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Aortodigestive Fistula Presenting as Back Pain: A Rare Case of Spondylodiscitis Due to a Digestive Pathogen

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Abstract | **Case Report**

Aortodigestive fistulae (ADF) are rare but potentially fatal conditions characterized by an abnormal communication between the aorta and the gastrointestinal tract. These fistulae can lead to massive gastrointestinal hemorrhage and carry a high mortality rate if not promptly diagnosed and managed. We report a unique case of an aortodigestive fistula initially manifesting as isolated back pain, later diagnosed as spondylodiscitis caused by a digestive pathogen. This case underscores the diagnostic challenges of ADF and highlights the critical importance of early recognition and timely intervention.

Keywords: Aortodigestive fistulae (ADF), Gastrointestinal bleeding, Sepsis, Aortic reconstructive surgery, Back pain.

INTRODUCTION

Aortodigestive fistulae (ADF) are uncommon but carry high morbidity and mortality rates. They often present with gastrointestinal bleeding, sepsis, or hemodynamic instability. ADF can be classified into two types: primary and secondary. Primary ADF is typically associated with complications of abdominal aortic aneurysms, predominantly of atherosclerotic origin with an annual incidence of primary aortoenteric fistula reported at 0.007 per million[1,2] (with 250 cases reported in literature). Secondary ADF, on the other hand, arises as a complication of aortic reconstructive surgery, particularly in cases involving prosthetic graft placement, which can sometimes lead to severe functional consequences, the most serious being amputation. There is relatively higher prevalence of aortoenteric fistula following open aortic repair compared to endovascular stent graft repair of the abdominal aorta[1,3]. Due to the non-specific nature of symptoms, diagnosis is often challenging and requires a thorough and systematic approach. Early diagnosis is essential, particularly in patients with an abdominal aortic prosthesis presenting with rectorrhagia[4,5], melena (even if only mild), sepsis, and/or abdominal pain)[6–8]. Herein, we present a case where back pain was the primary symptom of an underlying ADF associated to an infectious spondylodiscitis.

CASE REPORT

A 65-year-old male with a history of diabetes mellitus, hypertension and prior abdominal surgery (aortoiliac bypass) presented with progressive lower back pain of three weeks' duration. The pain was non-radicular and unresponsive to analgesics. He denied fever or trauma. When asked, the patient mentioned traces of bright red blood in the stool.

On examination, the patient exhibited lumbar spine tenderness without neurological deficits. Initial laboratory findings revealed normocytic anemia, elevated inflammatory markers (CRP 80 mg/L, ESR 75 mm/hr) and mild leukocytosis. Blood cultures yielded *Escherichia coli*, a common digestive tract pathogen.

Initial computed tomography (CT) scan with Angio sequences revealed signs of spondylodiscitis at L3-L4, along with associated findings such as periaortic foci of gas, periaortic fat stranding, periaortic edema, thickening and close proximity of the graft to the adjacent bowel wall.

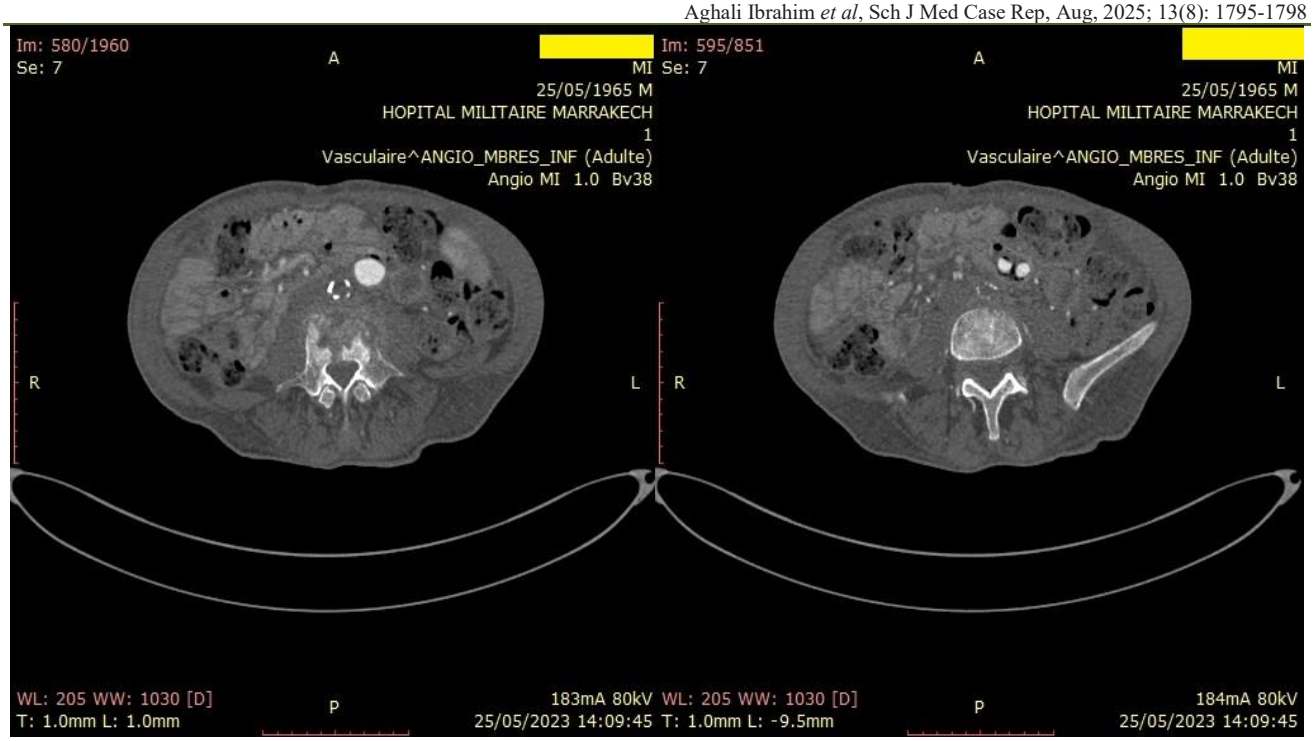

Figure 1 : CT abdomen and pelvis with contrast was performed which showed spondylodiscitis and periaortic gas.

Subsequent magnetic resonance imaging (MRI) confirmed the spondylodiscitis with prevertebral soft tissue involvement.

Figure 2 : T2-Weighted Sagittal MRI of the Lumbar Spine Showing L3-L4 Spondylodiscitis with Vertebral Destruction and Prevertebral Soft Tissue Involvement

A CT-guided biopsy of the spondylodiscitis was performed, which revealed an enteric germ, the same found in the blood cultures.

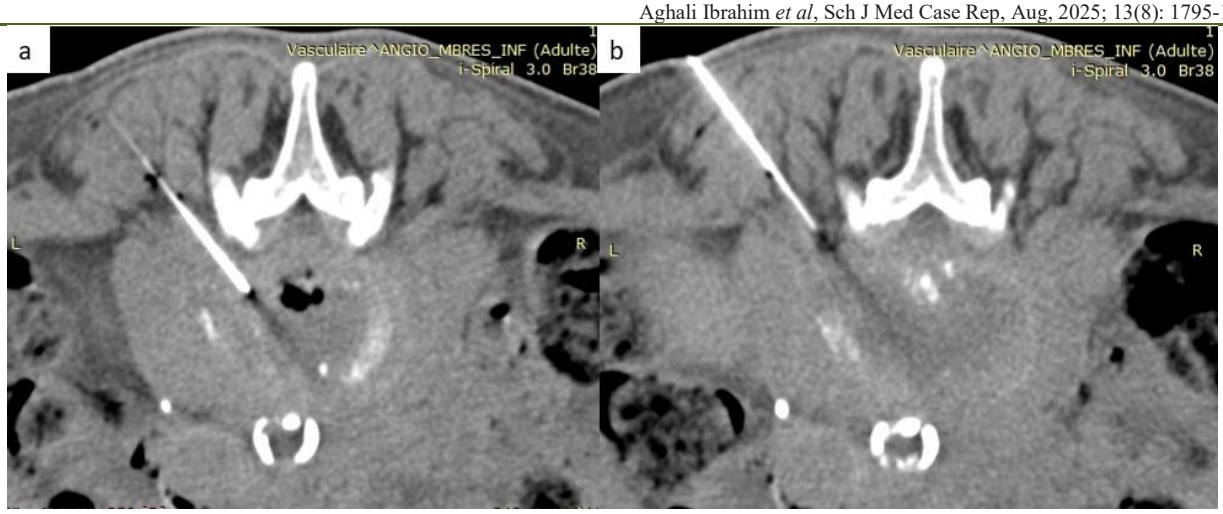

Figure 3: Axial CT Images Demonstrating CT-Guided Biopsy of L3 (b), Trocar in place (a)

The radiologists and clinicians suspected an aortodigestive fistula due to the presence of an enteric germ, which is an uncommon pathogen for spondylodiscitis happening only in 11% of cases [9,10].

So, a subsequent opacified CT scan was done, revealing contrast extravasation from the bowel lumen into and around the aortic graft, a definitive sign confirming the suspicion of an aortodigestive fistula.

Figure 4: Opacified axial CT abdominal scan showing extravasation of contract product into and around the aortic graft

The patient benefitted from adapted high dose IV triple antibiotic, to treat the spondylodiscitis as well as control the aortitis, he also got blood transfusions for his anemia. The chronic rectorrhagia were minimal and the patient's vitals were stable, so the aortic repair was programed for later.

6 weeks later, the patient underwent an exploratory laparotomy, and benefited from an extra-anatomic bypass graft reconstruction surgery and had an uneventful perioperative period.

DISCUSSION

Aortoenteric fistula was first described in 19th century by a British surgeon Sir Astley Cooper[11]. Secondary aortodigestive fistulas are associated with prior aortic interventions [12] such as open surgical grafts, endovascular stent grafts or other surgical context like prior esophageal or gastric surgery. Diagnosing an aortodigestive fistula is challenging due to its rarity and often nonspecific presentation [13]. There are sometimes signs of spondylitis, spondylodiscitis or discitis of the adjacent vertebral segments [14] which is what was found in our case, where the aortodigestive fistula was discovered accidentally in a patient who benefitted priorly from an aortoiliac graft. An infected abdominal aortic aneurysm or aortic graft infection can spread infection to adjacent vertebrae, causing secondary spondylodiscitis by direct extension [15]. CTA is the examination of choice; evidence of a fistula is suggested by gas in periprosthetic fluid collection, retraction of the intestinal walls in contact, or presence of a false aneurysm. Rarely, extravasation of contrast agent into the intestinal lumen is diagnostic of aortoenteric fistula. Oral opacification is not recommended on a routine basis because it could mask slight extravasation of contrast agent from the aortic lumen towards the intestines [14]. Coloscopy is essential in all patients with an aorto-iliac or aortofemoral prosthesis presenting intestinal

haemorrhage for attempting to detect any erosion of the intestinal wall onto the prosthesis but especially for eliminating any other cause of bleeding [16] .The differential diagnoses that may mimic a fistula need to be well known, and can include retroperitoneal fibrosis, an infectious aneurysm, inflammatory or infectious aortitis, and above all, a 'simple' prosthesis infection without fistulisation [4,13,14].

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