

# Open surgical revascularization of chronic total occlusion of the infrarenal aorta

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## Abstract

We report a case of chronic total occlusion of the aorta with critical limb ischemia (CLI) of the lower limbs due to chronic total occlusion (CTO) of infrarenal aorta and extensive bilateral iliac disease. This case was treated by open surgical revascularization, after unsuccessful attempt of percutaneous endovascular stenting treatment.

## Case presentation

A 46-year-old male, with a history of hypertension and peripheral vascular disease (including previous unsuccessful attempt endovascular stenting) was referred to our hospital for conventional open surgical treatment. The patient underwent a computed tomographic angiography, which showed complete occlusion of the infrarenal abdominal aorta, as well as both common and external iliac artery (Figure 1). He was a heavy smoker (60 cigarettes/day) and had an untreated hyperlipidemia.

The operation was performed using the transperitoneal approach with limited thrombectomy through infrarenal aortotomy without transecting the aorta.

The patient underwent aortic bifemoral revascularisation, with placement of a Dacron bifurcation graft of 12/6 mm. The Piljic – method was used (restricted intraoperative and postoperative fluid regime and mini-laparotomy, including surgical approach through 8 to 10 cm paraumbilical incision. The small and large bowels were retracted to the side without being elevated out of the abdominal cavity) [1]. The patient was transferred to the intensive care unit following successful surgical repair. The patient was transferred to the department of cardiovascular surgery on the postoperative day one.

Uneventful postoperative recovery resulted in hospital discharge on postoperative day four. Postoperative CTA with contrast showed a neat flow (Figure 2).

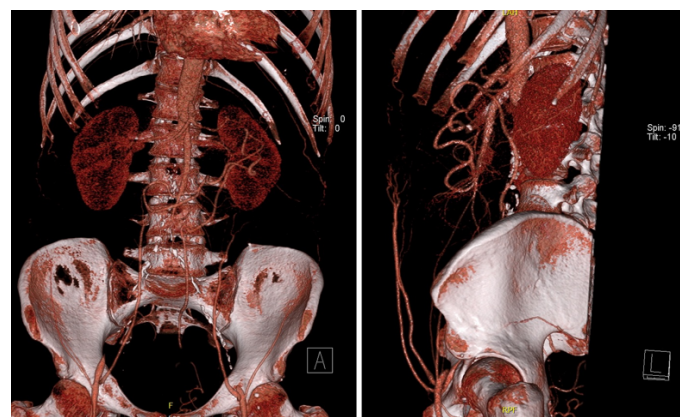
Patient postoperative period has been followed up for 12 months, which ended with satisfactory general clinical and local state of both legs.

## Discussion

In patients presenting with aortoiliac occlusive disease (AIOD), the total occlusion of the infrarenal aorta has been seen in 3 to 8.5% of cases [2].

Common causes of chronic infrarenal aortic occlusion (CIAO) include: a) atherosclerotic occlusive disease; b) middle aortic syndrome;

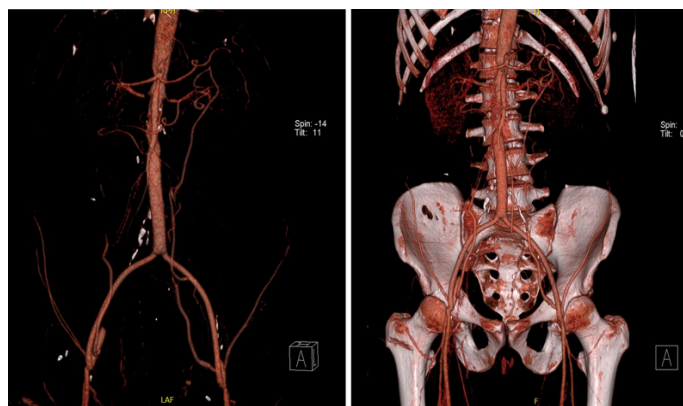
c) Takayasu arteritis; d) fibromuscular dysplasia; e) neurofibromatosis; and f) coral reef aorta [2]. Although standardized infrarenal aorto-bifemoral bypass (AoBFB) remains the surgical procedure of choice for CIAO, operative decisions may proceed beyond AoBFB in complicated cases. Different therapeutic strategies include axillo-(bi) femoral bypass (AxBFB), aortoiliac endarterectomy (AIE), or hybrid procedures. AxBFB grafting usually refers to patients of high risk for aortic clamping, or patients with many comorbidities that prohibit an extensive transperitoneal procedure [3]. Surgical management



**Figure 1.** Computed tomographic angiography showed complete occlusion of the infrarenal abdominal aorta and both common and external iliac arteries. A lateral view showed collateral blood flow from internal thoracic arteries through subcutaneous epigastric abdominal vessels to the common femoral arteries

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**Received:** November 11, 2019; **Accepted:** November 25, 2019; **Published:** November 28, 2019



**Figure 2.** Postoperative CTA with contrast showed a neat flow

of the totally occluded abdominal aorta is highly complex. Surgical intervention is beneficial for patients with totally occluded aorta, even if ischemic complaints are relatively mild and stable [4].

We report a case of chronic total occlusion of the aorta with critical limb ischemia (CLI) of the lower limbs due to chronic total occlusion (CTO) of infrarenal aorta and extensive bilateral iliac disease. This case was treated by open surgical revascularization, after unsuccessful attempt of percutaneous endovascular stenting treatment.

## Conclusion

Open surgical recanalization of aortic occlusion in a patient with previously unsuccessful attempt endovascular stenting is feasible and

can be life-saving. Use of open surgical revascularisation can result in rapid clinical recovery and lower mortality and morbidity.

## Informed consent

The patient provided written informed consent for publication of the figures.

## Declaration of conflict of interest

The authors declare that there is no conflict of interest.

## Funding

This work received no specific grant from any funding agency within public, commercial, or not-for-profit sectors.

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