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**Original research article**

# Assessment of etiological factors and clinical outcome of splenomegaly among the children

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**Abstract**

**Introduction:** Splenomegaly is defined as enlargement of spleen. Splenomegaly is a sign which is prominent among infants and children. Aim of this study is to assess the various etiological factors and clinical outcome of splenomegaly among the pediatric cases admitted in RVM Institute of Medical Sciences and Research Centre, Siddipet, Telangana state.

**Methodology:** Hospital based observational study conducted between July 2019 to December 2019. 50 children from 6 months to 18years, with varying grades of Splenomegaly of different etiologies, admitted to pediatric ward of RVM Institute of Medical Sciences, Siddipet. Detailed History was collected by administering semi-structured questionnaire on each case, physical examination and necessary investigations were done wherever required.

**Results:** Male preponderance was seen in present study. Maximum incidence of Splenomegaly was seen between 6 months to 6 years age group (56%).Majority of the cases had moderate Splenomegaly (46.15%). Fever was the most common presenting feature associated with Splenomegaly. Infections (44%) were the most common Cause of Splenomegaly in all study followed by hematologic diseases (36%).

**Conclusion:** Occurrence of Splenomegaly is commonly due to various infections in present study. Males are predominantly having splenomegaly; majority of cases had moderate Splenomegaly.

**Keywords:** Splenomegaly, hematological, infections.

## Introduction

Spleen is the largest lymph node in the body. Anatomy of spleen provides a uniquely close contact between its immunologic tissues and blood. Enlarged spleen is a frequent and important clinical sign.[1]Enlarged spleen may be normal or pathologic [2]. The commonest diseases associated with Splenomegaly were hematologic, hepatic, infectious diseases, congestive disorders and malignancies [3]. Splenic enlargement in new-borns is often due to congenital infection like rubella, toxoplasmosis and cytomegalic disease. Non-infectious cause of neonatal Splenomegaly is erythroblastosis fetalis [4-7]. Aim and Objectives of the present study is to establish the possible cause of Splenomegaly, assess the incidence of Splenomegaly in various age groups and the etiological behind the splenomegaly. The 'tropical Splenomegaly syndrome' is seen in large numbers in patients in New Guinea and Central Africa. Splenomegaly is also associated with Thalassemia, which have a wide distribution throughout tropics. Because of the multiple factors responsible for Splenomegaly in tropical regions, more than one pathology contribute to splenomegaly in a particular patient [8]. A study on Splenomegaly in infants and children in 1973, found congestive disorders as the most common cause of Splenomegaly followed by haematologic [9], which differs with the observations in the present study. In United States, infection was the most common cause of Splenomegaly in children in 1979 [4].

## Methodology

Hospital based observational study conducted between 1st July 2019 to 31st December 2019. 50 children from 6 months to 18years, with varying grades of Splenomegaly of different etiologies, admitted to pediatric ward of RVM Institute of Medical Sciences, Siddipet. Detailed History was collected by administering semi-structured questionnaire on each case, physical examination and necessary investigations were done wherever necessary. The examination of the cases was done according to the given proforma. Enlargement of the spleen is considered if >1-3cms as mild, between 4-7cms below as moderate and above 7cms as massive.[5]Ethical clearance was obtained before the start of the study from RVM Institute ethical committee. Statistical analysis was done by analyzing data on excel sheet and expressing the results as percentages.

**Inclusion Criteria:** Children in the age group of 6 months to 18 years with splenomegaly admitted in

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paediatric wards of RVM Institute of Medical Sciences.

**Exclusion Criteria:** Children with palpable spleen due to lung pathologies.2. Parents of admitted children not given consent to participate in the study.

**Results**

**Table 1:** Showing grades of splenomegaly among the study participants

| Grades of Splenomegaly | Frequency |
|---|---|
| Mild (1-3cms) | 10 |
| Moderate (4-7cms) | 21 |
| Massive (>7cms) | 29 |
| Total | 60 |

Moderate Splenomegaly was observed in 72% followed by 20% of massive Splenomegaly cases.

**Table 2:** Showing incidence of grades of Splenomegaly against the etiology

| Grade of Splenomegaly | Infectious | Hematologic | Miscellaneous | Congestive | Malignancy | Undiagnosed |
|---|---|---|---|---|---|---|
| Mild (1-3cms) | 6 | 3 | 1 | 2 | 1 | 1 |
| Moderate (4-7cms) | 12 | 10 | 2 | 2 | 3 | 2 |
| Massive (>7Cms) | 4 | 5 | 1 | 2 | 2 | 0 |

**Discussion**

The results observed from this study suggests that, Splenomegaly is common below the age of 6 years, which may be due to infections which occur commonly in this age group, further hemolytic disorders likely to occur among this group, the observed findings are similar to a study conducted on Hepatosplenomegaly and anemia from Mumbai also quotes that 60% of children were in the 1-6 years age group [6]. Males are affected more often than females. In present study, 64% of the affected children were males and 36% were females which are comparable with the results of another study conducted in MMC, Khammam on

150 children with Hepatosplenomegaly, Male preponderance was 58.67% while female cases accounts to 41.33% [7]. The incidence of the cause of Splenomegaly is subject to geographical variation. In Western countries, myeloproliferative disorders, hemolytic anemia, leukemia, malignant lymphomas, account most of the cases. In tropical countries, however, the incidence of these hematological causes of Splenomegaly is swamped by the great preponderance of splenic enlargement caused by the parasitic tropical infections, malaria, leishmaniasis and schistosomiasis. The 'tropical Splenomegaly syndrome' is seen in large numbers in patients in New Guinea and Central Africa. Splenomegaly is also associated with Thalassemia, which have a wide distribution throughout tropics. Because of the multiple factors responsible for Splenomegaly in tropical regions, more than one pathology contribute to splenomegaly in a particular patient [8]. A study on Splenomegaly in infants and children in 1973, found congestive disorders as the most common cause of Splenomegaly followed by haematologic [9], which differs with the observations in the present study. In United States, infection was the most common cause of Splenomegaly in children in 1979 [4]. A study from Brazil in 1998, concludes infections as the most common cause of Splenomegaly, the observations are similar with the present study where infections are commonest (22 cases out of 50) cause of splenomegaly followed by hematologic disorders,(18 cases out of 50). Other studies with similar results are conducted by Anusha G *et al* study, 68% of cases showed infectious etiology forming the most common cause of Hepatosplenomegaly in children. In the infectious group, 29.33% were due to Malaria, 13.33% were of Enteric Fever, 11.33% were due to Viral Hepatitis, 6.67% due to Tuberculosis, 4.67% due to Dengue fever, 2.67% are due to Septicemia [7]. In champatiray *et al* study, infections were the most common cause of Splenomegaly constituting 50% of the cases of which Malaria was most common [10].

**Conclusion**

Most of the cases were seen in age group of 6 months to 6 year's age group (56%). Male preponderance (64%) was observed in present study. Moderate Splenomegaly was the most common in present study (46.15%). Commonest etiology or cause of mild and moderate Splenomegaly was infections, among infections, enteric fever was the most common etiology accounting for (10%) cases followed by malaria (8%). Commonest cause of moderate Splenomegaly was infectious disorders (44%) followed by Hematologic disorders (36%). The most common sign associated with Splenomegaly was Hepatomegaly that is (62%), followed by anemia (48%) and then lymphadenopathy (28%).

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