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Case Report: "Spontaneous Splenic Rupture" - A Diagnostic Enigma

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1. Abstract

Atraumatic splenic rupture is a rare entity encountered in our practice. Tuberculosis being prevelant in developing countries affects spleen too. Spleen is affected in two forms as milliary tuberculosis or primarily as single organ. Here we present a case of young male with spontaneous splenic rupture for which splenectomy was performed and on histopathological examination it was found to have miliary tuberculosis. This condition should be kept in mind for acute abdomen and prompt intervention is required to save life.

2. Introduction

Atraumatic splenic rupturerarely occurs [1,2]. Splenic rupture is often not considered in the differential diagnosis of abdominal pain in the absence of trauma, the results of which may be catastrophic. The earliest reported cases of atraumatic splenic rupture were by Rokitansky (1861) and Atkinson (1874). Weidemann (1927) first defined 'spontaneous splenic rupture' as 'rupture resulting from an incident without external force.' Knoblish (1966) distinguished 'nontraumatic rupture of a pathological spleen' from the extremely rare 'non- traumatic splenic rupture of unknown etiology' i.e. true 'spontaneous splenic rupture' [1,3]. Splenic rupture is a potentially life-threatening condition and the majority of cases are secondary to trauma. Bacterial, viral, and parasitic infection of the spleen predisposes the spleen to atraumatic rupture. Rarely, even a physiologic event, such as severe coughing or vomiting, which causes a sudden increase in intra-abdominal pressure, can rupture the normal splenic capsule.

Multiple underlying pathologies have also been associated with splenic rupture, including haematological, neoplastic, inflammatory and infectious conditions. Atraumatic splenic rupture rarely occurs [1,2].

Tuberculosis (TB) continues to be a major health problem in developing countries, despite considerable advances in the diagnosis and treatment of the disease [4].

Extrapulmonary TB accounts for almost 15% of all cases. Among the extrapulmonary forms, splenic TB is unusual. It was first reported by Coley in 1846 [5].

Of the organs and tissues involved in abdominal TB, splenic involvement has been reported in cases of disseminated TB, where immunosuppression is significant, while its isolated involvement remains an unusual entity [6-8].

In addition, Mycobacterium tuberculosis infection is challenging to diagnose in the spleen due to bacterial sequestration. Thus, a high degree of suspicion is necessary in cases presenting with PUO and splenomegaly [9].

Here, we present a rare case of spontaneous rupture of spleen following tuberculosis.

3. Case Report

A 39 years old Indian male, admitted under the department of medicine, presented with diffuse abdominal pain for the past 5 months, moderate in intensity, radiating to back. The patient is a chronic alcoholic. O/E- haemodynamically stable, pallor present , per abdomen - soft with mild tenderness in epigastrium, right and left hypochondrium, no guarding or rigidity . No h/o trauma.

Past history- similar complaints 3 months back, patient underwent cect w/a which was s/o---?peripancreatic cyst with mild ascitis.H/o tubercular lymphadenitis , took ATT for 12 months 3 years back.

On laboratory evaluation, haemoglobin was -8.8gms , rest were within normal limits.

USG W/A- s/o splenic cyst over hilum with mild splenomegaly, mild to moderate ascitis, mesenteric lymphadenopathy? tubercular.

On day 4 of admission patient developed severe abdominal pain with vomiting, and was shifted to ICU i/v/o tachycardia and hypotension.There was a decreasing Hb trend (7.5gms)- (6.8gms). For the above reasons, emergency surgery consultation was seeked and on examination-

P/A: Distended , Diffuse Tenderness + more over the left hypochondrium, Liver Dullness obliterated on percussion, Bowel sounds absent . P/R: Roomy rectum.

Emergency USG suggestive of Hemoperitoneum.

CECT abdomen done on DOA-4 s/o - sub capsular collection over lower portion of spleen, infarct in upper half with mesenteric lymphadenopathy likely abdominal tuberculosis.

Patient was therefore taken for exploratory laparotomy for spontaneous rupture of spleen.

Intra-operative findings: Splenectomy was performed. Intra abdominally peritoneum, mesentery, serosa of the small bowel were all studded with multiple small tubercles suggestive of tuberculosis (Figure1,2). Lower pole spleen was found to be shattered (Figure 3). Approx 1500 ml of hemoperitoneum present (Figure 4,5).

Post operative period- Patient was initially housed in intensive care unit, multiple blood transfusions were done. Post splenectomy vaccination was done. Histopathological report was s/o - miliary tuberculosis- spleen.

ATT was started on POD 6 and the patient was discharged on POD 8.

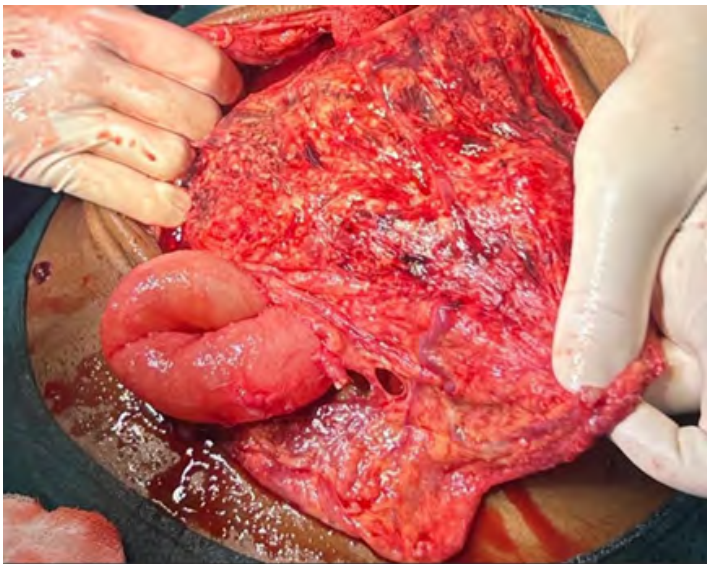

Figure 1: multiple tubercles in mesentery , bowel

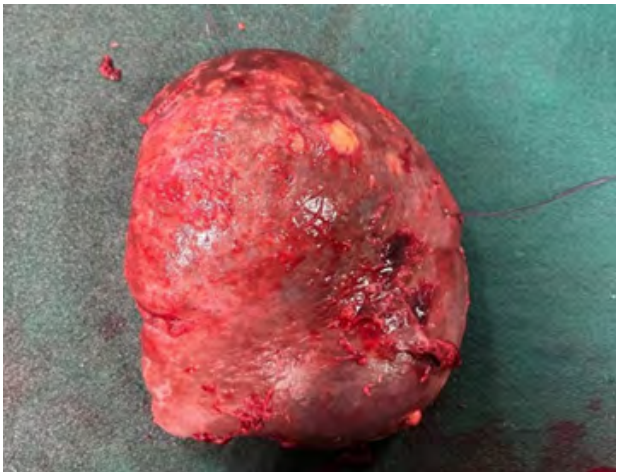

Figure 2: tubercles in spleen

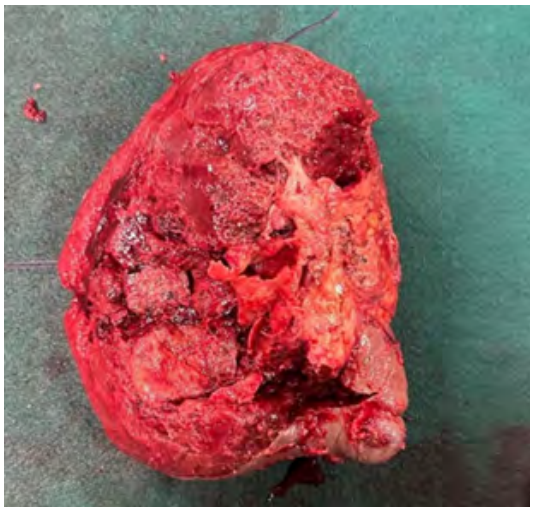

Figure 3: shattered lower pole of spleen

Figure 4: blood and blood clots drained from peritoneal cavity

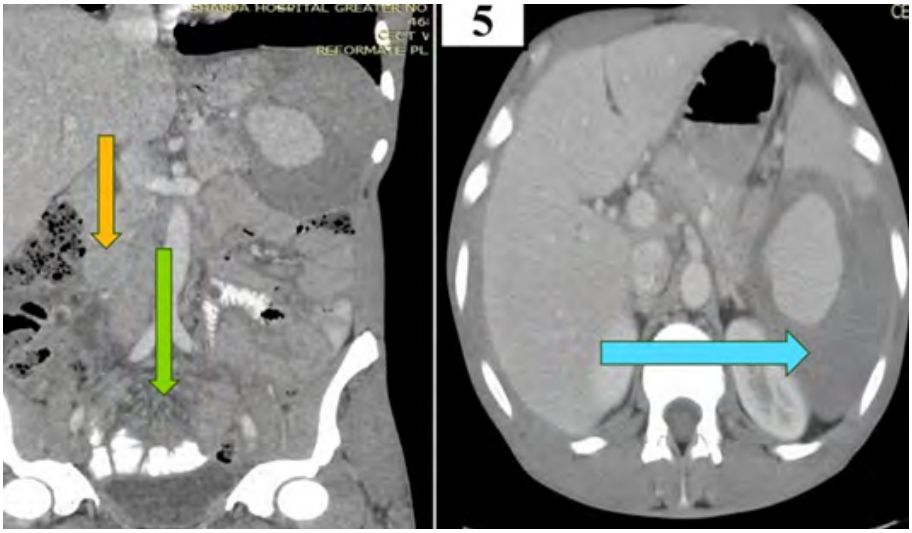

Figure 5: Multiple large (orange arrow), conglomerated mesenteric and retroperitoneal lymph nodes, Misty mesentery (green arrow) Splenic infarct with sub capsular collection in the spleen.

4. Discussion

Tuberculosis is a chronic infectious disease with a widespread prevalence in resource-poor countries. Although its incidence is on the decline in many developed nations, it is still a major public health problem in many developing countries [9].

Splenic TB is a singular and unusual case and can present itself in two ways: the first form is during miliary TB in immunocompromised patients, the spleen being the third most affected organ in miliary TB (100% lung, 82% liver, spleen 75%, lymph nodes 55%, and bone marrow 41%) [6-8,10-13]. The second unusual way of presenting is primarily, in that only the spleen is affected, which is rarely reported in the literature.In our case it was found to be miliary TB of the spleen.

Patients infected with HIV or those who are immunocompromised have been found to be at a high risk for splenic tuberculosis. Many reported cases of splenic tubercular abscess are found to have underlying HIV infections [4].

Sharma et al. and Gupta et al., respectively, reported rare cases of splenic abscess in an immunocompromised and an immunocompetent patient [14,15].

Adil et al. reported a series of ten immunocompetent individuals with splenic TB. All of them had at least one other site or organ affected by TB infection[16].It is similar to our case, as the patient had a history of tubercular lymphadenitis for which he had taken ATT.

Splenic tuberculosis can present with a myriad of signs and symptoms ranging from constitutional symptoms, such as fatigue, weight loss, splenomegaly, or PUO, to grave complications including hypersplenism, portal hypertension, and splenic rupture [17]. The most common symptoms that patients present with are fever (82.3 %), fatigue and weight loss (44.12 %), and splenomegaly (13.2–100 %) [18].There are no specific symptoms for establishing the diagnosis of splenic tuberculosis.

A case of splenic TB reported by Ho et al. presented with weight loss and fever, but without any indication of pain in the hypochondriac region [19].By contrast, in our case, the chief complaint was pain in the hypochondriac and epigastrium region, without fever or weight loss.

Primary splenic TB is presented as a case of hypersplenism, splenic abscess, or as a solitary splenic lesion. Its detected by contrasted CT that shows multiple hypodense nodulations in the splenic parenchyma; however, these can be characteristic of several conditions in addition to splenic TB such as cysts, hematomas, and fungal infections such as candidiasis, spleen infarctions, lymphoma, or metastasis [20-22].

Histopathological confirmation is required and this can be obtained in the first instance by means of a splenic biopsy, having an 88% sensitivity with fine-needle aspiration for the diagnosis of splenic TB [23].

The decision to perform a biopsy or go directly to splenectomy is entirely up to the doctor, depending on the conditions in which the patient is.

As in this case, the patient was haemodynamically unstable with haemoperitonium which led to the decision of splenectomy.

So far, his to pathological examination is still an ideal method to confirm the diagnosis. There are five types of path morphological classifications for splenic tuberculosis including miliary tuberculosis, nodular tuberculosis, tuberculous spleen abscess, calcific tuberculosis, and mixed type tuberculosis[5]

The treatment described in the literature is based on anti-TB drugs without actually performing a splenectomy, with them an adequate response is obtained at 6 months, similar to extra pulmonary TB from other sites due to the excellent penetration into tissues of this type of drugs. There are controlled clinical studies that recommend

a duration of up to 12 months with the possible prolongation of treatment if necessary [24].

A paradoxical phenomenon of exaggerated inflammatory symptoms, called immune reconstitution inflammatory syndrome, can rarely be seen on initiation of medical therapy. This may present as either worsening of existing lesions, development of new lesions, or worsening of clinical or radiological findings following initiation of ATT [25].

Whether splenic TB is best treated surgically is still controversial. Xia et al [26] suggested that splenectomy is the only effective treatment for splenic TB, but Denget al [27] maintained that it should be treated on a case-by-case basis.

If there are lesions indicating tuberculous activity in other parts of the body, as in secondary splenic TB, systemic treatment should be recommended.

Splenectomy should be considered in the following cases: [28]

(1) Giant tuberculous masses in the spleen;

(2) splenic TB combined with abscess;

(3) possibility of malignant tumor;

(4) severe splenic hyperfunction;

(5) esophageal varices or bleeding;

(6) no reduction in splenic lesions after regular anti-TB treatment;

(7) pancreatic tail TB or abdominal abscess.

Surgery is also required in patients with spontaneous rupture of the spleen or failure of anti TB therapy [8].

In recent years, with the improvement of the understanding of the spleen as an immune organ and the recognition of dangerous infection after splenectomy, greater requirements have been placed on the preservation of the spleen [29].

The pharmacologic response is relatively significant prompting anti-TB drugs as the first line management of splenic TB [30,8,31]

5. Conclusion

Tuberculosis has a wide range of clinical presentation, with splenic tuberculosis being one of the rarest. The spontaneous rupture adds a greater singularity to the case due to the low frequency with which it is reported. In this case, a probable spontaneous splenic rupture was suspected clinically due to sudden clinical deterioration, which was confirmed in the operating room, this being a highly unusual surgical emergency in literature.

Therefore, it is our duty as clinicians to keep an open mind regarding the possibility of splenic tuberculosis as a differential diagnosis in cases presenting with acute abdomen, especially in developing countries, where the prevalence of TB is very high. Limited diagnosis might have catastrophic results for the patient, therefore, timely intervention with the available diagnostic tools and prompt intervention is vital and inestimably precious.

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