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Hidden Around the Bypass: Retroperitoneal Fibrosis Revealed by Suspected Graft Infection

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Abstract | **Case Report**

Vascular prosthetic graft infection is a rare but severe complication following aorto-bifemoral bypass surgery and may present with nonspecific clinical and imaging findings. Retroperitoneal fibrosis surrounding the vascular prosthesis represents an uncommon manifestation. We report the case of a 64-year-old man with prior aorto-bifemoral bypass performed four months earlier for stage IV peripheral arterial occlusive disease who presented with purulent discharge from the distal anastomotic scar associated with inflammatory biological syndrome. CT angiography demonstrated a left inguinal perigraft collection with circumferential peri-prosthetic soft-tissue infiltration extending along the graft tract with retroperitoneal extension. These findings were suggestive of periprosthetic infection complicated by secondary retroperitoneal fibrosis. Early recognition of these imaging features is essential for prompt therapeutic management [1].

Keywords: Vascular prosthetic graft infection, Aorto-bifemoral bypass, CT angiography, Retroperitoneal fibrosis, Perigraft collection, Peripheral arterial occlusive disease.

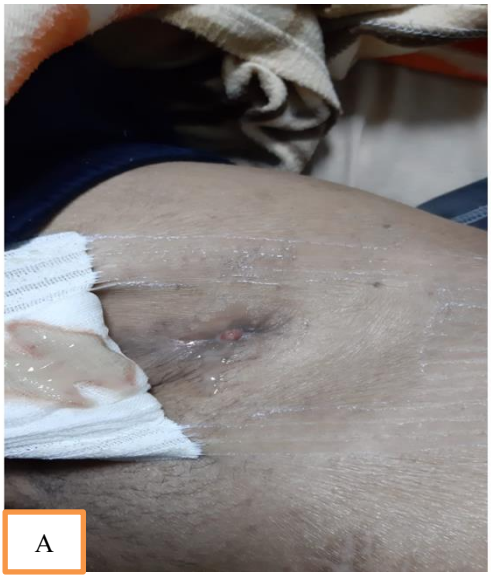
INTRODUCTION

Infection of vascular prostheses represents a rare complication with reported incidence between 1% and 6% depending on graft location and patient risk factors, but it is associated with significant morbidity and mortality [2]. Clinical presentation is often nonspecific and may include fever, inflammatory syndrome, or purulent discharge from the surgical scar. Imaging therefore plays a central role in diagnosis. CT angiography is considered the reference imaging modality because it allows evaluation of graft patency, perigraft collections, pseudoaneurysm formation, peri-prosthetic infiltration, and associated complications such as fistulization or retroperitoneal fibrosis [3].

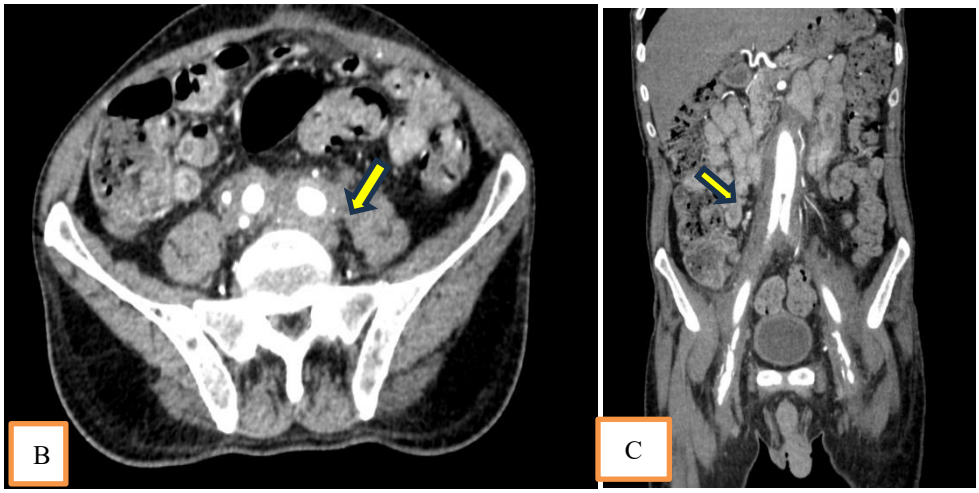
CASE PRESENTATION

A 64-year-old male with a history of aorto-bifemoral bypass surgery performed four months earlier for stage IV peripheral arterial occlusive disease presented with purulent discharge through the distal right anastomotic scar associated with positive inflammatory markers.

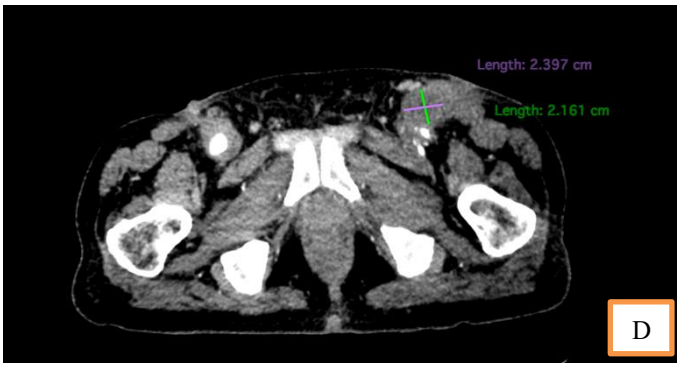
CT angiography demonstrated a left inguinal perigraft collection measuring 24 × 21 mm with peripheral enhancement and infiltration of adjacent soft tissues. The bypass graft remained patent after contrast injection. Circumferential peri-prosthetic soft-tissue infiltration extended along the graft tract with retroperitoneal extension appearing as plaque-like tissue surrounding the prosthesis. Associated mesenteric fat infiltration and fascial thickening were observed without intra-abdominal collection or significant lymphadenopathy. These findings suggested periprosthetic inflammatory infiltration compatible with retroperitoneal fibrosis in the context of suspected graft infection.



A: Clinical image showing purulent discharge through the distal inguinal surgical scar at the femoral anastomotic site of the aorto-bifemoral bypass graft.
A small cutaneous fistulous opening with adjacent inflammatory changes is identified.



CT angiography axial[B] and coronal [C] reconstructions show a patent aorto-bifemoral bypass graft surrounded by circumferential peri-prosthetic soft-tissue infiltration [yellow arrow] extending along the retroperitoneal course of the graft



D: Axial contrast-enhanced CT image at the inguinal level showing a left perigraft collection adjacent to the distal femoral anastomotic site of the aorto-bifemoral bypass graft measuring approximately 2.4 × 2.1 cm.

DISCUSSION

Vascular graft infection after aorto-bifemoral bypass remains uncommon but potentially life-threatening. Early infections occurring within four months after surgery are frequently related to perioperative contamination or wound complications [1]. CT angiography represents the imaging modality of choice because it allows simultaneous evaluation of vascular patency and peri-prosthetic tissues. Persistent perigraft fluid collection beyond three months after

surgery, peri-prosthetic infiltration thicker than 5 mm, soft-tissue enhancement, pseudoaneurysm formation, or ectopic gas strongly suggest infection rather than normal postoperative changes [4]. Retroperitoneal fibrosis represents a less frequent complication and appears as circumferential plaque-like soft-tissue density surrounding the graft and adjacent retroperitoneal structures. In the appropriate clinical context, this appearance supports secondary infectious periprosthetic fibrosis [3].

CONCLUSION

Periprosthetic retroperitoneal fibrosis represents an uncommon but important imaging manifestation of suspected vascular graft infection. CT angiography plays a key role in detecting peri-prosthetic collections and inflammatory infiltration and allows early diagnosis, which is essential for guiding surgical management and improving patient outcomes [1]

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