

Splenic abscess due to *Streptococcus anginosus*. Case report

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SUMMARY: Splenic abscess due to *Streptococcus anginosus*. Case report.

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Splenic abscess is a rare condition. Haematogenous seeding to the spleen from an infection at a distant site, most often endocarditis, is been the most common predisposing condition but an increase has been observed in immuno-compromised patients too. Fever, leukocytosis and left upper quadrant pain are suggestive, but the signs and symptoms of splenic abscesses are often non-specific. Rare is the onset with diarrhoea as in our case. Ultrasound and computed tomography are reliable diagnostic tools. Splenectomy and antibiotics are the treatments of choice.

*We describe a case of splenic abscess with gas level and peritonitis from dissemination of *Streptococcus anginosus* (of *Streptococcus millerii* group) from duodenal ulcer contaminated. It was diagnosed with CT, ultrasound, and abdomen X-ray with contrast then treated with splenectomy and peritoneal lavage.*

RIASSUNTO: Ascesso splenico da *Streptococco anginosus*. Un caso clinico.

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L'ascesso splenico è una eventualità rara. La più comune condizione predisponente è la disseminazione ematogena da un sito infettivo distante, più frequentemente un'endocardite. Un aumento di incidenza è stato notato in pazienti immunocompromessi. Sono frequenti febbre, leucocitosi e dolore addominale al quadrante superiore sinistro, ma i segni ed i sintomi sono spesso aspecifici. Raro l'esordio con diarrea, come nel nostro caso. L'ecografia e la TC sono le indagini strumentali principali. La splenectomia e la terapia antibiotica sono il trattamento di scelta.

*Descriviamo un caso di un paziente che presentava un ascesso splenico con livello idroaereo e peritonite a causa della disseminazione di *Streptococcus anginosus* (del gruppo dello *Streptococcus millerii*) da un'ulcera duodenale contaminata.*

KEY WORDS: Splenic abscess - Peritonitis - *Streptococcus anginosus*.
Ascesso splenico - Peritonite - *Streptococcus anginosus*.

Introduction

Splenic abscess is a rare clinical condition. Although autopsy reports have demonstrated an incidence of 0,14 to 0,7%, the clinical incidence appears to be smaller, with less than 600 cases reported in the world's literature (2). Splenic abscesses are either bacterial or fungal and are often the result of metastatic infection, contiguous infection, embolic non-infectious events with superinfection, trauma, or immunodeficiency.

Due to the increased incidence of acquired immunodeficiency syndrome (AIDS) and other immunocompromised conditions associated with chronic corticosteroid use, chemotherapy, or organ transplantation, bacterial and fungal splenic abscesses are becoming more frequent (3). In recent reviews, 18% to 28% of patients with splenic abscess were immunocompromised and 9% had AIDS (1-3).

Case report

A 35-year old man of polish origin was referred to our hospital for recurrent high fever (39°C), profuse diarrhoea and vomiting, abdominal pain, progressive asthenia and anorexia. He had no history of trauma, recent travel abroad or tuberculosis. He was admitted for further investigation after discharge from another hospital with Salmonella gastroenteritis diagnosis. His medical history revealed a chronic alcoholism, moderate BPCO and a duodenal ulcer treated with drugs 3 years before.

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On admission in our department the patient was in mediocre general and nutritional conditions, his blood pressure was 90/60 mmHg, temperature 38°C. Physical examination didn't revealed abnormalities.

Laboratory tests gave the following results: WBC 36,000/mm³ with 94,3% neutrophils and 3,2% lymphocytes, RBS 4,300,000/mm³, HGB 12,3 g/dL, HCT 37%, PLT 96,000/mm³, and elevated liver enzymes (GOT 3750/μL, GPT 1542/μL, gamma GT 128/μL), the coagulative activity reduced (PT 20,00 sec, INR 1,62, prothrombin activity 45%), BUN (57 mg/dL), creatinine (2,50 mg/dL).

The chest radiography showed left lower lobe infiltration (Fig. 1). Ultrasonography shows a spleen compressed by gastric expansion and a modest subhepatic, subsplenic and behind the bladder ascitic effusion. Abdominal CT scan without contrast confirms gastrectasia and peritoneal fluid (Fig. 2). Because of the negativity of gastric aspiration, we performed an abdominal X-ray contrast study that doesn't confirm gastrectasia but shows a gastric dislocation (corpus and fund) due to a bulky subdiaphragmatic mass about 15 cm with gas level.

Because of emergent multiorgan failure, we performed a laparotomy with splenectomy, appendectomy and peritoneal drainage. Intraoperative findings was a splenic mass of the inferior pole with diffuse peritonitis and multiple fluid collections. Samples of the peritoneal lavage were positive for *Streptococcus anginosus*, of the "Streptococcus Milleri's Group". The strain was sensible to cefotaxime, chloramphenicol, clindamycin, penicillin G, vancomycin; blood cultures were negative for anaerobic and aerobic bacteria.

Histopathological study of spleen revealed multiple abscessual areas and connective fibrous tissue with lymphocytes and granulocytes.

The post-operative course was complicated by pancreatic fistula, spontaneously remitted, bilateral bronchopneumonia with pleural effusion, systemic candidiasis. The patient was discharged after 25 days.

Discussion

Splenic abscess can be defined as a circumscribed collection of pus in the spleen, intraparenchymal or subcapsular.

Historically the most common cause of splenic abscesses is metastatic spread from a primary site infection, notably endocarditis (10% to 20% of total) (1, 2, 4, 5). Hemoglobinopathies and contiguous infections are also common associated risk factors. Due to the increased incidence of AIDS, more aggressive chemotherapy and immunosuppression therapy for organ transplantation, immunodeficiency is becoming a more frequent predisposing factor (3). Gram-positive aerobic, such as *Staphylococcus* (16 to 20%), *Streptococcus* (6 to 22%), and *Salmonella* (11 to 16%) are the most common bacteria cultured from splenic abscesses (4). Fungal organisms and cobacteria, such as *Mycobacterium*, candida, and *Aspergillus*, represent nearly 8% of all cases and are increasingly found in immunocompromised patients (7).

Considering the history of duodenal ulcer treated with histamine type 2 antagonist and chronic alcoholism of our patient, is not excluded a haematogenous pathogenesis from a gastrointestinal focus. This



Fig. 1 - Abdomen X-ray: apparent gastrectasia.



Fig. 2 - CT scan shows a gastrectasia and peritoneal fluid.

ipotesis is confirmed from the positive cultures for microorganism of *Streptococcus Milleri's Group*. Many reports have stressed the clinical significance in adults of bacteraemia caused by *Streptococcus anginosus* (14, 15) associated with an identifiable focus of infection, usually a deep-seated abscess in a visceral organ, with the gastrointestinal tract as the source. Members of the *Streptococcus Milleri's Group* are found in the human oral cavity where they have been considered harmless commensals and their concentrations increases in saliva of the alcoholics (13). *Streptococcus anginosus* is most

frequently found in the gastrointestinal tract. The overgrowth is possible in alkaline gastric environment, as that created by histamine type 2 antagonist, but the bacteria can grow well also in acid environment such as that found in abscesses. The microorganism produces a wide variety of hydrolytic enzymes, including hyaluronidase, deoxyribonuclease and chondroitin sulfatase (16, 17). These enzymes may facilitate to spread of this pathogen through tissues.

The diagnosis of splenic abscess can be difficult because the symptoms are aspecific and various. The triad of fever (90%), leukocytosis (88%) and left upper quadrant abdominal pain (56%) are the most common pattern associated with splenic abscess (6). Vomiting, nausea, splenomegaly, shoulder pain, and pleuritic chest pain have also been reported. Blood cultures are positive in about 70% of patient with multiple splenic abscesses, but in only 14% of the cases with solitary one. However in some patients splenic abscesses are clinically silent and, sometimes, an incidental autopsy finding.

Chest radiography may show left pleural effusion, elevated left hemidiaphragm or left lower lobe infiltration. The most helpful diagnostic are ultrasonography (US) and abdominal computed tomography (CT). US is a good non-invasive diagnostic tool but its validity depends on the individual skill of the operator and on the absence of anatomical disturbances such as an over-aerated bowel. CT is considered the diagnostic method of choice because of higher sensitivity (90% vs. 76%) and it localizes the site of the lesion but also demonstrates associated pathology (12).

In our case for the recognition of a spleen enlarge-

ment was necessary the X-ray study with water-soluble contrast on the suspicion perforation or occlusion. The gas component of abscess made difficult the diagnosis by imaging because of the apparent enlargement of the stomach.

The treatment of splenic abscess with peritonitis is the combination of splenectomy, peritoneal lavage and antibiotic therapy (5). Splenectomy has been found to be the most effective and definitive procedure for the majority of patients in comparison to drainage or medical therapy alone. Most studies report mortality rate of 0% to 16,9% and morbidity rate of 28% to 43% using open splenectomy for splenic abscess (4). Antimicrobial therapy alone may be used with success in fungal splenic abscess because it is often a small localization of disseminated fungal infection (7). The splenectomy patients have increase of risk to catch infections as pneumonia, candidiasis, meningitis.

Conclusion

Our case confirms the clinical features of the splenic abscess with peritonitis: history positive for chronic alcohol abuse, atypical presentation, difficult diagnosis, superiority of CT for diagnosis, efficacy of the splenectomy and peritoneal lavage.

In conclusion it is essential to be aware of such lesions and surgeons should have a high degree of suspicion in any patient with peritonitis "localized" in the left upper abdomen and left lower chest. An immediate exploration is mandatory in such cases.

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