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Case Report

Isolated Splenic Tuberculosis from an Immunocompetent Child (About One Case)

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Abstract

Splenic tuberculosis is one of the rare aspects of hematopoietic tuberculosis, often associated with other sites, or with an immune deficiency. We report the case of a 6-year-old girl, immunocompetent, who presented for febrile left hypochondrial pain where the paraclinical biological and radiological assessment did not allow an accurate diagnosis, without any pulmonary involvement or a primary focus. Diagnostic confirmation was established by histological study by performing a splenectomy.

Keywords: *Splenic Tuberculosis; Splenectomy; Immunocompetent Child*

Introduction

Isolated splenic tuberculosis is a rare entity in children, even in endemic countries [1]. It is observed in disseminated forms and in HIV-infected subjects [2]. Its diagnosis is difficult because of the variety and non-specificity of the symptoms, and also because of the difficulty of isolating the germ.

It is a major public health problem in the world, despite the efforts made to fight tuberculosis.

We report the case of a 6-year-old immunocompetent girl with isolated splenic tuberculosis.

Observation

It is a 6-year-old girl, with no notion of tuberculosis infection, vaccinated according to the national immunization program, admitted for etiological assessment of pain in the left febrile hypochondrium evolving for 3 weeks with unquantified weight loss and profuse sweating without transit disorder.

The clinical examination showed a child in fairly good general condition, febrile at 38.7, weight 15 kg (3rd percentile), height 1.3m (n), stable on the hemodynamic and respiratory levels.

Abdominal examination: Objectivized a sensitivity of the left hypochondrium without collateral venous circulation or lymphadenopathy. The rest of the examination was without particularities.

Abdominal ultrasound showed atypical cysts of the spleen with ADP of the splenic hilum 1.3 mm.

The chest x-ray was normal, the sputum BK test, the quantiferon test was negative, and HIV serology was negative.

Laboratory workup: white blood cell count: GB 5600 e/mm, PNN 3000 e/mm, lymphocyte 2800 e/mm, hemoglobin: 11.9 g/dL, platelets were at 260000/mm^3, CRP 20 mg/l, ESR 25 mm.

Normal blood smear, ionogram and tumor lysis workup without abnormality.

The assessment of the macrophage activation syndrome was negative: AST 23 iu/l, ALT 33 ui/l, TG 2 g/l and fibrinogen at 1,2 g/l, ferritine 80 ng/ml.

Abdominopelvic computed tomography showed heterogeneous splenomegaly containing several hypo-dense lesions with 13 mm perihilar ADP initially suggestive of lymphoma.

The cervico-thoracic CT scan was normal.

Two diagnostic hypotheses were then evoked: tumor or infectious origin.

The surgical indication for a splenectomy for diagnostic purposes was made after a multidisciplinary consultation meeting.

The study of the operative specimen showed the presence of a caseified gigantocellular epithelioid granuloma compatible with the tuberculosis etiology with no histological signs of malignancy.

The child had received medical anti-tuberculosis treatment according to the Moroccan national tuberculosis control program including quadruple therapy based on: isoniazid 10 mg/kg, rifampicin 15 mg/kg, ethambutol 20 mg/kg and pyrazinamide at 35 mg/kg for two months, followed by isoniazid and rifampicin for the following four months. Doses were adjusted according to the child's weight during follow-up consultations.

Currently, the child is doing well with a regaining of weight and an improvement in the general condition, with a follow-up of 9 months. Chest imaging, abdominal ultrasound, sedimentation rate were normal.

Discussion

Paediatric tuberculosis is a global problem, with more than one million new cases each year in children under 15 years of age, according to the World Health Organization [3]. Its diagnosis can be difficult because microbiological evidence of infection is often difficult to obtain. According to the WHO, the proportion of childhood tuberculosis cases varies from 3% to more than 25% depending on the endemic country status.

In Morocco, the proportion of active tuberculosis in children under 15 years of age was 7% in 2019. The distribution by location showed a high proportion of the extrapulmonary form, which accounted for 81% of cases with a strong predominance of lymph node location of 45% of cases [4].

Splenic localization is unusual, it can exist in the context of miliary tuberculosis, a disseminated form or in cases of HIV [2]. Isolated splenic lesions are rarely reported in the literature [5].

Clinical manifestations of splenic tuberculosis are nonspecific, including fever, diarrhea, abdominal pain, weight loss, and anorexia, but the child may be asymptomatic [6]. The biological disturbances found are not specific, it was microcytic or normocytic anemia, inflammatory syndrome [7].

The diagnosis of splenic tuberculosis can be complicated by the lack of isolation of the bacillus and also by the absence of organ

involvement, especially the lung.

Ultrasound and computed tomography are an essential step when they are suggestive, but often the lesions simulated tumor damage [8]. There is no specific radiological lesion of tuberculosis [9]. In this case, the reference diagnostic method is to perform a splenectomy and perform biopsies to have histological evidence in favor of gigantocellular epithelioid granuloma with caseous necrosis.

The treatment of splenic tuberculosis is essentially medical based on anti-tuberculosis drugs, it is different depending on the payer. Its optimal duration is unknown [10]. According to some clinical trials, a 12-month course of treatment is recommended, but it can last up to 24 months in some cases [11].

Curative splenectomy is a therapeutic alternative, it is indicated in patients who do not respond to anti-tuberculosis drugs or in case of aggravation under medical treatment [12,13].

In Morocco, the curative treatment regimen for splenic tuberculosis in children recommended by the national tuberculosis control programme includes a four-phase quadruple therapy; attack and maintenance phase that lasts 6 months. It depends on the location, the severity of the disease, and the HIV status [10].

Author, country Year	**Gender, age Vaccination**	**Clinical**	**Biological anomaly**	**Anomaly radiological**	**Means of confirming the diagnosis**	**Treatment Medical**
P. BORA., *et al*. [14] India, 2000	-Daughter -9 years old -Vaccinated	-Pallor -7 cm SPM	-Pancytopenia -Hypersplenism	-Homogeneous splenomegaly	-Positive IDR -Splenectomy	-6 months
A. Metlo., *et al*. [15] Pakistan, 2019	-Daughter -8 years old -Unvaccinated	-Sweat -Alteration of general condition -2 cm SPM	-Microcytic hypochromic anemia	-Splenomegaly, homogeneous with hypodense lesions	-Suspicion clinical	-12 months -RHZE
A. Kakaje., *et al*. [16] Syria, 2020	-Daughter - 5 years -Vaccinated	-Pallor -Fever -5 cm SPM	-Microcytic hypochromic anemia	-Homogeneous splenomegaly	Splenectomy	-9 months -RHZE
M. El Aissate., *et al*. [17] Morocco, 2022	-Daughter -17 years old -Vaccinated	-Fever -Alteration of general condition -Sweat	-Inflammatory syndrome	-Heterogeneous splenomegaly	Splenectomy	-6 months -RHZE
Our case Nassima Jraifi., *et al*. Morocco, 2024	-Daughter -6 years old -Vaccinated	-HCG pain -Emaciation -Sweat	-Normal	-Heterogeneous splenomegaly with hypodense lesions, and 13 mm perihilar ADP	Splenectomy	-6 months -RHZE

Table 1: *Characteristics of splenic tuberculosis in immunocompetent children.*

In the following table, the characteristics of splenic tuberculosis reported in the literature in immunocompetent children are noted.

In our case, the child did not present a biological abnormality, nor bacteriological evidence, she was immunocompetent and imaging did not contribute to the diagnosis, the splenectomy was carried out, after discussion, given the significant risk of bleeding and the diffuse involvement of the spleen, which made it possible to make the diagnosis and to begin therapeutic management.

The hypothesis of BCG vaccination makes it possible to prevent severe forms in children, such as miliaria and meningitis, which has been identified in clinical studies [18]. In our case, the child was vaccinated, and this did not prevent the spread of the infection.

Currently, trials aim to improve the immune effect of BCG by; the change in the vaccination route, the use of the immune booster strategy. However, these trials pose some challenges.

Conclusion

Isolated splenic tuberculosis is a rare presentation, its diagnosis in children is difficult, because microbiological evidence is rarely obtained, and often the use of histology is essential. This should always be considered at the level of endemic areas, even in

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