AN INTERESTING CASE OF FEVER WITH ABDOMINAL PAIN

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Abstract:
Enteric fever is a common disease which presents with a wide spectrum of clinical manifestations and varied complications. A 13 year male presented with complaints of fever for 2 weeks with vague abdominal pain in the left hypochondrial region of 1 week duration. CECT abdomen revealed multiple splenic infarcts. Further work up showed a 4 fold rise in titres of O and H antibodies for Salmonella Typhi. After ruling out common causes it was concluded as a case of Splenic Infarct due to Enteric Fever. So we report this case as a rare complication of Enteric fever.

Keyword: Enteric Fever, Splenic Infarct

A 13 year boy presented with intermittent fever, high grade, associated with chills but not rigors, vomiting on and off for 2 weeks duration. After about a week patient developed vague abdominal pain, more in the left hypochondrium, dragging heavy sensation on and off and radiating towards left shoulder along with headache and myalgia. No h/o sore throat, cough, expectoration, breathlessness, chest pain, bleeding diathesis, joint pain, giddiness, loss of weight, loss of appetite.

The patient was born of a non consanguineous marriage normal full term vaginal delivery. Normal developmental milestones and he is studying in 7th class. No history of any medical or surgical illness in the past. No significant family history. For the above complaints he consulted a private hospital where WIDAL was positive in 1 in 100 dilution for both ‘O’ and ‘H’ antibodies and was started on tablet Cifran (Ciprofloxacin) 500 mg bd orally for 1 week.

On examination patient was conscious, oriented, febrile, dehydrated, coated tongue present, no pallor, or icterus, or clubbing, no significant lymph nodes, Vitals were stable. Abdomen examination revealed Splenomegaly, 5 cms below left costal margin, firm, non tender. No other organomegaly. No free fluid.

Renal function tests, Liver function tests PT/aPTT /INR, Urine Routine were within normal limits. Complete Blood Counts showed a Total Count of 9500, Differential Count Neutrophils 80%, Lymphocytes 20% and Eosinophils 0%, Hemoglobin 11.6 g/dl, Platelets 160000/cumm. X-ray Chest was normal.
Ultrasonogram – Enlarged Spleen with Wedge shaped lesion in the lower pole? Splenic Infarct.

We proceeded with CECT Abdomen which showed enlarged spleen -13 cms, multiple hypodense areas in inferior pole of spleen in subcapsular location, S PLENOMEGALY with MULTIPLE INFARCTS - INFERIOR POLE OF SPLEEN

CECT abdomen showing multiple splenic infarcts Routine Fever Investigations were done. MSAT- Negative, QBC for MP/MF- Negative, Urine culture and Blood culture showed no growth. Widal both O and H positive 1 in 400 dilution.

We proceeded to rule out common causes of Splenic infarct.
Peripheral Smear - Hypochromic RBCs, WBC and Platelet were normal. No abnormal cells.
Sickling Test – Negative.
HIV ELISA – Negative
ANA and dsDNA – Negative
Bone Marrow Aspiration – Normal Study
Repeat Blood, Urine and Stool Culture – No Growth
Echocardiography (transthoracic and transesophageal) - Normal, No evidence of Vegetations.

HRCT Chest – Normal.

Patient was started on Injection Ceftriaxone 1gm intravenously bd and Tablet Paracetamol and other supportive measures. Patient responded well to Antibiotic therapy. Repeat Ultrasonogram showed reduction in size of infarct.

We considered Salmonella as the possible etiological agent because of 4 fold rise in WIDAL titres (Cultures were negative probably because of early initiation of antibiotics), exclusion of other common causes of splenic infarct and response to the treatment.

DISCUSSION:
Splenic infarct is a relatively rare condition. It is either segmental or global. It occurs as
a result of arterial or venous compromise, and is associated with a heterogeneous group of diseases. Spleen is supplied by splenic artery (branch of coeliac artery) and the short gastric artery (branch of left gastroepiploic artery). Within the spleen, arterial supply is segmental, occlusion of secondary branches results in a wedge-shaped infarct.

The spleen, along with kidneys and brain, ranks as one of the most frequent sites where emboli lodge. In normal-sized spleens, infarcts are most often caused by emboli that arise from the heart. The infarcts can be small or large, single or multiple, or even involve the entire organ. They are usually bland, except in individuals with infectious endocarditis of the mitral or aortic valves, in whom septic infarcts are common. Infarcts are also common in markedly enlarged spleens, regardless of cause, presumably because the blood supply is tenuous and easily compromised.1

ETIOLOGY:
It occurs due to variety of causes. The vast majority (88%), however, are either infiltrative hematologic diseases that cause congestion of the splenic circulation by abnormal cells, or thromboembolic conditions that produce obstruction of larger vessels.2

HEMATOLOGICAL CAUSES: Sickle hemoglobinopathies3, Polycythemia vera rubra, Hypercoagulable state, Idiopathic venous thrombosis, Leukemia, Lymphoma, Myelofibrosis, Erythropoietin therapy

EMBOLIC DISORDERS4-5: Atrial fibrillation, Infective endocarditis, Prosthetic mitral valve, HIV associated mycobacterial infections, Paradoxical emboli from right heart, Infected thoracic aortic graft, Left ventricular mural thrombus

AUTOIMMUNE/ COLLAGEN VASCULAR DISORDERS:

SLE, Kawasaki disease, PAN, Wegener’s granulomatosis

INFECTIONS: Meningococcemia, Visceral leishmaniasis, Infectious mononucleosis, Clostridium perfringens, Salmonellosis, Malaria, leptospirosis

TRAUMA: Torsion of wandering spleen, Sclerotherapy of bleeding gastric varices, Embolisation of splenic bleed, Left heart catheterisation via femoral approach

MISCELLANEOUS: Amyloidosis, Sarcoidosis, Splenic vein thrombosis, ARDS, Liver transplant8-9

Splenic infarct with both typhoidal and non-typhoidal salmonellosis is uncommon. There are few case reports of isolated splenic infarcts due to non-typhoidal salmonellosis.10-13 The mechanism of splenic infarct in enteric fever is not clear. The proposed mechanisms14 are:

Hematogenous spread of infection from small intestine to spleen
Salmonella- ability to survive within macrophages
Rouleaux formation by RBCs
Infective embolism
Low oxygen tension
Outstripping of massive splenomegaly of its available blood supply
**CLINICAL MANIFESTATIONS**

Clinically occult- asymptomatic in 1/3 patients

Left upper quadrant pain – most common symptom\(^1\)\(^5\).

Left upper quadrant pain – most common sign\(^1\)\(^5\).

Fever with chills

Nausea, vomiting

Pleuritic chest pain

Kehr’s sign

Abscesses-- sepsis In a study done by Antopolsky et al, splenic infarction was the presenting symptom of an underlying disease in around 16.6%\(^1\)\(^5\).

**INVESTIGATIONS:**

CT, MRI, SCINTIGRAPHY are the preferred modalities of investigations.\(^1\)\(^6\) -\(^1\)\(^8\) Splenic scintigraphy is done using radio-labelled colloids, Heat denatured RBC scan or Radio-labelled autologous leucocyte scan. Radio-labelled autologous leucocyte scan is useful in differentiating between splenic abscess where the lesion shows increased uptake of the labelled WBC’s versus splenic infarct where the lesion does not show accumulation of the labelled WBCs.\(^1\)\(^9\)

**TREATMENT**

Treatment of this condition is usually treating the underlying causes and analgesics.\(^2\)\(^0\) Surgery\(^2\) is indicated in sepsis, abscess, hemorrhage and pseudocyst formation. Complications of splenic infarct include hemorrhage, subphrenic abscess, pancreatic fistula, gastric fistula etc.

**PROGNOSIS**

The prognosis varies with the underlying disease process responsible for splenic infarction. Splenectomies for infarction of massively enlarged spleens accompanying hematologic malignancies have reported mortality rates of as high as 35%. At the other end of the spectrum, many infarcts are clinically occult, with no significant long-term sequelae.

**CONCLUSION:**

Splenic infarct is a rare pathology and enteric fever as a cause is very rare. The most common presentation is left upper quadrant abdominal pain and tenderness. Laboratory tests are not diagnostic for splenic infarct. CT scan is the current diagnostic modality of choice. Principle medical therapy is analgesia with either narcotics or NSAIDs and third generation cephalosporins and/or quinolones are indicated in salmonella and non salmonella bacteremia. Surgery is indicated only for complications.

**REFERENCES:**


