Primary Splenic Abscess: A Case Report

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ABSTRACT

Splenic abscess is a relatively uncommon infection with a very low incidence but has high mortality if left untreated. It is usually associated with a predisposing factor and requires early diagnosis and urgent management either in medical or surgical modality. Drainage of the abscess is also rapidly recognised treatment option. Herein, the authors presented a case of 56-year-old male with fever, vomiting, and abdominal pain. Computed Tomography (CT) abdomen revealed a large splenic abscess with subdiaphragmatic extension and open splenectomy was performed. Histopathology confirmed the presence of necrotising granulomatous lesions in the spleen, and tuberculosis was ruled out. The diagnosis was provisionally suggested as cat scratch disease, and the patient made a complete recovery. A high level of suspicion is needed for the diagnosis of splenic abscess, owing to its non specific presentation is often non specific. CT imaging is the diagnostic investigation of choice, and investigations should target the identification of the primary foci of infection. Surgical management is still widely preferred, but more research is needed to evaluate medical management and percutaneous drainage.

CASE REPORT

A 56-year-old male patient presented to the Emergency Room (ER) with complaints of severe abdominal pain, which was vaguely localised to the upper left side of the abdomen. The pain had been present for a week and was not aggravated or relieved by food, sleep, or any other factors. The pain was not associated with nausea or vomiting. The patient also had a fever, palpitations, and difficulty breathing for three days and presented with features of shock. On further enquiry, the patient revealed that he had experienced several frequent low-grade fever episodes in the past three months and did not report any bowel or bladder disturbances. The patient was a known chronic alcoholic, diabetic and gives history of irregular medication. There was no associated history of hypertension, bronchial asthma, ischaemic heart disease. The patient has had laparotomy 15 years back for intestinal obstruction but no recent history of accidents or known infection. The patient mentioned contact history to pets but no contact to any tuberculosis or other chronic infective persons.

Upon examination, the patient was found to be febrile (101ºF), with fair hydration, tachycardia (PR-115/minute) with fall in blood pressure 100/60 mmHg. Other vitals and other systemic examination were within normal limits. A soft, non rigid abdomen was observed with a healed, non tender midline surgical scar, normal bowel sounds. Mild guarding and tenderness were felt in left hypochondrium, tenderness was observed in epigastrium and right hypochondriums well. Patient was provisionally diagnosed to be a case of splenic abscess. Differential diagnosis of septicaemia, small bowel or gastric perforation, and peritonitis were made.

The chest X-ray revealed an elevated left diaphragm, as shown in [Table/Fig-1]. X-ray erect abdomen showed air-filled lesions in the left hypochondrial region, along with the sentinel loop sign [Table/Fig-2]. CT images showed an enlarged spleen (10.8 cm) with non-homogeneous parenchymal attenuation and multifocal, ill-defined, patchy hypodense lesions of varying sizes involving the splenic parenchyma, with a subdiaphragmatic collection noted above the spleen as shown in [Table/Fig-3]. The CT findings were indicative of a subdiaphragmatic extension of a splenic abscess. Culture of blood and urine were negative for any organisms, and echocardiogram of the heart showed no vegetations.

The blood investigations depicted only the acute infective phase, and blood culture did not reveal any growth. With proper preoperative antibiotic coverage (inj. piptaz 4.5 g i.v. thrice daily was started empirically) and vaccination against capsulated organisms, the patient underwent splenectomy under general anesthesia. Open laparotomy was performed with a midline incision involving the previous scar, and open splenectomy was performed. Histopathology confirmed the presence of necrotising granulomatous lesions in the spleen, and tuberculosis was ruled out. The diagnosis was provisionally suggested as cat scratch disease, and the patient made a complete recovery. A high level of suspicion is needed for the diagnosis of splenic abscess, owing to its non specific presentation is often non specific. CT imaging is the diagnostic investigation of choice, and investigations should target the identification of the primary foci of infection. Surgical management is still widely preferred, but more research is needed to evaluate medical management and percutaneous drainage.

Keywords: Granuloma, Splenectomy, Splenomegaly

[Table/Fig-1]: X-ray shows elevated left diaphragm.

[Table/Fig-2]: X-ray erect abdomen shows gas filled shadows in left hypochondrium.
where an enlarged spleen with perisplenic adhesions was seen. The spleen had a ruptured abscess extending into the subdiaphragmatic space. The spleen was mobilised in all directions by dividing the gastrosplenic, lienorenal, and splenocolic ligaments. The specimen was excised in total [Table/Fig-4,5]. The procedure was monotonous with uncomplicated intraoperative and postoperative periods were uneventful, and the patient was discharged with advice to follow-up with the histopathological report.

On gross examination of the excised spleen, the spleen was found to be enlarged, as evident in [Table/Fig-6]. Cross-cut sections of the spleen shows the abscess in the spleen, [Table/Fig-5]. The histopathological examination of the surgical specimen revealed necrotising granulomatous inflammation, possibly attributable to cat scratch, as seen in [Table/Fig-7-11]. The necessity to exclude the possible diagnosis of tuberculosis was felt. Hence, sputum and tissue samples were tested for Acid-fast Bacillus (AFB) to rule out tuberculosis including GenExpert, but they turned out to be negative for Mycobacterium tuberculosis.

Histopathological examination revealed granulomatous lesions, as shown in [Table/Fig-8,11], and necrosis [Table/Fig-9]. [Table/Fig-10] reveals normal spleen parenchyma with a granuloma. Considering the history of frequent exposure to pets, especially cats, and the picture of necrotising granulomatous lesions, the primary splenic
The presentation may present case. Fever, nausea, vomiting, anorexia are the non specific non exclusively localised to the left hypochondrium like in the latter. Blood investigations may reveal features of acute infection and are generally non specific. In the studies done by Fotiadis C et al., McOwat L et al., and Lee MC and Lee CM, the common organisms diagnosed were Streptococcus, Staphylococcus, Klebsiella, Salmonella, and Escherichia coli [2,5,10]. While bacteria are the most commonly demonstrated causative agents, fungal and parasitic origins of infections are also widely documented, as seen in the studies by Ferriaioli G et al., and Phyu H et al., [3,11]. On the contrary, abscess drainage could also be inconclusive in most instances.

Splenic abscess is a rare disease that is difficult to diagnose due to its vague presentation and infrequent occurrence. Among imaging techniques, X-ray of the abdomen is unreliable for diagnosis, while Ultrasound (USG) abdomen and Contrast Enhanced CT (CECT) or non contrast CT are diagnostic, with the latter being more effective than USG. Diagnostic imaging is needed to pinpoint the primary infection focus, such as a series of echocardiograms or MRI of the spine and other bones, as seen in a study conducted by Al-Jabali M et al., A high degree of clinical suspicion and expertise is needed for early diagnosis and prompt management. CT was diagnostic in the present case, demonstrating the abscess, but CECT could help differentiate the condition from similar conditions like splenic infarction. As uncommon as it is, the disease can be fatal if not treated immediately, with mortality ranging between 60% to 100%. Treatment modalities for splenic abscess vary from conservative broad-spectrum antibiotic management to the definitive surgical option of splenectomy. Medical management with broad-spectrum antibiotics, with attention to the culture and sensitivity testing done on the drained material, is a very effective mode of intervention. This is particularly efficacious in cases of small, uniloculated abscess diagnosed early and where the patient’s condition is stable.

According to Casaccia M et al., percutaneous drainage of the abscess under imaging guidance is a valid course of intervention. This intermediate modality of treatment is gaining rapid importance in recent years. Ultrasound or CT imaging-guided aspiration can be used in patients who are unresponsive to medical management but are not fit to undergo surgical management due to co-morbidities or complicated presentation of the illness. Catheter drainage of the abscess is also a frequently practiced treatment, particularly in cases of thick abscess content. This mode of drainage effectively preserves the immunological functions of the spleen, eliminating the risk of facing post-splenectomy deadly infections.

Surgical management with the removal of the spleen is considered the treatment of choice by many. Splenectomy is a definitive treatment option but implies the risk of fulminant and life-threatening infections, as described by Ferriaioli G et al., Splenectomy is especially mandated for patients with spilled infective material, large abscesses, or those unresponsive to medical management. Laparoscopic approach to splenectomy is a minimally invasive procedure with a shorter hospital stay and earlier recovery, which is preferred for moderately large abscesses with an intact spleen and minimal external extension or adhesions. The postsplenectomy management of the patient includes immunisations, antibiotic prophylaxis, and regular follow-ups.

While the gold standard treatment is still inconclusive, the present case report demonstrates the clinical course of a patient with primary splenic abscess in the Institution where splenectomy was done the patient based on his clinical condition. The authors concluded that there is still scope for research to establish the most suitable mode of treatment for the patients with splenic abscess.
CONCLUSION(S)
Splenic abscess is a rare disease with non-specific presentations that require a strong clinical suspicion for prompt diagnosis. Predisposing factors are evident in the majority of patients, with isolated primary splenic abscess being even rarer. In the index case, exposure to cat scratch disease was the primary cause of splenic abscess. CT, especially CECT, is the gold standard diagnostic test. Antibiotics, percutaneous drainage, and splenectomy are all commonly performed, with each modality of treatment having its advantages and limitations.

REFERENCES

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