

## Splenic tuberculosis : Report of two cases and literature review

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### Abstract

Tuberculosis is endemic in many developing nations of the world. However, with the epidemic of AIDS, the disease has re-emerged in advanced countries as well. Tuberculosis presenting as pyrexia of unknown origin is well known and can affect any organ in the body. Two patients presented with pyrexia of unknown origin and on evaluation splenic lesions were discovered which proved to be splenic tuberculosis after fine needle aspiration. Both patients were HIV negative. One patient had well controlled diabetes mellitus while as another patient had no co morbidities at all. Splenic abscesses could be one of the complications of bacterial Endocarditis and in the past splenectomy used to be the treatment of choice. But now CT-guided aspirations and demonstration of AFB have eased out management in these cases. After the demonstration of acid-fast bacilli both patients improved after therapy with antitubercular treatment. Clinical description and literature review is described in this brief report.

**Keywords:** Tuberculosis, HIV, Diabetes mellitus , Fever of unknown origin

### Introduction

Isolated splenic tuberculosis is extremely rare, particularly in the immunocompetent persons. Splenic tuberculosis, however, can be part of military tuberculosis in immunocompromised patients. Tuberculosis spleen invariably presents in the form of an abscess. The risk factors for splenic abscess described in the literature are sickle cell disease, hemoglobinopathies, splenic trauma endocarditis or tuberculosis elsewhere in an immunocompetent patient. Although rare cases of splenic tuberculosis in immunocompetent patients have been described in the past. With re-emergence of tuberculosis due to AIDS and use of immunosuppressive medications around the globe, it is very important to bear this rare clinical condition while evaluating pyrexia of unknown origin in a given case.

### Case 1

A 54-year-old male vet nary doctor by profession presented with the history of off and on fever of 8 weeks duration. The fever was low grade, intermittent and was associated with weight loss of 4 kilograms. There was no evening rise of temp and no sweating. The patient denied any history of a cough, urinary symptoms or diarrhoea. There was no history of travel or contact with sick people. He had been type II diabetic for last 12 years controlled on oral hypoglycemic agents and had no history of acute or chronic complications. There was no history of tuberculosis in the past or in close contacts . He was non-alcoholic and denied any high-risk behaviour. The clinical examination revealed an average built person who was conscious oriented and had stable vitals. There was no jaundice or lymphadenopathy. Abdominal examination revealed moderate

splenomegaly. The liver was not palpable and there was no ascites. Respiratory and cardiovascular systems were normal. During the hospitalisation temp. recorded ranged from 38<sup>o</sup> C to 39<sup>o</sup>C with no night sweats during his hospital stay. Patient's evaluation showed haemoglobin levels of 10.5g/dl Leukocyte and platelet counts were normal. ESR was 88mm for the first hour. The tests on kidney and liver functions were normal. An ultrasound abdomen showed the presence of two heterogenic space occupying lesions measuring 3×4cms suggestive of splenic abscesses. An echocardiogram was done to rule out any features of subacute bacterial endocarditis. All the valves of his heart were normal and no feature of endocarditis was noted. The patient had normal ejection fraction and the pericardial cavity was normal too. Blood cultures and urine cultures were found to be sterile. A 24-hour collection of urine showed no evidence of albuminuria and funduscopic examination ruled out retinopathy. Keeping in view splenic abscesses CT guided fine needle aspiration was done and acid-fast bacillus were demonstrated by Zeal-Neilson s stain and the patient was put on antitubercular treatment. The culture of the aspirate a few weeks later turned out to be positive for Mycobacterium tuberculosis. His HIV serology was negative .The patient continued standard four-drug regimen for two months followed by two drug regimen for another seven months. Patients fever settled after two weeks of treatment and followed our clinic till completion of his treatment.

### Case 2

A 24-year-old female student presented with the history of off and on fever of 5 weeks duration. The fever was low grade intermittent and not associated with sweating She also

complained of loss of appetite and weight loss of 3 kilogrammes over a period of 2 months. She denied any history of a cough, urinary symptoms. The patient had no history of contact with sick persons or travel. She had no co-morbid illness. On examination she was conscious, oriented and had mild pallor, no lymphadenopathy or jaundice was noted. Her respiratory and cardiovascular system was normal. Abdominal examination showed splenomegaly 5 cms below the costal margin. Her laboratory data showed haemoglobin levels of 9.8 gm/dl, WBC count of 4200 and platelets were  $1.5 \times 10^3$ . ESR was 90 mm in the first hour. Blood culture, Widal tests and Brucella serology were negative. Tests on liver and kidney functions were normal. An ultrasound abdomen showed the presence of three small space-occupying lesions in the spleen. Each was measuring 2 x 2 cms. Portal vein diameter and spleno-portal axis were normal. CT scan abdomen confirmed splenic abscesses and no abdominal lymphadenopathy was noted. CT-guided fine needle aspiration was done which turned out to be positive for AFB and cultures a few weeks later confirmed Mycobacterium tuberculosis. Her transthoracic echocardiography showed normal values and didn't show any features of vegetations. Her HIV serology was negative. The patient was started on conventional four-drug anti-tubercular regimen for two months followed by two-drug regimen for another seven months. Her fever settled and she had marked improvement in her appetite and her weight increased.

## Discussion

Splenic abscesses presenting as fever of unknown origin is well known. Most of the cases of TB spleen present as fever, vague ache in left hypochondrium or weight loss. Although the frequency of splenic tuberculosis is more common in immunosuppressed patients, splenic abscess due to tuberculosis has been described in immune-competent patients as well<sup>1</sup>. Due to the advent of AIDS, the prevalence of tuberculosis has increased globally and more cases are now getting reported. Another scenario leading to increased frequency of this previously rare entity is the widespread use of immunosuppressed therapies for chronic disorders like Rheumatoid arthritis, Crohn's disease, Psoriasis etc. The index cases were neither HIV positive nor were on any immunosuppressant medication but developed splenic lesions, reflecting some other hitherto unknown predisposing factor for such lesions. The splenic abscess does occur in the setting of infective endocarditis as infective emboli get lodged in the spleen. Splenic abscess following endocarditis in an 80-year-old male presenting with abdominal pain during the course of treatment was reported by Pereira et al<sup>2</sup> and in another series<sup>3</sup> of 3 patients with bacterial endocarditis, splenic abscess was diagnosed based on CT abdomen with evidence of endocarditis on Echocardiography. In the same series, two of the patients underwent splenectomy before valve repair while splenectomy was performed after the valve repair in the other patient. The echocardiogram in index cases, however, were normal without any evidence of endocarditis. After the

diagnosis and initiation of ATT, the index cases became afebrile and splenectomy was thus averted. While one of the cases had well-controlled diabetes mellitus but the other patient was euglycemic and had no other known risk factor for splenic tuberculosis as is described in the literature. What led to splenic tuberculosis in the second case remained unidentified? There is a well-known linkage between diabetes mellitus and TB and as per WHO a bidirectional screening has been recommended. Sri Lankan data<sup>4</sup> on 112 patients with TB found that 8 patients with TB already were already known cases of diabetes mellitus and in their study further screening unravelled TB in another 17 patients. It is thought that metabolic adaptation is critical during the pathogenesis of Mycobacterium tuberculosis<sup>5,6</sup>.

In-time management of tubercular abscess is very crucial as without treatment patients can have a complicated clinical course. Splenic abscess can rarely rupture or lead to fistulous communication with adjacent organs. A gastro-splenic fistula has been reported by Lee et al<sup>7</sup> in a 61-year-old male presenting with abdominal discomfort and cough. The authors demonstrated a fistulous tract between the spleen and the stomach on endoscopic examination. The fistulous track healed in their case after completion of anti-tubercular treatment. It is quite possible that delay in diagnosis may be a factor that leads to such complications. The index cases, however, had a favourable outcome without any complications and successfully completed anti-tubercular treatment.

The other side of the coin is that complications are even known during the anti-tubercular treatment as a result of reaction to anti-tubercular treatment. Spontaneous rupture during treatment leading to splenectomy was reported by Yea et al<sup>8</sup>. Splenic tubercular abscesses are known to be associated with miliary tuberculosis or with haematological diseases where leucopenia and thrombocytopenia are profound<sup>9</sup>. The index cases had normal platelet count and leucocytic count highlighting that there was neither bone marrow suppression nor hypersplenism. The patients with ITP on treatment are also prone to develop Tuberculosis of spleen and conversely, patients with TB spleen can per se develop thrombocytopenia.

The management of splenic abscess used to be splenectomy in the past but with the advent of FNAC splenectomy is avoided. Here a word of caution is that various other lesions in spleen can mimic splenic TB hence it is very important to confirm the disease especially in endemic areas where TB is prevalent. Kunnathuparambil et al<sup>10</sup> described melioidosis in a 47-year-old male who was treated as a case of splenic tuberculosis based on splenic lesions on imaging and fever. The diagnosis of splenic tuberculosis in the past was mainly reached after histological examination of surgical specimens but now fine needle aspiration has become the procedure of choice. Spleen being a highly vascular organ, bleeding is the most feared complication of any intervention but fine needle aspiration has been found to be technically safe and in a retrospective data no significant complication was observed<sup>11</sup>. With the advent of non-invasive

biomarkers diagnosis of tuberculosis has advanced further and a step further is Quantiferon Gold test which has come up another non-invasive modality in the diagnosis of TB. In various studies<sup>12</sup>, the sensitivity of this test to the tune of 75% has been demonstrated.

While treating an HIV patient the clinician requires high alert in patients presenting with pain abdomen as the splenic abscess is one of the differentials and it is recommended that initial ultrasound must be carried out to diagnose this condition<sup>13</sup>. In modern era, Splenectomy may be offered only to resistant cases otherwise ATT is considered to be the therapy of choice.

To conclude tuberculosis of spleen must be kept in mind while evaluating fever of unknown origin in any patient on immunosuppressant treatment or having HIV and even in immunocompetent patients as well. The Fine needle aspiration is a safe diagnostic modality and treatment with antitubercular medication is rarely unsuccessful.

#### Competing Interests

None declared

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