentioned that the wire can sometimes go sub intimal and fall into the lumen in a hybrid manner. Advancing the wire rapidly as it goes sub intimal makes it easier to fall into the lumen. Sometimes the wire does not fall into the lumen, in which case another wire can be sent with the contralateral approach and the CARTO or reverse CARTO technique can be tried. In these techniques, the wires that come opposite each other are tried to be

lowered into the lumen by balloon dilatation. Small coronary balloons should be used in these techniques. In Leriche syndrome, retrograde kissing stent can be made with 7 f short sheet by entering from the bilateral brachial artery, making an ante grade balloon and placing a retrograde sheet. Alternatively, retrograde double-sided 7-f sheath can be placed and retrograde stenting can be performed by placing a sheath for left brachial imaging. Alternatively, balloon dilatation and kissing stenting can be performed from the bilateral brachial artery. Another alternative approach is to capture and externalize the wires sent from the bilateral brachial artery with bilateral retrograde sheath smear. Then, stenting can be done by sending a micro catheter to the aorta over the externalized wire, removing the hard part of the wire and sending the soft part to the aorta. In Leriche syndrome, in kissing stenting, both stents should be dilated at equal pressures such as 8-9 atm. High pressure balloon dilation at 10-12 atm should be performed to expand the ostial parts of the stents. The Cerab technique can also be used for stenting in this syndrome. In this technique, a graft-covered stent is placed in the lesion in the aorta and both iliac lesions [6-9]. Sometimes ipsilateral and contralateral sheet can be placed in the aortailiac lesion and the wire can be externalized from the opposite side, which is called the body floss technique. Thus, real lumen is provided. If the stenosis is not severe after the aortailiac lesion has passed, primary stenting is preferred. While balloon-expandable stents are preferred in ostial aortailiac lesions, self-expandable stents are preferred in non-ostial external iliac artery, which is particularly prone to rupture [10]. If a stent is to be placed below the bifurcation, a self-expandable stent is preferred in order not to lose the internal iliac artery. Since the external iliac artery is prone to rupture, if calcification is excessive, graft stents can be used in these lesions. In iliac rupture; Balloon dilation for 15-20 minutes, stent graft, neutralization of heparin effect with 1/1 protamine sulfate, thrombocyte transfusion, fresh frozen plasma and last-resort surgical repair can be performed. If the graft stent is placed after the rupture of the external iliac artery and the leakage is still continuing, the graft stent should be dilated with a larger balloon and the stent should be firmly attached to the wall. It is recommended that the stent diameter placed for the external iliac artery should not exceed 7 mm. After the procedure, images should be taken to see if it is leaking from at least 2 positions (especially lateral angles, anterior, etc.) with digital subtraction angiography. If there is a rupture, bladder distortion can be seen very easily. Atherectomy device is not generally used in aortailiac lesions due to the risk of perforation. It can be used in total occlude lesions that are rarely much calcified. If the aortailiac lesion has a severely calcified and tortuous aorta, the brachial artery can be intervened. The wire can be passed through the aorta with a 4-foot catheter and then a 90 cm long sheath can be inserted. Thus, aortic damage is prevented. If the long sheath

cannot be found, a right Judkins or multipurpose 6F catheter can be used for this purpose. A 7F catheter can also be placed from the brachial artery and a Navicross micro catheter and 0.018-0.035 wire can be advanced through the aortic lesion. If the aortailiac lesion is accompanied by a proximal superficial femoral artery lesion, intervention from the brachial or radial artery may be considered.

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