Scientific Research Publishing

Open Journal of Pediatrics, 2026, 16(4), 614-618
https://www.scirp.org/journal/ojped
ISSN Online: 2160-8776
ISSN Print: 2160-8741

Splenic Tuberculosis, a Rare Cause of Extrapulmonary Tuberculosis: A Pediatric Case Report

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How to cite this paper: Guylaine, A.B., Emma, K. and Roxane, S.A.L. (2026) Splenic Tuberculosis, a Rare Cause of Extrapulmonary Tuberculosis: A Pediatric Case Report. *Open Journal of Pediatrics*, **16**, 614-618.
https://doi.org/10.4236/ojped.2026.164061

Received: May 29, 2026
Accepted: July 17, 2026
Published: July 20, 2026

Abstract

Isolated splenic tuberculosis is a rare cause of extrapulmonary tuberculosis. Its clinical manifestations are nonspecific and can lead to diagnostic errors, even in endemic areas. Case Report: We report the case of a 12-year-old girl who presented with isolated febrile splenomegaly that had been evolving for three months. Her medical history included BCG vaccination, no history of tuberculosis exposure or chronic cough, and no signs of immunosuppression. Abdominal ultrasound revealed two hypoechoic lesions within the splenic parenchyma, with no other abnormalities observed. Ultrasound-guided fine-needle aspiration cytology and histopathological examination confirmed the tuberculous origin. The patient received antituberculosis treatment for six months, with resolution of clinical signs.

Keywords

Tuberculosis, Spleen, Child

1. Introduction

Tuberculosis is an ancient disease that remains a global public health problem [1]. The main cases are concentrated in Southeast Asia, Africa, and the Western Pacific region [2]. This disease is caused by the development of *Mycobacterium tuberculosis* complex bacteria within an organ. Splenic tuberculosis is a rare form of extrapulmonary tuberculosis. Its true incidence is unknown, as most literature reports clinical cases or case series. According to Public Health France, the incidence was 0.2 cases per 100,000 inhabitants in 2024 [3]. It generally occurs in im-

munocompromised individuals, with or without pulmonary or other tuberculosis involvement. Isolated tuberculosis is rare, even in endemic areas. We report a case occurring in an immunocompetent individual.

2. Case Report

A 12-year-old girl, living in a rural area, was referred for consultation to investigate a chronic abdominal mass. Her medical history included BCG vaccination, no known exposure to tuberculosis, no chronic cough, and no history of promiscuity. The patient had no prior history of tuberculosis, no signs of immunosuppression, no polyuria-polydipsia-polyphagia syndrome, no recurrent anemia, and no consanguinity.

The patient's medical history revealed symptoms that had been developing for more than three months, including a painful abdominal bulge, an unspecified evening fever, and asthenia. She did not experience night sweats, cough, or digestive or urinary problems. Her parents had consulted a health center where they were diagnosed with uncomplicated malaria and an unconfirmed bacterial infection, which were treated unsuccessfully. They then consulted a second center where a diagnosis of treatment failure was made and the child was put on a new class of antibiotic (cefixime) and an antimalarial drug. Faced with the persistence of symptoms, the increase in abdominal mass volume associated with progressive, unquantified weight loss, the parents consulted another health center where an ultrasound examination revealed heterogeneous splenomegaly (Figure 1). The

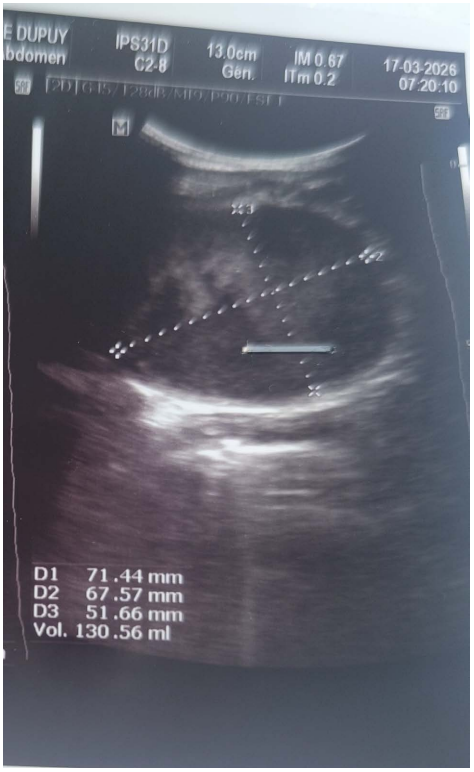

Figure 1. Ultrasound image of an intrasplenic collection.

patient was referred for evaluation and management. On admission, the examination revealed a thin, asthenic patient with moderately pigmented conjunctivae. She presented with growth retardation <−2 SD and moderate acute malnutrition. Abdominal asymmetry with bulging in the left hypochondrium was noted, along with no collateral venous circulation, peripheral lymphadenopathy, or ascites. She had Hackett type IV splenomegaly, tender with a smooth, regular surface. Examination of other organ systems was normal. Given this chronic febrile splenomegaly, we considered progressive visceral malaria, schistosomiasis, or hypersplenism in a probable hemoglobinopathy patient. In the etiological investigation, hemoglobin electrophoresis, malaria serology, liver function tests, and schistosomiasis serology were performed. Serological tests, hemoglobin electrophoresis, and liver function tests were normal. An abdominal ultrasound was performed, revealing two intrasplenic masses: one superior (60 × 60 mm) and one heterogeneous (75 × 69 mm) anteromedial, with hepatic hilar lymphadenopathy suggestive of a lymphomatous process; no signs of portal hypertension were observed. A splenic infection (pyogenic organism, *Mycobacterium tuberculosis*) or tumor was suspected. An ultrasound-guided biopsy was performed for histopathological examination. The histopathological results showed a Koester's granuloma. Based on this finding, a chest X-ray was performed to search for an initial pulmonary focus and was normal; HIV serology was negative. The patient received antituberculosis treatment (2 RHZE, 4RH) for six months according to the national protocol. Monitoring consisted of regular physical examinations (at 1, 2, and 6 months) assessing initial symptoms, the size of the splenomegaly, and ultrasound examinations. The outcome is favorable, with the disappearance of clinical signs and regression of the ultrasound lesions.

3. Discussion

Extrapulmonary forms represent 16% of tuberculosis cases worldwide and are more common in children [4]-[6]. In Côte d'Ivoire, according to the National Tuberculosis Control Program (PNLT), extrapulmonary forms were projected to represent 25% of childhood tuberculosis cases in 2024. Certain locations are more prevalent in one age group than another. Thus, lymph node and miliary forms are more common in children under five, while abdominal forms affect those over five. Abdominal forms represent less than 2% of all extrapulmonary tuberculosis cases in the Allali study [7]. Splenic tuberculosis is one such form. Like extrapulmonary forms, it presents a diagnostic challenge due to the nonspecificity of clinical signs and the difficulty in identifying the causative organism, which can delay patient management.

Splenic tuberculosis is a poorly understood condition among healthcare professionals, even in endemic areas. Its progression is slow and insidious, with nonspecific clinical signs [8]. It generally presents as an isolated, prolonged fever [9]. Sometimes, it is associated with nonspecific abdominal pain or splenomegaly. Isolated febrile splenomegaly was the presenting symptom in our case, as in Ameer's

[10]. The delayed diagnosis encountered in our case highlights the diagnostic difficulty of splenomegaly, as well as the challenges of pediatric tuberculosis in general, and particularly in unusual locations, even in highly endemic areas. Our patient's medical history reveals that splenomegaly is often mistaken for an inflammatory response to a bacterial or parasitic infection such as malaria, or for hypersplenism in the context of hemoglobinopathy, which is common in our region. It is the persistence of signs and the deterioration of the clinical condition that leads to further diagnostic investigation. Abdominal ultrasound is the first-line examination performed in cases of abdominal pain or an abdominal mass. It is a repetitive, non-irradiating, and readily available examination. It confirmed the presence of splenomegaly with necrotic-appearing formations within the spleen. The spleen is a fragile organ, making etiological sampling difficult. Its exploration is performed either by fine-needle aspiration/ultrasound-guided biopsy or after splenectomy. In our case, ultrasound-guided biopsy combined with histopathological examination confirmed the tuberculous nature of the intrasplenic masses, thus avoiding diagnostic splenectomy. In the cases described by Ameer and Andaloussi, histology was performed on splenectomy specimens [10] [11].

Isolated splenic involvement by *Mycobacterium tuberculosis* is rare. Indeed, it is a lymphoid organ involved in the body's defense. Due to its structure, it resists the penetration and proliferation of microorganisms within it. However, in cases of general immunosuppression or alteration of its architecture, infections can develop [12]. Its development in immunocompetent individuals is rare [9] [10].

First-line treatment for splenic tuberculosis is purely medical, based on a combination of antituberculosis drugs (rifampicin, isoniazid, pyrazinamide, ethambutol) for a duration of six months. Surgery is only performed in cases of complications. The outcome with appropriate treatment is generally favorable, as in our patient [9].

4. Conclusion

Splenic tuberculosis presents a significant diagnostic challenge for physicians, even in endemic areas. It should be considered in any case of prolonged unexplained fever associated with splenomegaly. Imaging combined with histopathological examination allows for diagnosis.

Consent

Informed parental consent was obtained.

Conflicts of Interest

The authors declare no conflict of interest.

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