

Unusual case of atraumatic splenic rupture caused by actinomyces infection. A case report

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Background

Atraumatic splenic rupture is a rare condition reported or presented at the emergency department, the diagnosis can be complex if an imaging study is not available, the cause of splenic rupture due to infection is even rarer, we present the case report of a 54 year old female with a previous history of rheumatic disorders and treatment, that presented to the emergency department with clinical signs of pneumonia and acute abdomen, a CT scan was performed in which there appeared evidence of splenic rupture and free fluid in abdomen, a laparotomy was performed finding >50% rupture of the spleen parenchyma, a splenectomy was performed and the spleen was sent to study. Histopathological reported splenitis and bacterial colonies compatible with actinomycetes as the cause of rupture.

Keywords: Splenic rupture, actinomyces.

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Case Report

General Surgery



Spontaneous rupture of the spleen is a rare but well recognized abdominal emergency. The diagnosis can easily be missed and reported mortality is high(1). It was first described by Rokitansky in 1861. As its name mentions, atraumatic splenic rupture excludes causes secondary to blunt trauma or iatrogenic causes; it can then be classified as atraumatic-idiopathic (70%) and atraumatic-pathological (30%)(2). Its incidence is unknown, however, a recent systematic review of 632 publications reports 845 cases from January 1980 to June 2008, with results with a 2:1 predominance over males and a mean age of 45 years. In 93% of the cases there was an underlying pathology; classified by frequency into 6 categories: neoplastic, infectious, inflammatory, medication/drug related, mechanical, and idiopathic(3). In the infectious etiology, there is a predominance of viral conditions (Epstein-Barr, Cytomegalovirus, etc.), and only 6.6% of the reported cases were related to bacterial infections, of which the main etiology was endocarditis with 16 cases. Splenomegaly, advanced age and neoplastic pathologies are related to an increase in mortality(4).

Case report

This is a case report of a 54-year-old female with a chronic history of fibromyalgia treated with tramadol 600 mg IV every 24 hours, occasional celecoxib, deflazacort 6 mg intermittently (last used 1 month prior to admission) and pregabalin 150 mg every 12 hours, migraine with sporadic use of ibuprofen/ketorolac. Surgical history comprehends 3 arthroscopies secondary to meniscus injury at 15 years of age (last arthroscopy 24 years ago), history of ruptured ovarian cyst 20 years ago, history of 5 episodes of intestinal sub occlusion in the last 15 years with the need for exploratory laparotomy where a terminal ileostomy was performed due to perforation of the colon, there was also an incidental finding of piocholecyst, for which cholecystectomy and ileostomy remodeling was performed.

She presented with 2 week history of abdominal pain, vomiting and cough, she denied fever or respiratory difficulty, Laboratory and imaging studies were performed, her chest CT stands out showing pleural effusion corresponding to pneumonia

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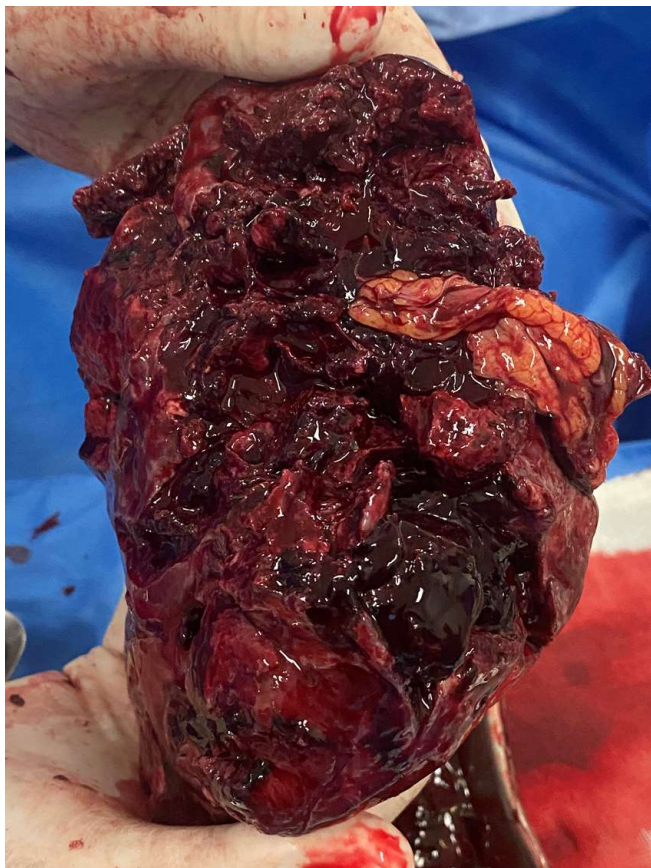


Figure 1. a spleen of 16x11x17 cm, weighing 425 g, with a rough capsule, with a loss of continuity in its parenchyma of 12x9 cm, with a hemorrhagic appearance, vasculitis of medium caliber arteries is observed under the microscope, with acute splenitis and bacterial colonies compatible with actinomycetes.

for which antimicrobial treatment was prescribed and later that day she was discharged home with antibiotic treatment. She returns to the emergency department without improvement, presenting 48 hours of respiratory distress and the need for supplemental oxygen, fever persists and general condition changed, she is admitted to the emergency department and general laboratories are performed, highlighting blood culture with *S. aureus*, for which management with vancomycin and ceftaroline fosamil were indicated;

Two days after hospital admittance, she reports that while sleeping, abdominal pain is presented in the left lower quadrant, with subsequent irradiation to the epigastrium, with altered alertness. Physical examination reveals hypotension and tachycardia, drowsiness, lungs with hypoventilation in the left hemithorax, abdomen with tenderness and pain upon palpation, predominantly in the hypochondrium and left flank, with muscular rigidity and a ventral hernia is observed, ileostomy is functional with adequate tone, General laboratories are performed finding hemoglobin (Hb) 2.6, mean corpuscular volume (MCV) 96, HCM 24, platelets 451 stand out. New abdominal Ct scan with intravenous contrast is done finding 30% left pleural effusion with basal consolidation, bilateral cavitated nodules,

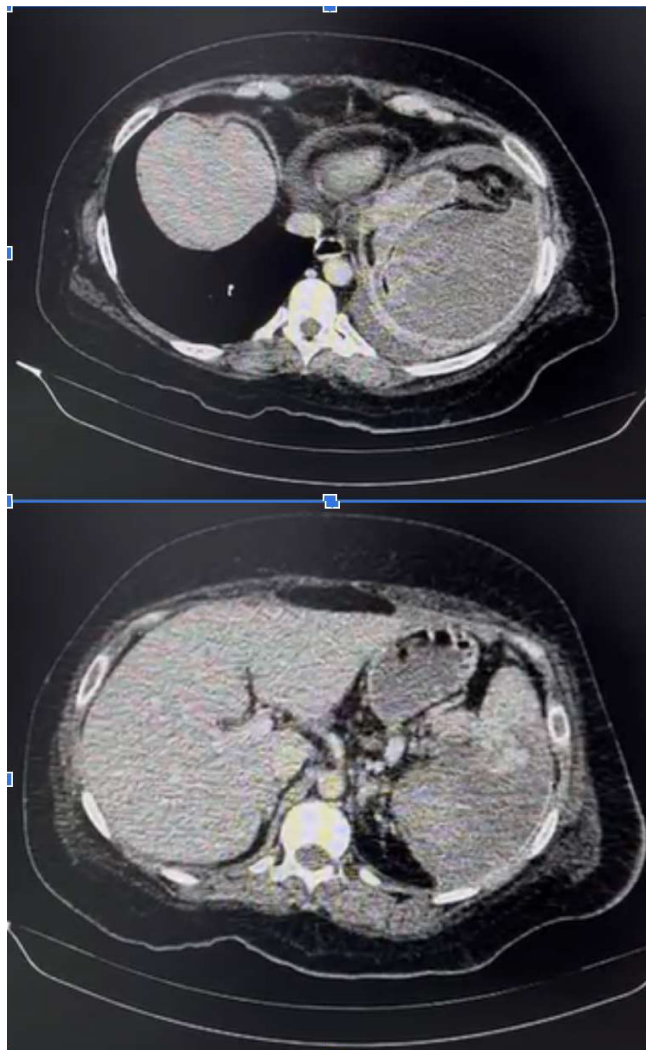


Figure 2. (upper). Axial CT Scan cut. Splenic rupture is observed with loss of splenic parenchyma. (lower) Axial Ct scan, Splenic hematoma is observed with contrast leakage in spleen.

splenomegaly with hypoperfusion and perisplenic fluid on left quadrant, for this reason an exploratory laparotomy was programmed.

During the laparotomy we found an hemoperitoneum of 1,700cc, avulsion of the superior splenic pole for which dissection of the spleen was done, finding thrombosis and loss of the splenic hilum, the splenic vein and artery were extracted and identified, which were ligated with a transfixive point with vicryl 1-0. It hemostasis was corroborated and 19 Fr blake was placed, after the procedure the patient required massive blood transfusion and was later transferred to the intensive care unit.

The histopathologic report described a spleen of 16x11x17 cm, weighing 425 g, with a rough capsule, with a loss of continuity in its parenchyma of 12x9 cm, with a hemorrhagic appearance, vasculitis of medium caliber arteries is observed under the microscope, with acute splenitis and bacterial colonies compatible with actinomycetes.

During her stay in the intensive care unit, she was extubated 24 hours after surgical procedure, oral

intake was indicated 72 hours after procedure and she was later discharged home.

Discussion

Atraumatic rupture of the spleen is rare: the etiology can be infective, haematological, neoplastic, or idiopathic(1). The term atraumatic should be used only in the absence of abdominal trauma, and thus 3 categories have been identified(7):

- Traumatic rupture of a normal or pathological spleen
- Atraumatic rupture of a pathological spleen
- Atraumatic rupture of a normal spleen

The pathophysiology of spontaneous splenic rupture is unknown, but 3 mechanisms have been proposed: enlargement secondary to an inflammatory process, splenic infarction causing hemorrhage and rupture of the capsule; and an underlying coagulopathy causing splenic congestion(3).

The symptoms and signs are abdominal pain predominantly in the left hypochondrium, signs of an acute abdomen, radiation to the left shoulder (Kehr's sign), nausea, vomiting, hypotension, and shock. Anemia and leukocytosis are usually found in laboratories. Ultrasound has a specificity of 91-100%, however, tomography has been proposed as the method of choice, since it allows other pathologies to be ruled out(4).

In the absence of trauma, the failure to recognize a rupture of the spleen can cause delay in treatment and may lead to patients death. The treatment of choice is splenectomy but this has some morbidity and mortality as well as the risk of late overwhelming sepsis(5).

Splenic actinomycosis is very rarely reported in literature. The usual sites of actinomycosis are cervicofacial, respiratory and digestive tract. The most common actinomycoses species causing human disease is *Actinomyces israelii*(6).

Conclusion

Atraumatic spleen rupture is an unusual cause of abdominal pain and an instant indication of laparotomy. Spontaneous splenic rupture is an even rarer affection of non traumatic need of splenectomy, its incidence report, its rupture mechanism, treatment and outcome are not yet very well understood due to the limited amount of cases reported in our literature. Due to its unspecific abdominal signs that the patient may present, its diagnosis is one of the hardest without an imaging study like an ultrasound or a CT-scan. Depending on the imaging results and affected area, it

is hard to debate between an early laparotomy or an observatory treatment.

Conflicts of interests

The authors declare no conflicts of interests.

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