



Clinical-Etiological Profile of Patients with Splenomegaly in a Tertiary Care Centre

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Abstract

Introduction: Splenomegaly is an important sign of an underlying disorder and its etiology ranges from infectious disease to malignancy. Primary diseases of spleen are uncommon. Etiology of splenomegaly varies according to the geographical areas studied and depends upon the endemic, genetic and hematological diseases in the particular region. Purpose of this study was to find out the causes of splenomegaly in a tertiary care centre.

Methods and Materials: This cross sectional, observational study was carried out at Department of Medicine, IGIMS Patna (Bihar). 156 Male and Female patients older than 13 years of age and admitted in medicine ward with enlarged spleen were selected for this study. After getting informed consent from patients, Performa was filled; elaborating history, important clinical findings and relevant investigations were performed to find out the cause. Data analysis was carried out by SPSS 16 statistical software.

Results: Most common splenomegaly patients belong to Hackett's grade II (49%), followed by grade III (32%), grade I (13%) & grade IV (6%). Most common etiological category of splenomegaly was infective (30%) followed by congestive (24.5%), hematological malignancy (24%), megaloblastic anemia (13.5%), hemolytic anemia (4%) and other (4.5%) causes. Among infective etiology malaria was most common cause (9%) followed by dengue fever (7%). Chronic liver disease (12.5%) and alcoholic liver disease (5%) were common cause in congestive group. Acute leukemia (13.5%) was most common cause of splenomegaly in hematological malignancy group.

Conclusion: Megaloblastic anemia and acute leukemia are the most common disease that leads to splenomegaly in population studied. Malaria in infectious group and chronic liver disease in congestive group appear to be the major contributors for splenomegaly. So finding of enlarged spleen needs clinical work up to reach the correct diagnosis.

Keywords: Splenomegaly, malaria, hematological malignancy, hemolytic anemia, abdominal discomfort.

Introduction

The incidence and etiology of splenomegaly is strongly dependent on the geographical location. In a patient, splenomegaly should be investigated properly to ascertain the etiology. Etiologies of the splenomegaly vary according to diseases prevalent in that area. The causes of splenomegaly even vary between different regions in the same Country.¹

The etiology of splenomegaly usually differs with the grade of splenomegaly at presentation, the age of the patient, clinical features, and associated signs and symptoms.² A variable clinical profile and etiological spectrum has been described in cases of splenomegaly in different study. Workup for underlying disorder depends upon age of the patient, and provisional diagnosis. In spite of such common finding in patients, there are limited studies in India regarding the etiological spectrum of splenomegaly. Some studies have documented hematological disorders to be most common while others have shown infectious causes and some congestive causes to be more common.³ The present study is an attempt to elucidate the causes of splenomegaly and also to study its clinical profile with help of investigations which were possible in the hospital.

Methods & Materials

This cross-sectional, observational study was conducted on patients admitted in the department of medicine, Indira Gandhi Institute of medical science Patna (Bihar). The study was conducted from August 2017 to April 2018. Patients presented to our hospital either in medicine OPD or emergency detected with splenomegaly on per abdominal examination or on USG abdomen were enrolled to study after written consent. Grading of splenomegaly was done by Hackett's grading.⁴

All the patients were subjected to detailed clinical history regarding fever, weight loss, appetite, sweating, pruritus, jaundice, abnormal bleeding, bruising, joint pain, history of alcoholism, history of residence and travel abroad, high risk sexual behavior, past medical history, drugs etc. Physical

examination was done on every patient for icterus, stigmata of liver failure, lymphadenopathy, splenomegaly, hepatomegaly, and cardiac murmur etc.

Grading was done by Hackett's grading, which is WHO accepted grading & as follows:

Class 0 - spleen is not palpable even on deep inspiration.

Class 1 - spleen is just palpable below costal margin on deep inspiration.

Class 2 - spleen palpable but not beyond a horizontal line half way between the costal margin and umbilicus.

Class 3 - spleen palpable more than half way to umbilicus, but not below a line running horizontally through umbilicus.

Class 4 - spleen palpable below umbilicus but not below a horizontal line between umbilicus and pubic symphysis.

Class 5 - extending more than class 4.

Complete hemogram; red blood cell indices MCV (mean corpuscular volume), MCH (mean corpuscular hemoglobin) and MCHC (mean corpuscular hemoglobin concentration), ESR, kidney function test and liver function test, USG abdomen, chest x ray were performed in every case. Further specific investigations were performed in cases to find out the cause of splenomegaly as warranted by the clinical profile of patients and the results of baseline investigations. And these special investigations are

- Infection profile– blood culture, peripheral smear for malaria, malarial antigen, dengue serology, NS1 antigen, Widal test, rK-39, leptospira serology and HBsAg antigen, anti HCV serology, HIV (I & II) and others.
- For hematological cases- peripheral smear, serum B₁₂ and folate level, bone marrow examination & biopsy, lymph node biopsy, immunphenotyping for leukemia & lymphomas, and others.
- Upper GI endoscopy in cases of portal hypertension,

- Anti-nuclear factor (immunofluorescent method) for autoimmune disorder;
- Montoux test for tuberculosis;
- Hb electrophoresis, DCT, ICT, LDH for hemolytic anemia;
- Echocardiography for cardiac evaluation & other investigations according to history & clinical examination of patients.

Observations and Results

The study population consisted of 156 patients with age ranging from 14 to 75 years. There were 91 males and 65 females in the study group with a male to female ratio (M: F) of 1.4:1. Out of 156 cases, 20 cases belong to age group 14-25 years, 26 cases in age group 26-35 years, 47 cases in age group 36-45 years, 40 cases in age group 46-55 years, 13 cases in age group 56- 65 years and 10 cases in age group 66-75 years.

Out of 156 patients with splenomegaly Hackett's grade- I splenomegaly was present in 20(13%) cases, grade- II was in 77(49%) cases, grade- III in 50(32%) and grade -IV in 9(6%). There was no case of grade- V splenomegaly in our study. (Figure-3)

The most common symptom was generalized weakness and fatigue in 68% cases followed by fever (48%), abdominal discomfort (32%), and dyspnea (16%). Bleeding manifestations were observed in 11% of cases. Other symptoms like yellowish discoloration of sclera & generalized lymphadenopathy were present in 26% and 9% of cases respectively. Out of 156 patients, anemia was present in 87% cases, and 44% of patients had hepatomegaly. (Figure-1)

Among the different etiology in our study Infective constituted 47(30%) cases, followed by congestive and hematological malignancy constituting 38(24.5%) and 37(24%) cases respectively. Next in series were patients of megaloblastic anemia and hemolytic anemia accounting for 21(13.5%) and 6(3.8%) cases respectively. Other included systemic lupus erythematosus (SLE) 3(1.9%) cases, rheumatoid

arthritis 2(1.2%) and tropical splenomegaly 2 (1.2%) cases. (Figure-2)

Infectious disease was most common cause of splenomegaly in our study. Among 47 (30%) of 156 case of infectious etiology of splenomegaly, 14(8.9%) cases were of malaria infection, 11(7%) cases were of dengue fever, 8 (5%) cases were due to enteric fever, 6 (4%) cases were due to disseminated tuberculosis, 4(2.5%) cases were due to HIV infection, 2 (1.25%) cases were due to kalazar, 2(1.25%) were due to leptospira infection. 38(24.35%) of 156 cases of congestive etiology, 19(12.5%) cases were due to chronic liver disease(other than alcoholic) with portal hypertension, 10(6.5%) cases were due to right heart failure(cardiac origin), 8(5%) cases were due to alcoholic liver disease with portal hypertension, & 1 case due to chronic pancreatitis with portal vein thrombosis.

Among 37(24%) of 156 cases of hematological etiology, acute leukemia constituted 21(13.5%) cases followed by 6(4%) cases of chronic myeloid leukemia, 9(6%) cases of lymphoma and 1(0.6%) case of myelofibrosis.

In this study chronic liver disease, acute leukemia and megaloblastic anemia seems to be prevalent and significant cause of splenomegaly. (Figure-4)

Figure-1 Spectrum of Clinical features of the Patient

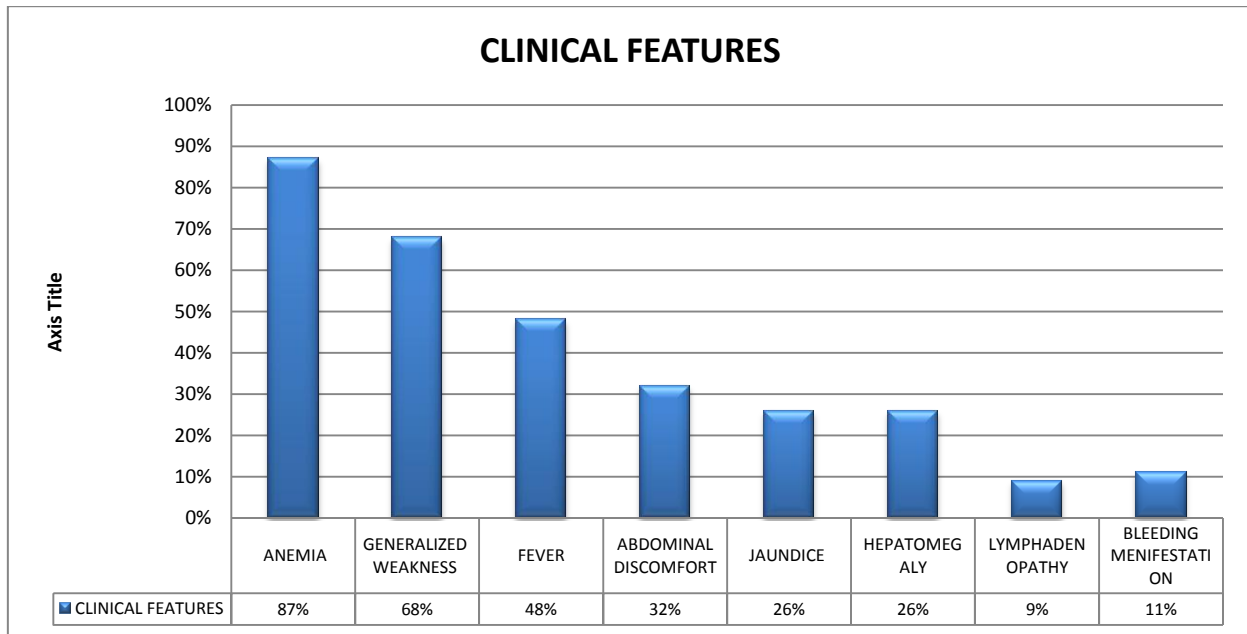


Figure-2 Etiological Spectrum of patients with Splenomegaly

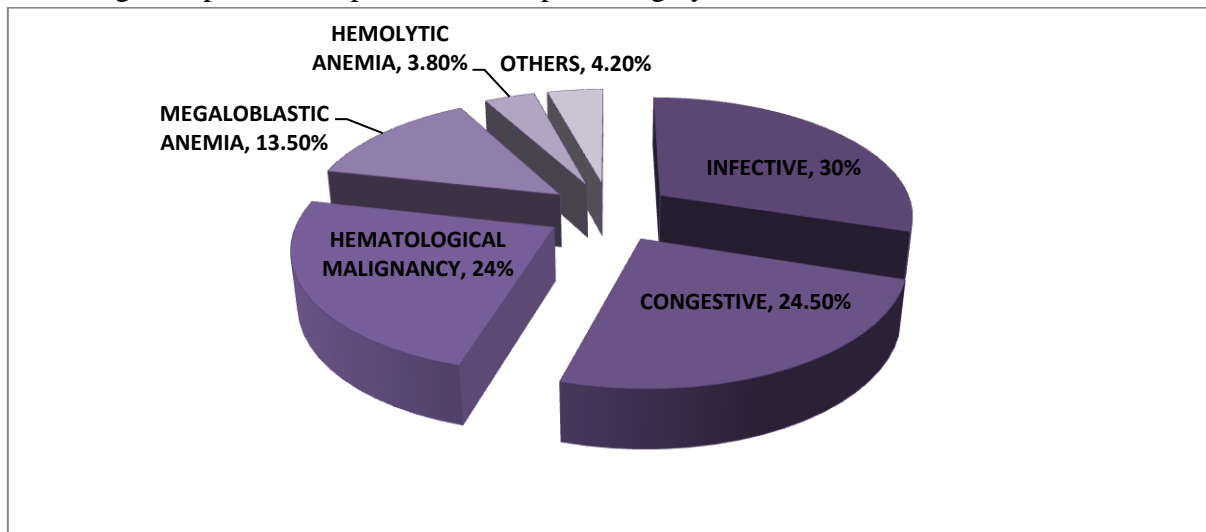


Figure- 3 Co-Relation between Grade of Splenomegaly and its Etiology

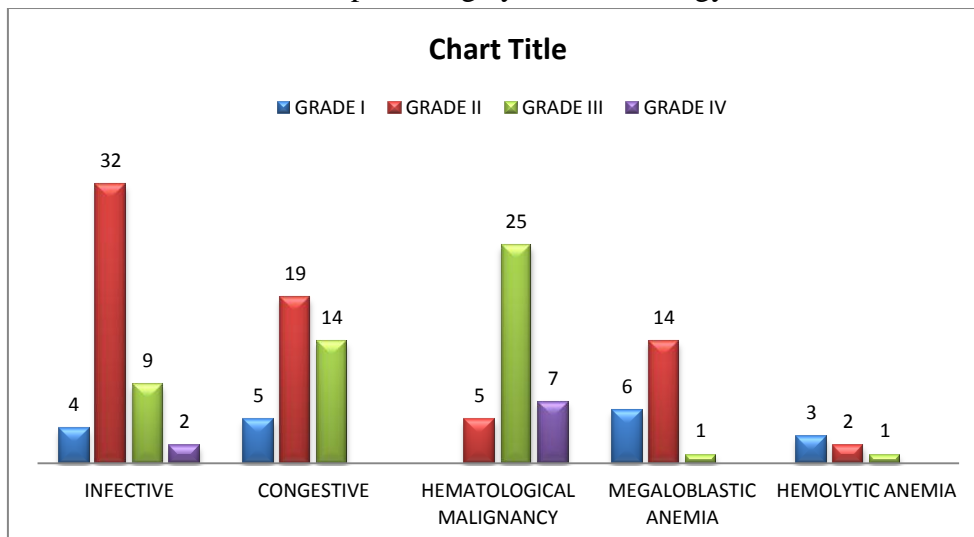
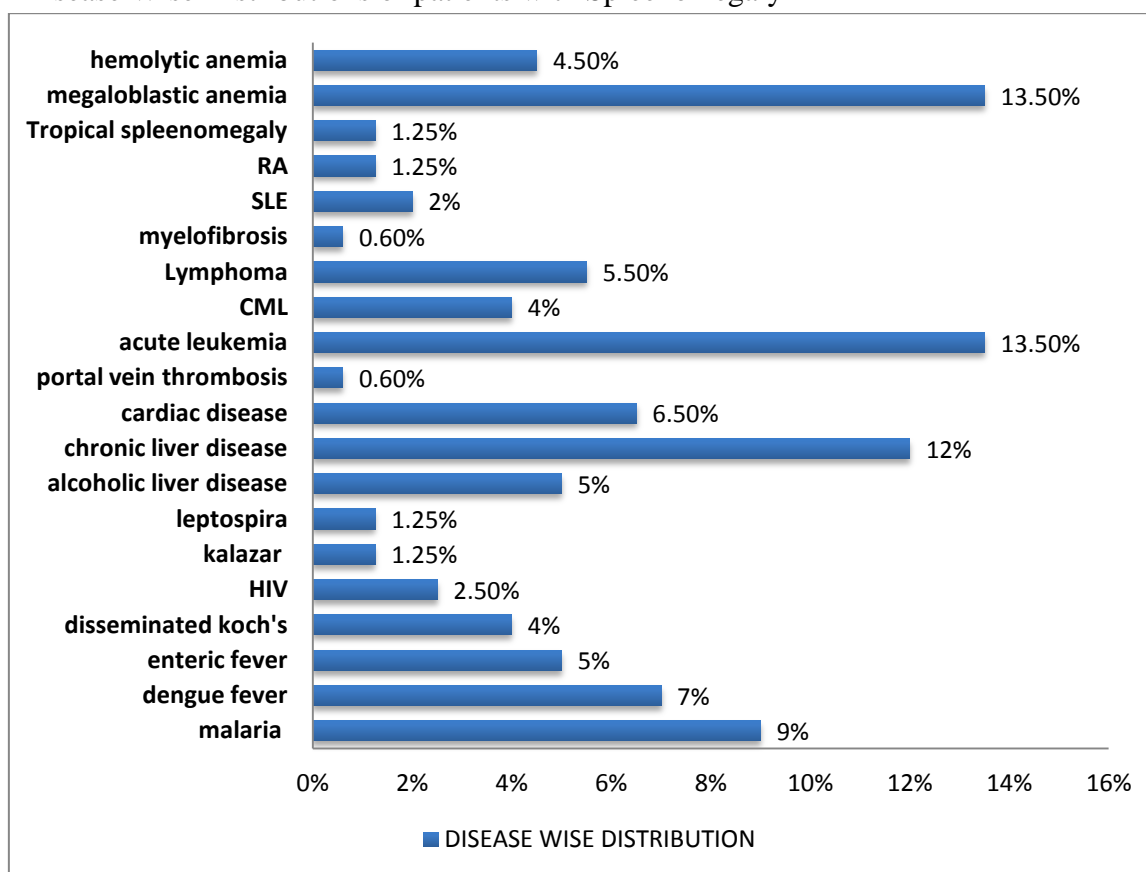


Figure- 4 Disease Wise Distributions of patients with Splenomegaly

Discussion

Splenomegaly in a symptomatic patient is of considerable clinical significance. One needs to investigate the patient thoroughly as most of conditions causing splenomegaly are treatable. The degree of splenomegaly varies with the disease causing it. Most of the chronic conditions like chronic malaria, myeloproliferative diseases, and hemolytic anemia etc. lead to massive splenomegaly while in most acute conditions, patients present with a mild enlargement of spleen.⁵

In this study, maximum cases were in age group of 36-45 years (30%) with male:female ratio 1.4:1. In a study by PS Ghalaut et al, the male to female ratio was 1.3:1, with age wise distribution similar to our study. In the present study, generalized weakness was the commonest clinical symptom seen in 68% patients followed by fever in 48%. The clinical presentation seen in this study is comparable to the study by PS Ghalaut et al where general weakness was present in up to 77% of study group.⁶

In this study, the causes of splenomegaly were infective (30%), congestive (24.5%), hematological malignancy (24%), megaloblastic anemia (13.5%), hemolytic anemia (4%) and others (4%). In study by Varsha S et al. the causes of splenomegaly were infective (49%), congestive (23%), neoplastic (13%), hyperplastic (13%), and obscure etiology (2%).⁷

Infectious causes as a most common cause of splenomegaly is published in studies by J Balaji et al & A Nadeem et al constituting 41% & 44.6% respectively.^{8,9} Although in study by Ghalaut et al. most common cause of splenomegaly was hematological diseases (54.5%), which is comparable with study by O'Reilly et al. (57%) & Shirish S et al. (60%).^{3,6,10}

In our study, among the infective etiology, malaria was the commonest with 14 patients (30%) followed by dengue fever 11 (24%) which is comparable (30.66%) with the study by Varsha et al.⁷ In another study by A Nadeem et al, and Sundaresan et al. malaria was the cause of

splenomegaly in 25% and 22% patients respectively.^{8,9}

In present study, the other infective causes were enteric fever, tuberculosis, HIV, leptospirosis, in order of number of cases found which are comparable to other studies. In few studies on dengue, splenomegaly was found in a wide range between 8.2% and 60.0%.¹¹ In a study on fever of unknown origin and splenomegaly, a diagnosis of tuberculosis was established in 10% of patients who underwent diagnostic splenectomy.¹²

Next common etiology in the present study was congestive, with 24.5% patients. Of these 38 cases, maximum cases (71%) were due to liver cirrhosis and alcoholic liver disease. Varsha S et al also found congestive cause as second common etiology (23%) in their study. Hepatitis B and C viruses are two of the main causative agents of chronic liver disease (CLD) all over the world.¹³

The most common congestive cause of splenomegaly in our study was chronic liver disease which was comparable to study by Shirish S et al.¹⁰ Whereas in study by J Balaji et al non-cirrhotic portal fibrosis (NCPF) was the most common congestive cause of splenomegaly.⁹

In present study, among hematological malignancy (24%), there were 21 cases of acute leukemia, 6 cases of chronic myeloid leukemia, 9 cases of lymphoma and one case of myelofibrosis. In the study by Nadeem et al, neoplastic splenomegaly accounted for 16.2% of cases out of which, acute myeloid leukemia was maximum.⁸

In this study, there were 28 cases of hyperactive splenomegaly, maximum were cases of megaloblastic anemia (21 cases) followed by hemolytic anemia (7 cases). Hyperactive splenomegaly accounted for the second commonest etiological group of splenomegaly in a study by Nadeem et al (approximately 30% cases) with megaloblastic anemia as commonest cause. Hemolytic anemia accounted for 4.2% cases.⁸

This study graded splenomegaly according to the Hackett's grading, which is a WHO accepted grading. Grade II splenomegaly was the commonest finding in this study which constituted

49% of total cases. Maximum cases of grade II splenomegaly were from infective group (41.5%) followed by congestive group (24.6%). Grade III splenomegaly was the second most common finding in this study which constituted 32% of total cases. Maximum number of cases were found in malignancy group (50%) followed by congestive group (18%). These findings were comparable to other studies.^{14,15} The next common grade was grade I splenomegaly (20 cases). Megaloblastic and hemolytic anemia splenomegaly (45%) were the commonest cause grade I splenomegaly followed by congestive and infective group. Commonest cause of grade IV splenomegaly (9 cases) was neoplastic (77.8%) followed by infective group (22%). Similar observation was found in study by Varsha S where Grade II splenomegaly was the commonest finding which constituted 44% of total cases. Maximum cases of grade II splenomegaly were from infective group (47.72%) followed by congestive group (34.09%). Grade I splenomegaly was the second most common finding in this study which constituted 43% of total cases. Maximum number of cases were found in infective group (53.48%) followed by hyperactive (20.93%). The next common grade was grade III splenomegaly. Infective splenomegaly (44.44%) was the commonest cause of grade III splenomegaly followed by congestive and neoplastic group. The least common grade of splenomegaly in this study was grade IV (4 patients). Commonest cause of grade IV splenomegaly was neoplastic (50%) followed by inflammatory and hyperplastic group (25%) each.⁷

Conclusion

Enlarged spleen is a frequent and important sign in clinical practice. Leukemia, malignant lymphomas, myeloproliferative disorders, megaloblastic anemia, hemolytic anemia, malaria, leishmaniasis, tropical splenomegaly and portal hypertension account for most of the cases. Congestive splenomegaly in adults is common in our country due to chronic hepatitis and cirrhosis

of liver associated with hepatitis B and/or C infection and alcohol. Hemolytic anemia and hematological malignancies commonly cause splenomegaly in adults that require hematological evaluation. Our special mention is megaloblastic anemia which is present in maximum number almost equal to chronic liver disease in our study, if we talk about individual disease.

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