SCIENTIFIC LETTER

COMBINED, SEQUENTIAL AND EXTRA-ANATOMIC BYPASS IN THE REVASCULARIZATION OF LOWER LIMBS

JAVIER H. RODRÍGUEZ ASENSIO[1],
ARTURO VIZCARRA[2],
HERNÁN E. DI TOMASO MESA[3],
ROLANDO LÓPEZ QUINTEROS[4],
JUAN M. GUAZZARONI[5],
MARCELO VELÁZQUEZ[1]

1) Peripheral Vascular Surgeon (member of the Argentine College of Cardiovascular Surgeons),
2) Cardiovascular Surgeon (member of the Argentine College of Cardiovascular Surgeons),
3) Peripheral Vascular Surgery Fellow,
4) Head of the Diagnostic Imaging Service,
5) Tomography Technologist

Cardiovascular Surgery Service and Diagnostic Imaging Service of Hospital Municipal Eva Perón, Merlo, Province of Buenos Aires, Argentina

CORRESPONDENCE:
revista@caccv.org.ar

Today, a large number of patients with Leriche syndrome due to unilateral or bilateral aortoiliac involvement are treated with conventional surgery using aortic uni or bifemoral bypass or with the use of endovascular therapies or hybrid procedures, and the use of extra-anatomic bypass is left for major surgeries in patients with severe anatomic difficulties or patients with high surgical risk[1-3]. The uneven acceptance of the extra-anatomic bypass within the medical community is primarily due to its controversial medium- and long-term permeability rate, which may vary depending on the prosthetic material used, with no clear difference between Dacron and ePTFE[3], and on the vascular anatomical conditions of each patient.

Moreover, in a significant number of patients their aortoiliac pathology is associated with infrainguinal symptomatic and occlusive arteriopathy of one or both lower limbs with eventual trophic lesions, in which case the revascularization of the deep femoral artery is not always enough, needing to proceed sequentially in combination with an autologous to distal graft[4].

Reference is made to the case of a man aged 59 with a history of hypertension, type II diabetes, dyslipidemia, passive schizophrenia medically treated with haloperidol, biperiden and levomepromazine, who is admitted as outpatient with critical ischemia of the left lower limb (La Fontaine IV) due to a distal trophic lesion associated with severe claudication (< 50 m) in the contralateral limb. Physical examination showed necrosis of the first, second and third toes of the left foot, with absence of right femoral pulse, presence of left femoral pulse and absence of distal pulses. The digital angiography of both lower limbs showed the occlusion of the right primitive iliac artery in its origin *(Figure 1)* with recanalization in the distal right common femoral artery *(Figure 2)*, the popliteal artery finishing in its middle third and no visible distal bed in the right lower limb. In the left lower

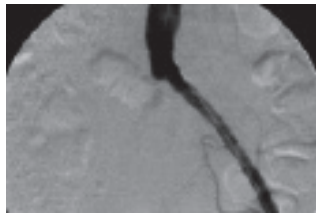

Figure 1. Right primitive iliac artery occluded.

Figure 2. Right common femoral artery.

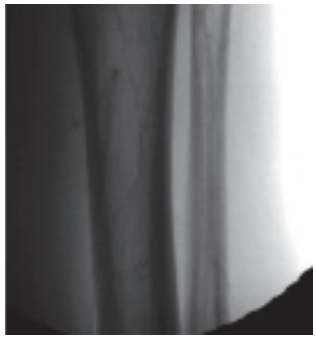

Figure 3. Posterior tibial artery.

limb, the occlusion of the superficial femoral artery was observed in its origin, with recanalization in the posterior tibial artery *(Figure 3)* and the peroneal artery.

Based on the clinical context of the patient and his comorbidities, it was decided to perform a femoral-posterior tibial bypass combined with a ringed ePTFE prosthesis with Slider system and inverted homolateral saphenous vein for the left limb *(Figure 4)* and to associate it with a femorofemoral crossover bypass with a similar prosthesis *(Figures 5 and 6)* in order to try to improve the medium-and long-term permeability through the lower resistance of sequential bridging. In addition, the open-bed amputation of the toes was performed. The postoperative evolution was free from complications, with positive pedius and posterior tibial pulse in the right limb and positive posterior tibial pulse in the left limb, dry and clean wounds, amputation bed granulating, and hospital discharge on the 5th day. He was monitored as outpatient over the last ten months. Clinical controls with Doppler test and helical CT angiography with 3D reconstruction *(Figures 7 and 8)* showed good progress. At present, he chronically takes clopidogrel 75 mg/day, aspirin 100 mg/day and cilostazol 100 mg/12 h.

The reference to this case could give rise to two potential discussions: why not to perform a right aortofemoral bypass and why not to operate just the left leg, with greater ischemic compromise, postponing the operation of the contralateral limb in other conditions. This surgical strategy was chosen because, in order to accomplish the main purpose, which was to revascularize the left lower limb with a femoral-posterior tibial bypass, the patient could be anesthetized with a spinal block, giving enough time to perform the crossover bypass without a significant increase of surgical time or morbidity, thus enabling him to solve his claudication and stimulating early ambulation. In this way, the use of general anesthesia was prevented,

Figure 4. Distal posterior tibial anastomosis.

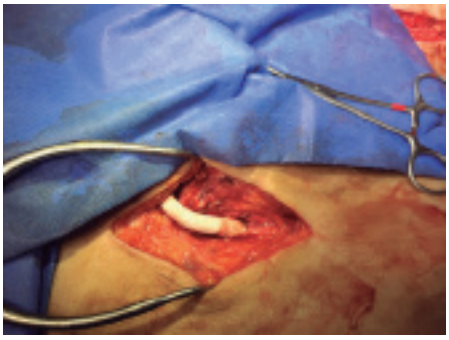

Figure 5. Right femoral anastomosis.

Figure 6. Femoral anastomosis.

avoiding dealing with the aorta with the consequent potential postoperative complications due to associated diseases. Although the gold standard in the resolution of aortoiliac arteriopathy continues to be the aortic bifemoral bypass, revascularization surgery should be considered as a suit tailored for each particular patient, in which sometimes minimal surgical techniques coexist with endovascular procedures, as it is observed increasingly frequently. On the other hand, in case of an eventual thrombosis of the femoral crossover graft, the possibility of reoperating the patient with other techniques such as the aortofemoral bypass or the axillofemoral bypass is not invalidated. ■

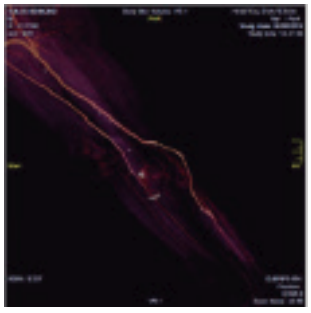

Figure 7. 3D CAT.

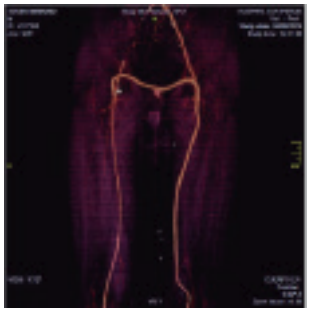

Figure 8. 3D CAT.

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