Splenic Abscess in a Boy with Isolated Levocardia

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Abstract
Levocardia with situs inversus is a rare condition. We present the case of a fourteen-year-old boy with congenital cyanotic heart disease, isolated levocardia and splenic abscess. It is the first report of both these conditions occurring in the same person.

INTRODUCTION
Infective endocarditis is a common cause for fever in patients with cyanotic heart disease. But occurrence of splenic abscess is rare. We report a case of splenic abscess in a fourteen-year-old boy with congenital cyanotic heart disease and isolated levocardia. We discuss the probable cause for splenic abscess and the imaging and treatment options for patients with splenic abscess.

CASE REPORT
A 14 years boy who was diagnosed to have congenital cyanotic heart disease at birth presented to us with abdominal pain and fever of three-week duration. On examination patient was cyanotic, febrile and tachypnoeic. Abdominal examination revealed diffuse tenderness, guarding and rebound tenderness. Blood investigations showed hemoglobin of 17.5gm%, Total count was 22,000cells/mm³ with 90% being neutrophils; ESR was 120mm/1st hr. Peripheral smear revealed neutrophilic leukocytosis with shift to the left. Liver and renal function tests were normal. Ultrasonogram of the abdomen showed visceral situs inversus, splenomegaly and a hypoechoic area in spleen suggestive of splenic abscess. A Doppler echocardiogram revealed double outlet right ventricle with pulmonary stenosis. There was no evidence of vegetation or thrombi. Computed Tomography scan of the chest and upper abdomen was done which showed (Fig. 1) levocardia, right-sided aortic arch and situs inversus. Spleen showed a large hypoechoic area suggestive of abscess.

An Ultrasound guided aspiration of abscess was done and pus sent for culture. The blood and pus culture obtained did not reveal growth of any organism. It was probably because of prior antibiotic therapy patient had received in another hospital. As the patient was young and had other comorbid conditions he was started on broad-spectrum antibiotic and ultrasound-guided drainage of abscess was done.

DISCUSSION
The incidence of splenic abscess in autopsy series is 0.14 to 0.7 percent. Male to female ratio is 2:1. Age distribution ranges from six months to ninety-two years with a mean of 41.1 years. Majority of the splenic abscesses are solitary and unilocular (64.7%). Multiple abscesses occur in 8.4%.

Mechanisms stated for the etiology of splenic abscess include (1) Metastatic infection from a distant focus. (2) Contiguous spread from other intra-abdominal

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Fig. 1 : Coronal section of chest and abdomen with IV contrast media showing - Levocardia, right sided aortic arch, right sided descending aorta, situs inversus and a hypodense lesion in spleen suggestive of abscess. Ab – Abscess in Spleen. Arrow- right sided aortic arch.
structures. (3) Secondary infection of a splenic infarct. (4) Trauma including iatrogenic injuries. (5) Immunodeficiency. Of these metastatic infection from a distant focus is the most common cause for a splenic abscess and the source often is a septic embolus from endocarditis.1,4

The possible mechanism for splenic abscess in our patient include (1) septic emboli from endocarditis (2) paradoxical emboli leading to splenic infarction and infection and (3) thrombosis of splenic artery leading to infarction and infection. Patient probably had vegetations, which had embolised or regressed because of the prior antibiotic therapy he received. Patient also had secondary polycythemia that could predispose him splenic artery thrombosis or intracardiac thrombus formation and embolisation.

Classic symptoms like the triad of fever, leukocytosis and left upper quadrant abdominal pain are suggestive but not specific.2 Ultrasonography is readily available and is a good screening procedure with a reported sensitivity of 87.2%.2 CT scan is superior to USG with a sensitivity of 96%.2

Situs describes the position of the cardiac atria and viscera. Situs solitus is when morphologic right atrium is on right and left atrium is on left. Situs inversus is the mirror image of situs solitus5 (Fig. 2). Situs inversus is present in 0.01% of the population.5 Situs inversus can be classified further into situs inversus with dextrocardia or situs inversus with levocardia. The incidence of isolated levocardia has been estimated at approximately 0.6 per 10,000 live-births. It is estimated that over 90 percent of affected individuals have associated heart disease.5

Rupture into peritoneal cavity is the most common complication of splenic abscess. Rupture into a contiguous organ can result in a lienogastric or lienocolic fistula, whereas transdiaphragmatic rupture can lead to splenobronchial fistula or empyema thoracis.1,3

In conclusion, we present a 16 years boy with congenital cyanotic heart disease, levocardia with situs inversus and splenic abscess. The incidence of levocardia with situs inversus is 0.6 per 10,000 live-births and incidence of splenic abscess is 0.1 to 0.7%. There are no reports in literature of these two rare conditions occurring together. The possible mechanism for splenic abscess in our patient include (1) septic emboli from endocarditis (2) paradoxical emboli leading to splenic infarction and infection and (3) thrombosis of splenic artery leading to infarction and infection.

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REFERENCES