

## Splenic Abscess: a mysterious entity

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### I. Introduction

Intra – abdominal abscesses continue to present important and serious problems in surgical practice. Their onset may be insidious, their presence obscure and their diagnosis and localization difficult. Splenic abscess is a rare entity and a high index of suspicion is essential for diagnosis. It is known to occur at a rate of 0.14% to 0.7% in autopsy studies.<sup>(1)</sup> The incidence is on rise due to a number of factors such as, better diagnostic imaging facilities and increase in number of immunocompromised patients. This paper analyzes the varied presentations and treatment outcomes of cases of splenic abscess.

### II. Cases

S N	Age / Sex	Clinical presentation	Leucocyte count	HIV	Imaging	Treatment	Pus culture
1	42,M	Abdominal pain, Fever with chills, Vomiting since 15 days	10,000 / mm <sup>3</sup>	+	Splenomegaly, anechoic areas in splenic parenchyma	Splenectomy	Klebsiella
2	46,M	Abdominal pain, Fever since 10 days Splenomegaly+	14,300 / mm <sup>3</sup>	+	Moderate Splenomegaly, 100 cc collection, Left Pleural Effusion	Splenectomy	Staphylococ us
3	49,M	Abdominal pain, Fever since 1 month Pallor+ Splenomegaly++ Hepatomegaly+	16,000 / mm <sup>3</sup>	-	Mild Hepatomegaly, Moderate Splenomegaly, 150 cc collection	Splenectomy	Staphylococ us
4	40, F	Abdominal pain, Fever since 10 days H/O Pulmonary Koch's	11,000 / mm <sup>3</sup>	+	Hypo-echoic lesions in splenic parenchyma, Left Pleural Effusion	Splenectomy	Streptococ us
5	32,M	Tender lump in Left Hypochondrium, Fever, Vomiting since 15 days Pallor+	21,000 / mm <sup>3</sup>	-	Splenomegaly, Hypo-echoic lesions in Spleen and peri- pancreatic region	Splenectomy	Staphylococ us

### III. Discussion

The description of splenic abscess is documented in the writings of Hippocrates. The first description of this condition was given by Grand-Moursel in 1885, with a report of 57 patients.<sup>(2)</sup> The rarity of splenic abscesses is related to the phagocytic activity of its efficient reticulo-endothelial system and leucocytes. The splenic system of sinusoids and macrophages may be overwhelmed by haematogenous seeding of bacteria as occurs in severe sepsis, or the splenic architecture may be damaged by an intrinsic pathology like infarct / haematoma. Any extrinsic pathology may invade the spleen and inoculate the tissue (Perforated colonic / gastric lesions, expanding subphrenic and perinephric abscesses).

The age of subjects in the current study has been between 40 to 50 years, which is consistent with that reported in literature.<sup>(1,3)</sup> All the cases presented with abdominal pain and fever. This is similar to findings reported in other studies.<sup>(4,5)</sup> Non-specific clinical presentation can often lead to misdiagnosis in such cases. The triad of left upper quadrant pain, fever and a tender mass was described by Sarr and Zuidema.<sup>(6)</sup> Tenderness was evident in one case in the present study.

Various risk factors have been proposed for occurrence of splenic abscesses such as impaired host resistance, subacute bacterial endocarditis, trauma, diabetes mellitus, urinary tract infection, intravenous drug abuse, splenic infarcts in cases of haemoglobinopathies, leukemias, polycythemia.<sup>(7)</sup>

Judicious use of diagnostic imaging modalities like ultrasonography and CT scan help in early diagnosis, thereby improving the clinical outcome. CT scan abdomen is the investigation of choice (Fig 1). The lesions appear as focal areas of low attenuation with no inflammatory rim.<sup>(4,8)</sup>



**Fig 1: CT scan abdomen showing splenic abscess**

The common organisms reported in different series have been Staphylococcus, Streptococcus and Escherichia coli.<sup>(9)</sup> *S. typhi*<sup>(10)</sup> and *M. tuberculosis*<sup>(11)</sup> have also been reported as causative agents for splenic abscesses. Lee *et al*<sup>(12)</sup> have mentioned *K. pneumonia* as the offending agent in their series, wherein they found coexisting liver abscesses in 16.7% patients. The organisms found in cases in present study were Staphylococcus, Streptococcus and Klebsiella.

Various options for treatment of splenic abscess include: medical treatment with intravenous antibiotics, radiologically guided percutaneous drainage and splenectomy.<sup>(4,13)</sup> Percutaneous drainage of splenic abscess is likely to be beneficial in cases with a unilocular abscess and when its contents are liquefied. The success rates for percutaneous drainage are reported to be 67 to 100%.<sup>(14,15)</sup> All the cases reported in current study were treated by splenectomy (Fig 2 and Fig 3) with intravenous antibiotic therapy. There was no mortality.



**Fig 2: Intra-abdominal purulent collection**



**Fig 3: Splenic Abscess**

If splenic abscesses are left untreated, the mortality rate is 67 to 100%.<sup>(16)</sup> Various prognostic factors have been reported including size of abscesses, number of abscesses, underlying disease, associated medical conditions, gram-negative infections and delay in diagnosis.<sup>(2,4,13)</sup> APACHE II severity scoring system has also been used by Chang *et al*.<sup>(4)</sup> Overwhelming post-splenectomy sepsis is a lethal event. Appropriate immunization against *S. pneumoniae*, *H. influenzae* and antibiotic prophylaxis should be instituted.<sup>(17)</sup>

#### **IV. Conclusion**

Early diagnosis of splenic abscess using abdominal ultrasonography and CT scan is the key to a successful outcome. There is no gold standard treatment for splenic abscess. Percutaneous aspiration or drainage may be used as a bridge to surgery for patients who are critically ill or have co-existent co-morbidities. Splenectomy would be ideal for large abscesses ( more than 10 cm ) and when non-surgical treatment has not been effective.

#### **References**

- [1]. Nelken N, Ignatius J, Skinner M, Christensen N. Changing clinical spectrum of splenic abscess. A multicentre study and review of literature. *Am J Surg* 1987;154:27-34.
- [2]. Alvi AR, Kulsoom S, Shamsi G. Splenic abscess: outcome and prognostic factors. *Journal of College of Physicians and Surgeons Pakistan* 2008;18(12):740-743.
- [3]. Chiang IS, Lin TJ, Chiang IC, Tsai MS. Splenic Abscess: review of 29 cases. *Kaohsiung J Med Sci* 2003;19:510-515.
- [4]. Chang KC, Chuoh SK, Changchien CS, Tsil TL. Clinical characteristics and prognostic factors of splenic abscess: a review of 67 cases in a single medical centre in Taiwan. *World J Gastroenterol* 2006;12:460-464.

- [5]. Smyrniotis V, Kehagias V, Vorose D, Fotopoulos A, Lambrore A, *et al.* Splenic abscess: an old disease with new interest. *Dig Surg* 2000;17:354-357.
- [6]. Sarr MG, Zuidema GD. Splenic abscess: presentation, diagnosis and treatment. *Surgery* 1982;92:480-485.
- [7]. Thapa R, Mukhejee K, Chakrabarty S. Splenic abscess as a complication of enteric fever. *Indian Paediatrics* 2007;44:438-440.
- [8]. Delis SG, Maniatis PN, Triantopoulou C, Papailiou J, Dervenis C. Splenic Abscess in a patient with faecal peritonitis. *World J Gastroenterol* 2007;13:1626-1627.
- [9]. Ooi LL, Leong SS. Splenic abscesses from 1987 to 1995. *Am J Surg* 1997;174:87-93.
- [10]. Allal R, Kostler B, Gangi A, Bensaid AH, Bouali O, Cherrak C, *et al.* Splenic abscesses in typhoid fever: US and CT studies. *J Comput Assist Tomogr* 1993; 17: 90-93.
- [11]. Llenas-Garcia J, Fernandez-Ruiz M, Caurcel L, Enguita-Valls A, Vila-Santos J, Guerra-Vales JM. Splenic Abscess: a review of 22 cases in a single institution. *Eur J Intern Med* 2009;20:537-539.
- [12]. Lee WS, Choi ST, Kim KK. Splenic abscess : A single institution study and review of literature. *Yonsei Med J* 2011;52(2):288-292.
- [13]. Tung CC, Chen FC, Lo CJ. Splenic abscess: an easily overlooked disease? *Am J Surg* 2006;74:322-325.
- [14]. Thanos L, Dailiana T, Papaioannou G, Nikita A, Koutrouvelis H, Kelekis DA. Percutaneous CT guided drainage of splenic abscess. *AJR Am J Roentgenol* 2002;179:629-632.
- [15]. Chou YH, Hsu CC, Tiu CM, Chang T. Splenic Abscess: sonographic diagnosis and percutaneous drainage or aspiration. *Gastrointest Radiol* 1992;17:262-266.
- [16]. Anuradha S, Singh NP, Agarwal SL. Splenic abscess: a diversity within. *J Indian Acad Clin Med* 2000;1:279-281.
- [17]. Chambon JP, Vallet B, Caiazza R, Zerbib P. Management of splenectomised patients. *Presse Med* 2003;32(28):20-23.