

Splenic Tuberculosis - Case Report

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Rezumat

Tuberculoză splenică - prezentare de caz

Autorii prezintă cazul unei paciente de 42 de ani, cunoscută cu afecţiuni cardiovasculare, care se internează în spital pentru o simptomatologie nespecifică dar persistentă: astenie, fatigabilitate, dispnee, transpiraţii nocturne. Elementele clinice (splenomegalia), ecografice (leziuni hipocogene splenice) și tomografice (leziuni hipodense splenice) orientează către o suferință splenică dar asocierea adenopatiilor intratoracice și intraabdominale (decelate CT) ridică suspiciunea unui sindrom limfoproliferativ cronic. Se practică splenectomia prin abord deschis iar surpriza este oferită de examenul histopatologic: tuberculoză splenică. Sunt prezentate aspecte clinice, diagnostice și terapeutice ale tuberculozei cu localizare splenică, alături de o trecere în revistă a literaturii de specialitate.

Cuvinte cheie: tuberculoză splenică, splină

Abstract

The authors advance the case of a patient aged 42, with cardiovascular disorders who is hospitalized for non-specific, but persistent symptomatology: asthenia, fatigability,

dyspnoea, night sweats. The clinical (splenomegaly), abdominal ultrasonographic (splenic hypo-echogenic lesions) and computed tomographic (splenic hypo-dense lesions) elements lead to a splenic disorder, but the association of intra-thoracic and intra-abdominal adenopathies (CT revealed) raises suspicion of a chronic lymphoproliferative syndrome. Splenectomy by open approach is performed and the surprise comes from histopathology: splenic tuberculosis. Clinical, diagnostic and therapeutic aspects of tuberculosis with splenic localization are presented.

Key words: splenic tuberculosis, spleen

Introduction

Tuberculosis is an important public health issue, especially in the developing countries (1). The organ affected the most is the lung, but tuberculosis can reach any organ or tissue in the abdomen (2,3). Splenic tuberculosis is more frequently encountered in immunocompromised patients (especially in HIV-positive patients) or in the disseminated form of tuberculosis. On the other hand, the isolated form affecting only one organ / primary splenic tuberculosis is very rare and appears especially in immunoincompetent patients (2,3,4). In immunoincompetent patients lymphocytes and macrophages lack the ability to congregate locally in order to stop proliferation of mycobacteria.

The histopathology diagnosis (after splenectomy or fine needle puncture) is necessary when the clinical symptoms and the results of the imaging investigations are suggestive, but

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with low specificity (4,5,6). Splenectomy along with tuberculostatic drugs can heal splenic tuberculosis (7,8,9). The anti-tuberculosis treatment alone can have good results, surgery being reserved to complications (splenic rupture) or to failure of a medical treatment (5,10,11).

Case report

Patient T.G., female, aged 42, known with hypertensive disease, vesicular lithiasis and nephrolithiasis, is hospitalized in the haematology unit (observation sheet 27306/03.09.2014) for: asthenia, fatigability, dyspnoea, night sweats, modification of the general condition. The anamnestic information revealed no history of pulmonary tuberculosis. When performing clinical examination, the following are revealed: overweight patient with abdomen increased in volume by fatty tissue, with painful discomfort at palpation in the left hypochondrium, where the lower pole of an increased hard spleen is noticed. Laboratory examinations reveal: hereditary spherocytosis (hemoglobin = 10,5g/dL; hematocrit = 32%; MCV mean cell volume = 80,2fL), thrombocytosis (PLT platelets = 545000/mm³) and high ESR/erythrocyte sedimentation rate (64 mm/1hour). Cardio-pulmonary X-ray reveals: nodular opacities with a tendency of fusion scattered in both pulmonary fields; nodular opacities with a clear delimitation projected right laterotracheal (adenopathies). The abdominal ultrasonography reveals: moderate hepatomegaly, gallbladder with multiple calculi the greatest with a diameter of nearly 2 cm; important splenomegaly (moderate to severe splenomegaly according to Poulin classification) with multiple hypo-echogenic lesions. The computed tomography (CT) of the thorax was performed in order to understand the nature of the adenopathies and nodules; the CT reveals: bilateral pulmonary lesions with nodular aspect (maximum diameter of 10mm) in the upper pulmonary field and reticular-nodular lesions in the hilar and perihilar area with pleural traction; mediastinal retrosternal adenopathies and adenopathies localized pre-carinary and lateral-aortic with a maximum size of 2cm (Fig. 1).

The tomographic (CT) examination of the abdomen reveals: important splenomegaly (19cm) with intense non-homogenous aspect, with multiple hypo-dense non-iodophilic lesions (splenic infarcts?/secondary determinations?); homogenous hepatomegaly; gallbladder with calculi of nearly 2cm in size; multiple mesenteric-celiacadenopathies with a maximum diameter of 15 mm, adenopathies in the hepatic, retroperitoneal, interaorto-caval, lateral-aortic roots (Fig. 2).

The diagnosis of splenomegaly, possibly within a chronic limpho-proliferative syndrome is established based on the anamnesis, clinical and paraclinical examinations. In order to determine a positive diagnosis, a histopathological examination is necessary and the spleen is considered to be the most suitable for collecting the material for the biopsy. The decision to make an open splenectomy is being taken, reason for which the patient is being transferred to Surgical Department no 2. Biopsy was not a choice because the risk of bleeding is considerable. A unit of cross-matching blood is kept for compensating possible intra-surgical and post-surgical blood losses. Surgery is performed



Figure 1. Thoracic CT: lesions of reticular nodular aspect situated in the hilum and the surrounding area, with pleura traction



Figure 2. Abdominal CT: splenomegaly with non-homogenous aspect, with multiple hypodense non-iodophilous lesions

on 09.09.14 (operative protocol no. 702) under general anaesthesia with endotracheal intubation by left subcostal incision. While exploring the abdomen, the following are revealed: spleen increased in volume, hard, with multiple peritoneal adhesions; dissection of peritoneal adhesions and splenectomy are performed; the haemostasis control, lavage and double drainage of the spleen and anatomic parietoraphy end the surgical intervention. Examination of the extirpated spleen which is hard and big in size (26 cm in the long axis), with multiple bosselated centrimetric yellowish cholesteatoma. The piece is sent for histopathological investigation (Fig. 3).

Post-surgical evolution is favourable under treatment with antibiotic, antialgic, antisecretory, prokinetic, hydro-electrolytic and volemic re-equilibration, with low molecular weight heparin (LMWH). The patient is discharged from the hospital in the 5th postsurgical day with the wound under recovery process.

Histopathology examination of the extirpated spleen reveals the following modifications: partially altered spleen by emergence of confluent epithelioid granuloma, surrounded by lymphoid tissue; extended plot areas of acidophil necrosis



Figure 3. Appearance excised spleen

and frequent giant cells, multinucleated Langhans cells. The histopathological aspect leads to the diagnosis of splenic tuberculosis (Fig. 4, Fig. 5).

The patient is guided to the Pneumology and Tuberculosis unit for specialty treatment.

Discussions

Tuberculosis is a chronic transmissible disease, widely spread within the population, which when untreated or treated incorrectly, has high lethality (12, 13). The pathogen agent of tuberculosis is *Mycobacterium tuberculosis hominis* (Koch bacillus) and occasionally *Mycobacterium bovis* (12). The role of immunity in tuberculosis pathogeny is important and it is illustrated by the fact that tuberculosis is more frequent in immunocompromised patients. Tuberculosis incidence has increased a lot after 1980, together with HIV epidemics (being an indicator of immunosuppression by HIV infection) (1, 4, 14, 15).

Splenic tuberculosis is a rare form of abdominal tuberculosis, but its frequency is increasing within the disseminated disease, as well as in immunocompromised patients (2,6,7,16). Contamination of the splenic parenchyma appears: via blood (from pulmonary lesions), via the lymphatic vessels (intestinal lesions) and by contiguity (for peritoneal, vertebral and psoas muscle tuberculosis) (3,4,9,13). The primary splenic tuberculosis is represented by the disease which firstly and only affects the spleen whereas secondary splenic tuberculosis is the one that follows an undiagnosed pulmonary tuberculosis. Isolated or primary splenic tuberculosis is extremely rare in immunocompetent patients, its frequency increasing in patients with immune-deficiencies, especially in HIV-positive patients, especially those who use intra-venous administration for drugs (5,6,7,11,16,23). The splenic affection is frequently accompanied by the hepatic affection (4,13).

The symptomatology of the splenic tuberculosis patients is

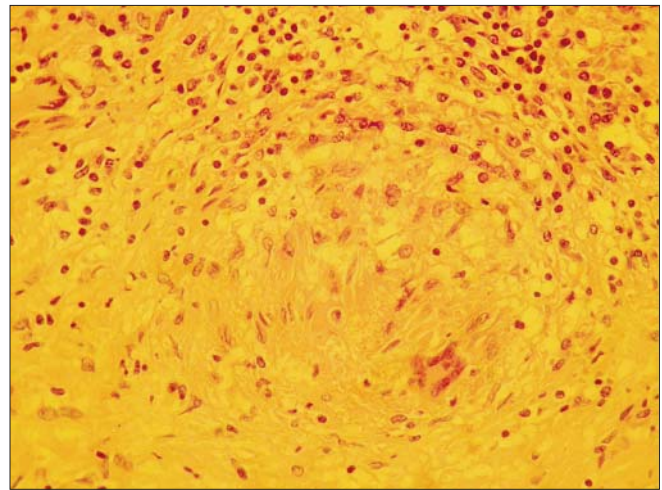


Figure 4. Spleen with tuberculous granulomas (col. HE. ob. X 40)

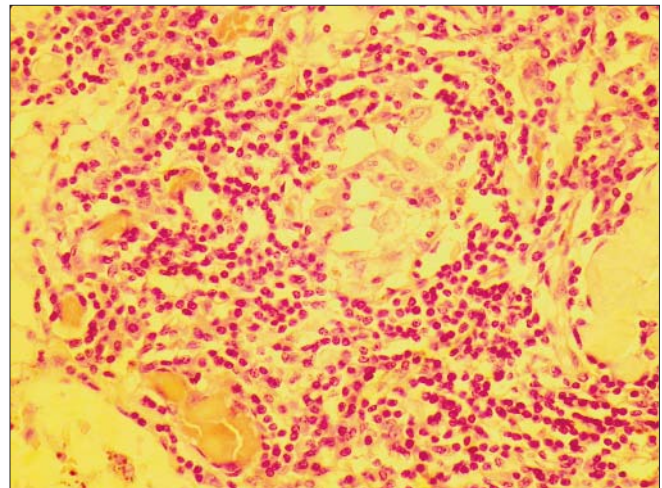


Figure 5. Lymph node of splenic hill with tuberculous granulomas (col. HE. ob. X 40)

extremely diversified and not specific at the same time: the symptoms of bacillary impregnations are present, added to those due to splenomegaly (5,6,7,8,16,17). Fever may be the unique symptom (1,11). At the objective examination, splenomegaly is the most frequent detected pathological modification (3,6,7,8). In order to decide upon the diagnosis of splenic tuberculosis, we need laboratory and imaging examinations. Among the laboratory modifications specific to the splenic tuberculosis we mention: the increase of the erythrocyte sedimentation rate (ESR), positivation of the tuberculin test, leucocytosis, anemia (5,11,15). In current practice, ultrasonography and computed tomography are the most commonly used imaging diagnosis methods and in splenic tuberculosis, the resulted modifications are the following (as per frequency): unique or multiple hypo-echogenic or hypo-dense images, splenic abscess, splenic calcifications (discovered by CT) and isolated splenomegaly (14,18). But the hypo-dense lesions resulted following the tomography are not specific for tuberculosis; they may be taken for neoplastic lesions (primary or

secondary) or with inflammatory lesions (1,19,20). This is why the diagnosis of splenic tuberculosis requires sampling biopsy material for histopathology examination or microbiologic examination.

Sampling splenic biopsy material can be done by puncture-aspiration with fine needle, guided through echography or tomography (5,10,11). Splenic bleeding during the puncture procedure is quite frequent; this is the reason for which the splenic mini-laparoscopic guided puncture-biopsy is safer and more efficient. In this case, bleeding is frequent (96.5% of the cases), but controlled in percentage of 100% by using Argon Plasma Coagulation (APC) and/fibrin-glue (21).

From the histopathology point of view, the characteristic lesion for tuberculosis is: spherical granuloma made of central necrosis surrounded by microphages, epithelial cells and Langhans cells, peripherally with a lymphocytes crown (4,12, 13). After the diagnosis is established, the anti-tuberculosis treatment is started, as a first intent, with good results (5,10,11).

The possibility of the uncertain histopathology diagnosis of the splenic disorder (by puncture-biopsy), as well as refractory cases in anti-tuberculosis treatment require splenectomy (4,7,10,11). Splenectomy may be done by laparotomy, laparoscopic or robotic (22, 23). Splenectomy within anti-tuberculosis treatment is the election treatment for splenic tuberculosis (8,9).

Special attention should be paid to the immune status of the patient, with epidemiologic, clinic, histopathology and therapeutic implications. Laboratory studies in animals and clinical observations concluded that in patients with insular diabetes, tuberculosis has a fast progressive evolution, with more severe pulmonary and extra-pulmonary lesions and the survival rate is lower (24, 25, 26).

The case we have presented is within the clinical and evolutionary patterns of splenic tuberculosis: female middle-aged patient, coming to hospital for a non-specific symptomatology. Splenomegaly is revealed by the clinical examination. Laboratory examinations reveal anemia and ESR increase. Radiologic and tomographic examination do not certify the presence of pulmonary sequellar tuberculosis lesions despite the fact that some of the results are suggestive for it. The presence of multiple intra-thoracic and intra-abdominal adenopathies and hypo-dense multiple lesions (CT) and splenomegaly suggests a lymphoproliferative syndrome. For diagnosis confirmation, a histopathological examination is mandatory, the spleen being considered as most suitable for taking the necessary sample for biopsy. Echography-guided puncture-biopsy is considered. Increased haemorrhagic risk (during the puncture procedure and after) (21), as well as the possibility to take non-conclusive tissue sample are drawbacks hard to accept both by the patient and by the surgical team, so the decision of performing splenectomy is thus taken. The big volume of the spleen, the perisplenic adhesions (frequent in the splenomegaly in the lymphoproliferative syndromes), as well as the limited experience of the surgical team when performing the laparoscopic splenectomy require the execution of the splenectomy by open approach (7, 22). In this case, the selective approach consists of the subcostal incision which may be extended to the right or caudally. Identification and ligature of the splenic

vessels in the root followed by the attentive dissection and by the careful haemostasis reduced the intra-surgical blood losses. Following the splenectomy, we have used backed threads for the haemostasis of the diaphragmatic surface. Post-surgical evolution was simple.

Histopathology result of the extirpated spleen is a surprise: splenic tuberculosis. The patient is guided to the Pneumology and Tuberculosis unit for the initiation of anti-tuberculosis treatment. In this case, immunodeficiency was not detected. Although in the splenic tuberculosis the hepatic affection is frequent (4,13), in this case it did not happen.

Conclusions

This case allows drawing some conclusions in accordance with some other authors'. Splenic tuberculosis is a rare disorder, especially in immunocompetent persons. The clinical table is non-specific, and the imagistic investigations, although suggestive for the diagnosis, are not sufficient, the histopathology examination being necessary (4,9,10,14). Thus, the positive diagnosis is confirmed and the differential diagnosis with other disorders is allowed, with very different morbidity, mortality and therapeutic protocol (neoplasia, lymphoma) (4). Sampling material for histopathology examination may be done by puncture-biopsy, minilaparotomy or splenectomy, the chosen method being in accordance with the experience of the surgical team and the technical equipment. Splenectomy along with tuberculostatic drugs can heal splenic tuberculosis, (8,9) which happened in our case also. We believe the periodic training of the surgical teams with reduced experience in the spleen laparoscopic approach is necessary, for the optimal treatment of splenic surgical disorders.

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