Tubercular Aortitis Presenting as Primary Aortoenteric Fistula: Report of an Uncommon Case

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Abstract

Tubercular aortitis presenting as primary aortoenteric fistula (AEF) is a rare entity. We present a 78-year-old male who presented with upper gastrointestinal bleed and also had abdominal pain and pulsating abdominal mass and on evaluation was found to have tubercular AEF which was successfully repaired with surgery and the patient recovered with antitubercular therapy along with the surgery. This case highlights the importance of high index of suspicion with early institution of surgical repair along with antitubercular therapy for tubercular AEF with good results.

Keywords: Fistula, surgical repair, tubercular, upper gastrointestinal bleed

Introduction

Aortoenteric fistula (AEF), a rare entity, is an abnormal communication between the aorta and gastrointestinal tract that manifests with upper gastrointestinal bleeding. The third part of the duodenum is the usual site of fistula because of its relative fixity and proximity to the aorta.[1] Infection and inflammation of the wall of the aorta or mechanical compression of bowel wall by an enlarging aortic aneurysm are responsible for the formation of primary AEF, while erosion of bowel wall by stent graft following endovascular repair leads to secondary AEF. We report a case of primary AEF due to tubercular aortitis that was managed successfully.

Case Report

A 75-year-old male presented with black tarry stools for 1 week and hematemesis for 2 days. There was no history of nonsteroidal anti-inflammatory drug abuse. There were no comorbidities; he was not a smoker or alcoholic. On clinical examination, he had severe pallor but was hemodynamically stable. A pulsatile mass, approximately 5 cm × 6 cm, with minimal side-to-side mobility was palpable just above the umbilicus. All peripheral pulses were palpable. His hemoglobin was 3.5 gm% and albumin was 2.6 gm%, while the rest of blood profile was normal. Upper gastrointestinal endoscopy revealed an elevated ulcerated lesion in the D2–D3 area with a visible vessel, which due to its shear large size was not amenable for endoscopic intervention [Figure 1a]. On evaluation with contrast-enhanced computed tomography, there was a saccular aneurysm arising from anterior wall of infrarenal aorta which was closely abutting the posterior wall of the duodenum [Figure 1b and c]. Diagnosis of primary AEF was made, and he was planned for open surgical repair of aneurysm with extra-anatomical right axillounifemoral bypass after optimization with packed red blood cells’ transfusion of 3 units. First, axillounifemoral bypass was done (right axillary artery to right common femoral artery bypass with 8-mm polytetrafluoroethylene graft) followed by exploratory laparotomy. The patient had dense adhesions of small and large intestines with multiple granulomas [Figure 2a]. After careful adhesiolysis of infracolic compartment, control of infrarenal aorta and bilateral common iliac arteries were taken under anticoagulation with unfractionated heparin 1 mg/kg. Duodenum was adherent to anterior wall of aneurysm, and on dissection of the duodenum from aneurysm, a

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How to cite this article: Savlania A, Sharma V, Rastogi P, Singh H, Sharma V, Mandavdhare HS. Tubercular aortitis presenting as primary aortoenteric fistula: Report of an uncommon case. Int J Mycobacteriol 2019;8:110-2.
Arents was noticed in the duodenum (eroded by pulsating saccular aneurysm), and it was repaired with interrupted polyglactin 910 (Vicryl 3-0) suture. Aneurysm wall was excised up to healthy aorta proximally and distally followed by closure of both proximal and distal aortic stump with polypropylene 4-0 suture using continuous horizontal mattress followed by over-and-over running suture [Figure 2b]. Abdominal closure was done after thorough lavage of local area followed by closed suction drain placement. The patient recovered well in postoperative period; on postoperative day 5, drain was removed. On histopathological evaluation of the resected specimen, acid-fast bacilli were positive from granuloma from omentum, duodenal wall, and aortic aneurysm wall [Figure 2c], and hence, the patient was started on standard four drug antitubercular therapy including isoniazid, rifampicin, pyrazinamide and etambutol. The patient is doing fine at 1 month of follow-up with computed tomography (CT) angiogram showing intact stumps of infrarenal aorta, patent axillo-right femoral bypass with patent iliac artery bifurcation and extensive adhesions of bowel loops suggest that our patient might have acquired the infection by contiguous spread.

**DISCUSSION**

AEFs are rare entities. The most common risk factor for AEF is abdominal aortic aneurysm. Other causes are rare, such as carcinoma, ulcers, infections, foreign body, and radiations. Infective aortitis leading to AEF can be caused by syphilis, tuberculosis, bacterial, and fungal involvement of aorta. Of all the cases of aortic aneurysm, only 0.3% can be attributed to tubercular aortitis.

Tubercular aortitis and consequently AEF can result due to direct intimal implantation of aortic intima by the bacilli, especially in the presence of atherosclerotic changes, hematogenous spread to the adventitia or media through the vasa vasorum, or direct spread from lymph nodal tuberculosis or tubercular paraspinal abscess. The presence of nodular involvement of the omentum and contiguous spread.

Clinical manifestations can be nonspecific systemic manifestations of tuberculosis or pain abdomen, hematemesis, melena, or a pulsatile, palpable abdominal mass. Almost 94% of patients have an initial episode of mild bleed also popularly known as “herald bleed” which was also the case with our patient and which eventually led to the evaluation and successful outcome in our patient.

The sensitivity of upper gastrointestinal endoscopy for AEF is poor. Erosion with an eccentric pulsating mass may be highly suggestive. CT angiography findings suggestive of an AEF may be periaortic gas, gas within the aorta, soft tissue or fluid with thickness >0.5 cm in paraaortic location, focal thickening of bowel wall adjacent to aorta, discontinuity of aortic wall, leakage of contrast into the bowel lumen, loss of fat plane between the aorta and bowel, and tethering of bowel.
wall toward the aorta. Leakage of contrast into the bowel lumen is a specific finding.

As far as the treatment is considered, involvement of infrarenal aorta and iliac vessels can be effectively managed by ligation of the involved segment and extra-anatomic bypass, usually right axillofemoral bypass using stent grafts along with antitubercular therapy. However, if there is an involvement of visceral segment of aorta, the involved segment cannot be excluded and in situ repair has to be considered, along with careful reimplantation of all involved side branches. Extensive debridement of infected tissue should be undertaken.

**CONCLUSION**

AEF due to tuberculosis is a rare manifestation of a common infection and a rare etiology behind a very common clinical presentation, that is, upper gastrointestinal bleed. Although it is a life-threatening condition, patients can be salvaged if early surgery is undertaken, which needs a high index of suspicion for diagnosis, especially in endemic countries like India, which has the maximum global burden of tuberculosis.

**Declaration of patient consent**

We certify that we have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

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