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Case Report

Spontaneous Rupture of Spleen - A Rare Case Report

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Abstract

Spleen is highly vascular organ & non traumatic spleen rupture is rare association. Non traumatic splenic rupture has pathologic association with few diseases which cause splenomegaly followed by rupture. This case report describes the first and rare incidence of non-traumatic splenic rupture in a case of concealed perforated jejunal diverticulitis.

Keywords: Spleen; Rupture; Spontaneous; Diverticulitis; Splenectomy

1. Introduction

Spleen being extremely vascular structure, splenic rupture is a fatal medical emergency [1, 2]. Although traumatic association is most common, rupture due to underlying malignancy or infection of Infectious mononucleosis, malaria besides chronic haematological abnormality which can cause splenic enlargement leading to thinning of cortex & hence making susceptible to even minor trauma is not uncommon [3]. The spontaneous rupture of spleen is rare incidence. This case is being reported from a tropical country with spontaneous spleen rupture being not attributable to

malaria or infectious mononucleosis. Between 1917 to 1948 number of 64 cases and between 1950 to 2011 approximately 613 cases of spontaneous spleen rupture are well documented [3, 4].

2. Case History

A 60-year-old man admitted in hospital with a complaint of pain in left paraumbilical region & fever for 1 week. On USG abdomen there was collection in left paracolic gutter in paraumbilical region. CECT imaging had revealed – diffusely enlarged pancreas with inhomogeneous hypoen-hancement with mild peripancreatic peritoneal reflection thickening. Duodenum had nodular thickening in D2 & D3 segments. There were multiple jejunal outpouchings present from mesenteric border of jejunal loops predominantly in left lumbar & iliac regions. There was localised perforation of few of diverticula secondary to a possible background diverticulitis. There was clustering of small bowels in left half of abdomen associated with moderate localised inflam-matory changes. The diagnosis of localised perforated peri-tonitis was ascertained. There was a small rim enhancing encysted fluid collection. Free fluid collection was noted extending into left paracolic gutter reaching to left iliac fossa. There was reactive inflammation of descending colon & proximal sigmoid colon associated with congested vessels around. Imaging findings of background jejunal diverticulosis with secondary diverticulitis were seen. Localised concealed perforation of the few of the recently infla-med diverticula with resultant localised peritonitis & subacute interstitial oedematous pancreatitis was ascertained. Under USG guidance approximately 60 cc of pus was drained from left paracolic gutter collection and patient was treated with antibiotics and anti-inflammatory for 1 week and was discharged. After 13 days patient again came with acute pain in abdomen in left hypochondriac region in afternoon. Pain had suddenly aggravated overnight. As the patient was deteriorated his abdomen was again investigated with CECT which revealed spleen of size 197 × 98 X 156 mm in mixed density, non-enhancing lesion noted in left subdiaphragmatic space in splenic fossa in subcapsular region of the spleen causing medial displacement & compr-ession of residual, normally enhancing spleen. Jejunal loops were thickened persistently although the adjacent collection was merely of 30 X 15 mm with thick enhancing wall. The imaging findings were consistent with spleen rupture. Patient was hence shifted to tertiary care centre. Hemogram revealed decreased haemoglobin to 7 gm% & leucocytosis (TLC=21000); rest of the haematological, Serum lipase was found to be 1.4 times the upper normal limit; rest of the biochemical as well as microbiological investigations were normal. Emergency splenectomy was done. Intra-operative findings showed rupture of spleen with large hematoma. The splenic vessels at hilum were normal. The enlarged ruptured spleen measured 13 × 8 × 4 cm with congestion and focal capsular tear was seen. Specimen was given for histopathological examination which revealed congested sinusoids, subcapsular haemorrhage without any other specific lesion. Splenectomy was uneventful. In between the two episode of symptoms patient had no history of trauma or any surgical intervention. Thus this case can be considered as a spontaneous rupture of spleen.

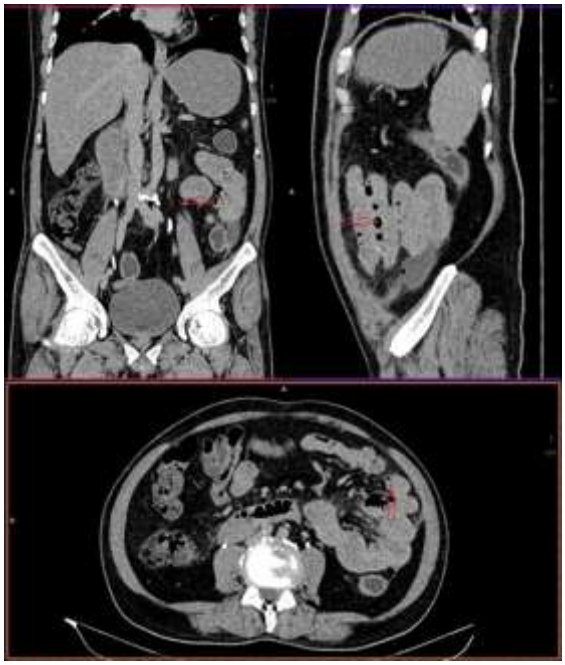

Figure 1: Perforated Jejunal diverticulum with collection and air noted within.

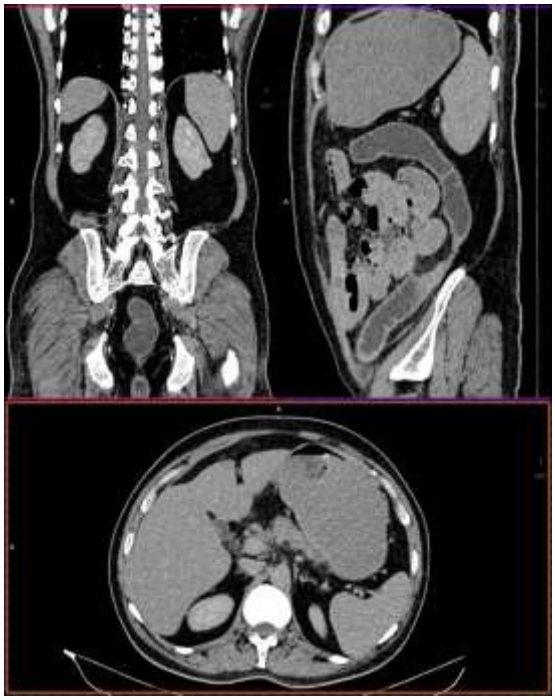

Figure 2: Axial CECT showing spleen with coronal & sagittal reformats 14 days prior to spontaneous rupture of spleen.

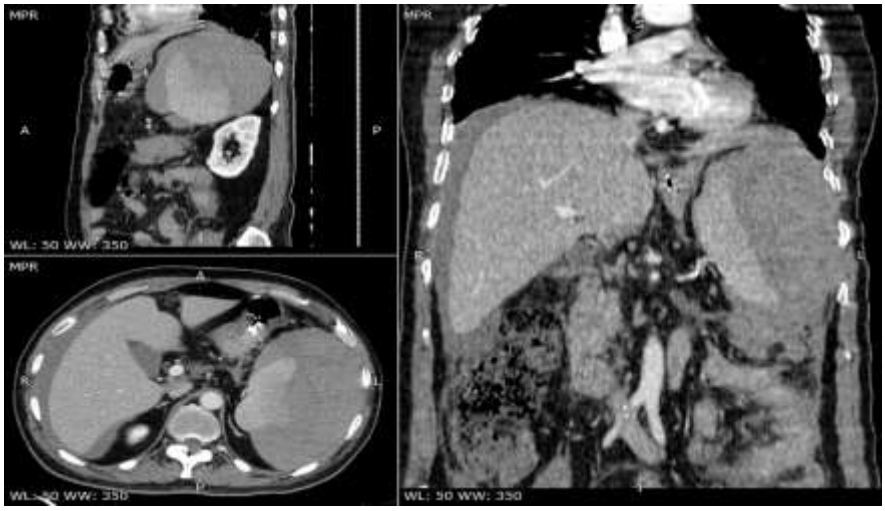

Figure 3: Post contrast study showing ruptured spleen large intrasplenic hematoma, causing a mass effect, and extensive intraperitoneal free fluid.

3. Discussion

Spleen is very vascular & functionally diverse organ meant for haematopoiesis & immunosurveillance while making interactions between the circulatory, reticuloendothelial, and immune systems [5, 6]. Traumatic spleen rupture has been well documented. Spontaneous splenic rupture is rare and predisposing conditions include haematological diseases with splenic infiltration, splenic infarcts, male gender, massive splenomegaly, angiosarcoma of the spleen & certain infections more commonly like EBV & malaria. Between 1917 to 1948 number of 64 cases and between 1950 to 2011 approximately 613 cases of spontaneous spleen rupture are well documented [3, 4].

Orloff and Peskin recognized four-step criteria for the diagnosis of spontaneous rupture consisting of 1. no history of trauma, 2. no perisplenic adhesions which support previous trauma, 3. no disease affecting the spleen, and 4. on gross and histologic examinations there is presence of a normal spleen [7]. Crate and Payne then added a fifth criterion i.e.: Full virologic studies of acute phase and convalescent sera should show no significant rise in antibody titres which suggests recent viral infection of types known to have splenic involvement [8]. The number of cases which fulfil Orloff and Peskin's criterion is by far less. In a systemic review by F Kris Aubrey and Nicholas Sowers of 613 cases of non-traumatic spleen rupture 18% have been attributed to medical procedures while 23% being attributed to infectious disease [3]. Our case fulfilled all Orloff and Peskin's criterion hence is reported as spontaneous spleen rupture case. Causes of Spontaneous splenic rupture is varied and although not complete the list is comprehensive [3, 9] [Table 1].

Cause	Disease
Infections	Infectious mononucleosis
	HIV
	Hepatitis A/B/C
	Rubella
	Varicella
	Legionellosis
	Bartenellosis
	Infective endocarditis (Staphylococcus, Streptococcus, Clostridium, Actinomycosis, Pseudomonas among the top causes)
	Enteric fever
	Tuberculosis
	Syphilis
	Malaria
	Kalaazar
Hematologic and neoplastic causes	Haemophilia
	Anticoagulation
	Hemolytic anemia
	Angiosarcoma
	Choriocarcinoma
	Myeloid metaplasia/fibrosis
	Lymphoma and leukemia
	Multiple myeloma
	Polycythemia vera
Inflammatory	Crohn's disease
	Pancreatitis
	Polyarteritis nodosa
	Lupus erythematosus
	Rheumatoid arthritis
Infiltrative causes	Amyloidosis
	Felty's syndrome
	Sarcoidosis

Iatrogenic	Anticoagulants - Warfarin / Heparin
	Granulocyte colony stimulating factor
	Therapeutic thrombolysis
	Dialysis
	Lithotripsy
Primary splenic disorders	Splenic cyst
	Splenic angiomatosis
	Splenic peliosis
	Splenic infarctions or venous thrombosis
	Portal hypertension
	Congenital malposition (i.e. short splenic pedicle)
Internal trauma	Pregnancy
	Cough / Vomiting

Table 1: Causes of spontaneous rupture of spleen.

The possible mechanism of spleen rupture is hypothesised as -

1. Localized involvement of the spleen with a pathologic process, which is no longer apparent on rupture
2. Reflex spasm of splenic vein causing acute splenic congestion
3. Portal venous congestion with chronic splenic congestion
4. Abnormally mobile spleen producing torsion and finally rupture
5. Rupture of a degenerative or aneurysmal splenic artery
6. Forgotten or unnoticed trauma
7. Sudden increase in abdominal pressure leading to rupture [10]

The common presenting features are fever, tachycardia, vomiting, generalized abdominal pain, progressive weakness [11-12]. However, splenic rupture in malaria continues to be a common pitfall for practitioners, for it can happen without any preceding attacks or trauma. The physical examination may reveal left hypochondriac tenderness, splenomegaly and signs of diaphragmatic irritation (Kehr's sign). Signs of hypotension and hypovolemic shock may or may not be associated depending on duration and grade of rupture [12-14]. The usual investigations undertaken are hemogram, peripheral blood smear for malaria parasite. Imaging is usually carried out for diagnosis of splenic rupture with abdominal ultrasound & definitive being contrast enhanced CT scan of abdomen which will reveal enlarged spleen, capsular tear and perisplenic hematoma. The conservative management consists of observation for 7-14 days in hospital with strict bed rest, administration of blood and blood products, serial monitoring of haemoglobin and haematocrit along with monitoring of vital parameters. Splenectomy is be

reserved for patients with uncontrolled bleeding and haemodynamic instability [15-16]. As this patient was old, haemo-dynamically instable, he was operated for Splenectomy, Patient was kept under observation for 10 days thereafter and discharged.

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