



Collateral circulation in total aortoiliac occlusive disease

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Images in Clinical Medicine

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In the presence of aortoiliac occlusive peripheral artery disease (AIOPAD), which can cause significant mortality and morbidity when untreated, critical leg ischemia symptoms such as absence of peripheral pulses and intermittent claudication or ulcer-gangrene in the feet can be observed; it was described by Rene Leriche as pain in gluteal muscles, cold lower extremities with plain color and cyanosis, severe claudication in lower extremities, and presence of impotence in men.^{1,2} The treatment of the disease, whose diagnosis is based on physical examination findings on symptomatic patients and the results of imaging methods such as conventional angiography or computed tomography angiography (CTA),² can be provided by peripheral bypass surgery or endovascular revascularization,² and sometimes the disease is also seen observed to be well-tolerated with development of collateral arterial pathways.¹ Two main collateral arterial pathways, being systemic or visceral artery originating pathways, have been identified for the disease;^{1,3} and the most common systemic collateral pathway has been reported to be the pathway where the blood flow of external iliac arteries is provided, which is linked with deep circumflex iliac arteries originating from the lumbar, iliolumbar, and inferior epigastric arteries.^{3,4} Identifying and knowing the existing collateral arterial pathways during the preoperative preparations of patients is not only important for the viability of the extremities, but also for surgical planning,^{1,3} and that CTA and magnetic resonance angiography (MRA) are reported to be successful for imaging and maintaining these collateral pathways.^{1,4} Although the symptoms of clinically significant AIOPAD vary from intermittent claudication (IC) to critical leg ischemia, it is reported in literature that the symptoms of patients are not directly related to the severity of the disease due to the physical activity status and existence of collateral arterial pathways.¹

In our presentation, we tried to present the collateral blood flow patterns that ensure the viability of the lower extremities in our patient with AIOPAD, and discuss the case in the light of literature. In our patient, total occlusion was detected by CTA in abdominal aorta and bilaterally iliac arteries from the level of distal renal arteries (Figure 1a), and it was observed that the distal external iliac arteries were filled with collateral pathways of connections between intercostal arteries and deep circumflex arteries, and internal mammary artery and left external iliac artery were detected (Figure 1b and 1c). Since the patient did not accept surgical bypass treatment for aortoiliac occlusive disease, he was followed up for optimal medical treatment and the control of risk factors.

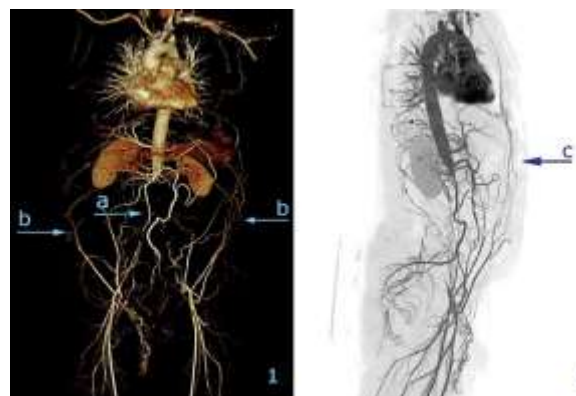


Figure 1. a. Computed tomography angiography (CTA) image of total aortoiliac occlusion; b. collateralizations between intercostal arteries and deep circumflex arteries; c. CTA image of collateralizations between internal mammary artery and left external iliac artery

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As a result, identifying and maintaining the collateral arterial pathway formations is of critical importance in AIOPAD, for which the symptoms are reported to be not directly associated with the severity of the disease, as the collateral arterial pathways play an important role in ensuring the viability of extremities by providing blood flow to the distal of the lesion; so that any threat to the extremity and morbidities can be prevented.

Conflict of Interests

Authors have no conflict of interests.

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