FREQUENCY AND ETIOLOGY OF SPLENOMEGALY IN ADULTS SEEKING MEDICAL ADVICE IN COMBINED MILITARY HOSPITAL ATTOCK

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Background: The concept that a palpable spleen can be associated with disease is natural, because this organ normally is not palpable, but may become so under certain circumstances. Questions concerning the frequency, etiology and significance of finding a palpable spleen are raised from time to time. These factors vary with geographical distribution of tropical diseases, and other diseases prevalent in the area. We conducted this study in the department of medicine, at Combined Military Hospital Attock from Sept 2002 to Sept 2003, to find out the frequency and etiology of splenomegaly in our setup. **Methods:** All patients above the age of 13 years seeking advice of medical specialist in our hospital were included. History and clinical examination was performed and relevant investigations were carried out to establish the diagnosis. **Results:** 1400 patients were examined. Splenomegaly was present in 96 cases (6.8%). Male to female ratio was 4:1. Eighty-three percent patients had a palpable spleen of 1-5 cm while 8.5% had >10 cm. Different types of anemia constituted 29% of cases, malaria 25%, bacterial infections 18.6% and hematological malignancies 16%. Hepatitis/cirrhosis related splenomegaly was seen in 9.4% cases while 1% had tropical splenomegaly. **Conclusion:** Different types of anemias, malaria, bacterial infections and hematological malignancies are common causes of splenomegaly in our setup. Splenomegaly should be investigated further since all the common causes are treatable.

Keywords: splenomegaly, etiology, adults.

INTRODUCTION

The concept that a palpable spleen can be associated with disease is natural, because this organ normally is not palpable, but may become so under certain circumstances. Questions concerning the frequency, etiology and significance of finding a palpable spleen are raised from time to time. These factors vary with geographical distribution of tropical diseases, and other diseases prevalent in the area. In United States, palpable spleen was detected in 2.0 - 5.6% patients in two different studies.[1,2] In contrast in certain tropical countries an incidence as high as 60% has been documented.[3] Occasionally a palpable spleen may normally be present in an adult that may have no serious significance.[4] In most cases however, splenomegaly is usually the first and the only sign of an underlying serious disorder; therefore it is important to regard a palpable spleen as a significant physical sign and efforts should be made to discover the cause.[5] A wide variety of diseases can lead to splenic enlargement; common in our setup are malaria, leishmaniasis, hematological malignancies, congestive splenomegaly and anemias.[6,7]

The degree of splenomegaly varies with the disease entity. Most of the chronic conditions like chronic myeloid leukemia, hairy cell leukemia, storage disorders, myelofibrosis, chronic malaria and leishmaniasis lead to massive splenomegaly while in most acute conditions, patients seek medical advice at an early stage with a mild enlargement of spleen. The differential diagnosis of splenomegaly thus differs with the splenic size at presentation in addition to the age of the patient, clinical features, associated hepatomegaly and lymphadenopathy.[8,9] As the prevalence of splenomegaly and relative incidence of diseases associated with it are subject to geographical variation, a clinician while evaluating a patient with palpable spleen should keep this factor in mind.

Aim of our study was to find out the frequency and etiology of splenomegaly in our setup, and to relate the degree of splenic enlargement and salient clinical features with the cause of splenomegaly.

MATERIAL AND METHODS

The study was conducted at department of medicine Combined Military Hospital Attock from Sept 2002 to Sept 2003. It is a descriptive study conducted on patients seeking advice of medical specialist in this hospital. The hospital provides secondary care to army troops in the area; in addition, this hospital also provides secondary care services to civilian patients of the town and its suburbs. Individuals above 13 years of age were included in the study because the

spectrum of etiology and clinical presentation in children differs from that of adults.[7] Other inclusion criteria was palpable spleen on examination of abdomen.[10]

A brief history was recorded on a specified form and a detailed clinical analysis of the patients was done with special emphasis to clinical signs of various diseases linked to the etiology of splenomegaly, including anaemia, fever, generalized oedema, wasting, skin rash, lymphadenopathy, hepatomegaly, ascietes alongwith signs of chronic liver disease. Based on history and clinical examination, further workup was decided.

After initial clinical assessment, splenomegaly was confirmed with ultrasound examination of abdomen. Chest X-rays were taken and blood samples were collected for complete blood counts, peripheral blood smear for malarial parasites, hepatitis B and Hepatitis C screening, and Widal test. Blood samples were also collected for culture, serum ferritin estimation and serum B12/folate assay (where indicated). In selected cases, IgM antibodies for malarial parasites, serology for Leishmania donovani and bone marrow examination was performed.

RESULTS

Fourteen hundred patients were received during the study period. 96 were with palpable spleen on abdominal examination (6.8%). Age of patients ranged between 13 years to 75 years with mean age of 32 years. 74 patients were male (76.8%) while remaining 22 were female (23.2%). Male to female ratio was 4:1.

Spleen enlargement was measured at 1-5 cm in 80 patients (83%), 5.1-10 cm in 8 patients (8.5%), and >10 cm in 8 patients (8.5%). Liver was palpable in 36 (37.5%) patients. Fever was the most common feature of history and clinical examination (61%) followed by generalized weakness and progressive pallor (21%), abdominal discomfort 12%, Jaundice 4% and joint pains 2%.

The diagnoses made in our patients alongwith spleen size and associated hepatomegaly are given in Table-1. Similarly, table-2 reflects the details of hematological malignancies encountered in this study while table-3 shows infectious causes of splenomegaly seen in our setup.

Table-1: Causative diseases of splenomegaly found in the study. n=96

Disease	No of Patients	Spleen 1-5cm	Spleen >5-10cm	Spleen >10cm	Liver Palpable
Malaria	24 (25%)	24	-	-	5/24 (21%)
Hematological malignancies	16 (16.2%)	10	4	2	12/16(75%)
Mixed deficiency anemia	11 (11.4%)	7	4	-	4/11 (36%)
Enteric fever	10 (10.4%)	10	-	-	1/10 (10%)
Hepatitis/ cirrhosis	9 (9.4%)	6	2	1	3/9 (33%)
Gram negative rod Infections	6 (6.25%)	6	-	-	1/6 (17%)
Megaloblastic anemia	5 (5.2%)	4	1	-	5/5 (100%)
Anemia of chronic disorder	5 (5.2%)	5	-	-	2/5 (40%)
Hemolytic anemia	4 (4.2%)	2	2	-	3/4 (75%)
Iron deficiency anemia	3 (3.1%)	3	-	-	0
Tuberculosis	2 (2.1%)	2	-	-	0
Tropical splenomegaly	1 (1.05%)	-	-	1	0

Table-2: Details of hematological malignancies encountered in the study, n=16

Disease	No of pts	Fever	Progressive pallor/weakness	Bleeding manifestations	Spleen cms
AML	6(.96%)	3	6	1	1-3
ALL	2(.32%)	1	2	1	2-3
CML	2(.32%)	-	2	-	14-17
CLL	2(.32%)	-	1	-	6-8
Myelofibrosis	2(.32%)	1	2	-	16-18
Lymphoma	1(.16%)	1	1	-	4
PRV	1(.16%)	-	-	-	9

AML: Acute myeloid leukemia. ALL: Acute lymphoblastic leukemia. CML: Chronic Myeloid Leukemia
CLL: Chronic Lymphoid leukemia. PRV: Polycythemia rubra Vera

Table-3: Infectious causes of splenomegaly found in the study. n=49

Group	Disease	No of pts	Spleen size (average) cm
Hepatitis		9 (4.41%)	
	Hepatitis C	5 (2.45%)	4-7.3
	Hepatitis B	2 (0.98%)	2-3
	Acute hepatitis	2 (0.98%)	1-2

Malaria		24 (11.76%)	
	P.Vivax	21 (10.29%)	1-3
	P.Falciparum	3 (1.47%)	1.2-4
Bacteria		16 (7.84%)	
	Salmonella	10 (4.9%)	1.1-3
	Other Gm –ve rods	6 (2.94%)	1-3
	Tuberculosis	2 (0.98%)	1-2

DISCUSSION

Palpable spleen in a symptomatic person is always significant. Diseases prevalent in any particular area affect relative frequency of various conditions causing splenomegaly. Malaria is endemic in Pakistan; therefore it is a common cause of splenomegaly in our country.[13] In our study we found that 25% of the patients with splenomegaly were sufferring from malaria. The relative incidence also varies with patient population in a particular hospital. Study conducted by Hussain et al in a tertiary care center in Lahore does not mention malaria as a common cause of splenomegaly probably due to difference of patient population.[14] Population based representative studies are not available to compare with. Now a day massive splenomegaly is uncommon finding in malaria, as malaria being the common cause of fever in our country, is suspected and treated in almost every patient presenting with fever in general practice. In our study mild splenomegaly was detected in this group.

Hepatitis B & hepatitis C are prevalent in Pakistan, and associated cirrhosis of liver is a common cause of splenomegaly in our country.[14,15] With the advent of blood screening for hepatitis B in 1980 and Hepatitis C in 1996 in our country, the transfusion associated hepatitis is expected to drop.[16] In addition to blood screening, the availability of Hepatitis B & Hepatitis C screening facilities in towns, increase in public awareness, availability of Hepatitis B vaccination and interferon therapy are likely to reduce the frequency of cirrhosis associated splenomegaly. In our study we found 9% splenomegalies due to Hepatitis related disease as compared to study conducted by Hussain et al in Lahore that showed 69% splenomegalies due to cirrhosis liver.[14] This difference can be attributed to the fact that the later study was conducted in the gastroenterology unit of a tertiary care hospital of Lahore.

In our study, enteric fever was detected in 10% of patients with splenomegaly. In a study conducted at Quetta by Nadeem et al, palpable spleen was found in 43% of enteric fever patients.[17]

Splenomegaly may be present in 10% of iron deficiency anemic patients and 3-40% of patients suffering from megaloblastic anemia.[18,19] In our study we found 3 patients (3.1%) of splenomegaly who were suffering from iron deficiency which was proved on bone marrow examination. In these patients, no other cause of splenomegaly was ascertained, except for microcytic hypochromic peripheral blood films and a decrease in serum ferritin levels. All these patients improved after 10 weeks of iron therapy and spleen size gradually regressed. Megaloblastic hemopoiesis was observed in 5 patients (5.2%) with splenomegaly, megaloblastic anemia was secondary to gastrointestinal disturbance in these patients; no other contributory factor was found.

Hematological malignancies comprised of 16.2% of our splenomegaly patients, two presented with massive splenomegay, both these patients were diagnosed as primary myelofibrosis on histopathology of bone marrow. All of the acute leukemia patients presented with spleen < 5 cm while all of the chronic leukemia patients presented with spleen palpable >5 cm. Splenomegaly is detectable in 86% of patients with acute Lymphoblastic leukemia; associated hepatomegaly may be present in 74% and lymphadenopathy in 76% patients.[20] Less commonly organomegaly and lymphadenopathy may be detected in acute myeloid leukemia.

The size range of splenomegaly varies with varying disease entity. In general, various chronic conditions like chronic myeloid leukaemia, myelofibrosis, chronic liver disease, leishmaniasis, and chronic malaria have moderate to massive splenomegaly, while most acute disease processes like infections, including malaria and hepatitis alongwith various anaemias have mild splenomegaly.[7]

CONCLUSION

Frequency of splenomegaly was 6.5% in our study. Different types of anemia and malaria were the most common causes. Hematological malignancies were 16.2%, enteric fever 10.4% while 9.4% patients had splenomegaly associated with hepatitis/cirrhosis of liver. Finding of splenomegaly on clinical examination should be investigated promptly as most of the causes are treatable readily. The initial clinical assessment of splenic size can subtly guide the clinician regarding the underlying pathology as the size range of splenomegaly in chronic disease processes is generally moderate to severe while in most acute conditions only mild enlargement is seen in splenic size.

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