

Histomorphological Pattern of Splenectomy Specimens - A Two Year Study in a Tertiary Teaching Hospital

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ABSTRACT

BACKGROUND

The indications for splenectomy vary from one part of the country to the other. We wanted to evaluate the indications for splenectomy at a tertiary care centre in South India.

METHODS

An observational study was conducted in the Department of Pathology over a period of 2 years. 31 splenectomy specimens were analysed for histomorphological features.

RESULTS

Common indications were trauma spleen (38.70 %) and congestive splenomegaly (58.06 %). The common cause of congestive splenomegaly was sickle cell anaemia.

CONCLUSIONS

Congestive splenomegaly was the commonest indication of splenectomy, followed by traumatic rupture.

KEYWORDS

Splenectomy, Histomorphology, Sickle Cell Anaemia, Trauma

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DOI: 10.18410/jebmh/2020/388

How to Cite This Article:

*Jagadev S, Balaji C, Chappa S, et al.
Histomorphological pattern of
splenectomy specimens - a two year
study in a tertiary teaching hospital. J
Evid Based Med Healthc 2020; 7(35),
1867-1870. DOI:
10.18410/jebmh/2020/388*

*Submission 10-06-2020,
Peer Review 16-06-2020,
Acceptance 30-06-2020,
Published 31-08-2020.*

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BACKGROUND

Spleen is an important organ of the mononuclear phagocytic system and is not protected by bony cage. The common indications of splenectomy are splenic vein thrombosis with bleeding gastric varices, idiopathic thrombocytopenic purpura, physical trauma, spontaneous rupture, hypersplenism due to hemoglobinopathies, tropical splenomegaly and staging of lymphomas.

Due to increase in automobile accidents there is increase in the prevalence of traumatic rupture of spleen. The spleen plays a very important role in haematological disorders and immunosurveillance.^{1,2}

In hemoglobinopathies frequent blood transfusions and splenectomy are only options left to increase survival and quality of life. Splenectomy is indicated in the transfusion-dependent patient when hypersplenism increases blood transfusion requirement and prevents adequate control of body iron with chelation therapy. An enlarged spleen without the need for transfusion is not an indication for surgery. Splenic pathology has not been much studied in this area.^{3,4} The present study aims to draw attention to the histomorphological patterns in splenectomy specimens received in our department.

We wanted to analyse the various histomorphological patterns in splenectomy specimens.

METHODS

This is an observational study carried out over a period of two years from January 2018 to December 2019 in the Department of Pathology at a tertiary care centre. Thirty one splenectomy specimens were analysed. The indications for the splenectomy and other relevant clinical information were recorded.

All the specimens were fixed in 10 % formalin for 24 - 48 hours after sectioning by bread loafing technique and adopted paraffin embedded processing technique. The sections were stained with routine Hematoxylin and Eosin stain. The histopathological slides were reviewed and the microscopic findings were studied and correlated with the clinical data. The results were recorded and analysed.

RESULTS

In the present study, 31 splenectomy cases were analysed. The histopathological spectrum in splenectomy cases were traumatic spleen (Fig. 2) constituting 12 / 31 (38.70 %), congestive splenomegaly 18 / 31 (58.06 %) (Fig. 1, 1A, 1B) and pyogenic abscess 1 / 31 (3.22 %) of cases (Table 1).

Causes of congestive splenomegaly are sickle cell anaemia with cholelithiasis in 3 / 18 (16.66 %), sickle cell anaemia in 4 / 18 (22.22 %), Thalassemia 5 / 18 (27.77 %), Idiopathic thrombocytopenic purpura 4 / 18 (22.22 %) and single case of portal vein thrombosis and splenic vein thrombosis (Table 2).

Trauma was more common in the age group of 41-60 years (5 / 31; 16.21 %), Hemoglobinopathies are more common in the age group of 1-20 years of age (14 / 31; 45.16 %) and Idiopathic thrombocytopenic purpura was more common in the age group of 1-20 years (4 / 31; 12.90 %) (Table 3). The male: female distribution in splenectomy cases was 23:8 (2.8: 1) (Table 4).

Histopathology	Number	Percentage
Trauma	12	38.70
Congestive Splenomegaly	18	58.06
Pyogenic Abscess	1	3.22
TOTAL	31	

Table 1. Histopathological Spectrum of Splenectomy Specimens

Histopathology	Number	Percentage
Sickle Cell Anaemia with Cholelithiasis	3	16.66
Idiopathic Thrombocytopenic Purpura	4	22.22
Thalassemia	5	27.77
Sickle Cell Anaemia	4	22.22
Portal Vein Thrombosis	1	5.55
Splenic Vein Thrombosis	1	5.55
TOTAL	18	

Table 2. Causes for Congestive Splenomegaly

HPE	Number	Age Distribution		
		1 - 20 Years	21 - 40 Years	41 - 60 Years
Trauma	12	4	3	5
Pyogenic Abscess	1	-	-	1
Sickle Cell Anaemia with Cholelithiasis	3	2	1	-
Idiopathic Thrombocytopenic Purpura	4	4	-	-
Thalassemia	5	5	-	-
Sickle Cell Anaemia	4	3	1	-
Portal Vein Thrombosis	1	-	1	-
Splenic Vein Thrombosis	1	1	-	-
TOTAL	18	19 (61.29%)	6 (19.35%)	6 (19.35%)

Table 3. Age Distribution of Various Splenic Lesions

HPE	Number	Sex Distribution	
		Male	Female
Trauma	12	10	2
Pyogenic Abscess	1	1	-
Sickle Cell Anaemia with Cholelithiasis	3	2	1
Idiopathic Thrombocytopenic Purpura	4	2	-
Thalassemia	5	4	1
Sickle Cell Anaemia	4	2	2
Portal Vein Thrombosis	1	1	-
Splenic Vein Thrombosis	1	1	-
TOTAL	18	23 (74%)	8 (25.8%)

Table 4. Sex Distribution of Various Splenic Lesions

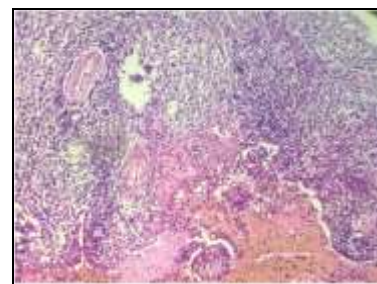


Figure 1.
Congestive Splenomegaly - Expansion of Red Pulp with Congested Blood Vessels and Areas of Haemorrhage (H&E, 100X)

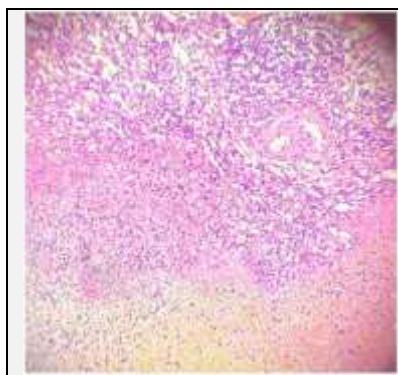


Figure 1A.
Congestive Splenomegaly - Dilatation of Sinusoids with Haemorrhage (H&E, 100X)

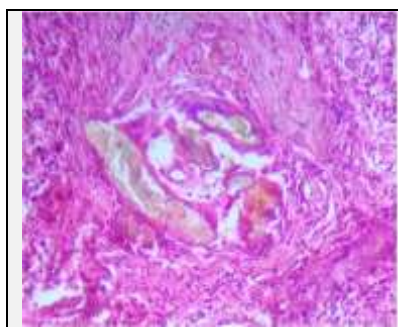


Figure 1B.
Congestive Splenomegaly - Gamma Body Bodies (H&E, 400X)

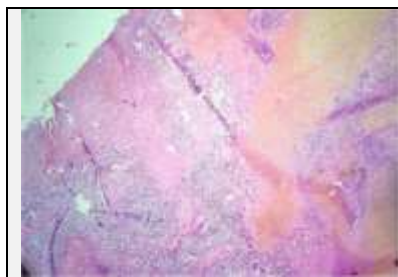


Figure 2.
Trauma Spleen: Areas of Haemorrhage with Plenty of Neutrophils (H&E, 100X)

DISCUSSION

The abdomen is a very vulnerable site for abdominal injuries which is life threatening. Industrialization and increase in the number of automobile industries, road traffic accidents are harshly on the rise in developing countries like India. Blunt trauma abdomen is seen in approximately 79 % of all abdominal injuries. The spleen and liver are the commonly injured following blunt trauma. In 60 % of patients, the spleen is the only organ injured; with a mortality rate of 8.5%. Common clinical indications for total splenectomy is splenic trauma or haematological disorders.^{5,6,7}

M Deodhar et al⁸ analysed 56 patients who underwent splenectomy in a period of eight years. In the study the number of males was 49 and females 7 in number with male: female ratio of 7:1 and age range of 3 - 82 years, mean age being 33.5 years. In Fifty one specimens the cause of splenectomy was splenic trauma and five cases was due to haematological conditions.

Arshed MS et al⁹ studied fifty-five splenectomy specimens. The mean age was 26.7 years. The main indication for splenectomy was haematological lesions and trauma. Abhilash et al¹⁰ analysed 51 patients with splenic injury following blunt trauma with male predominance (94.1

%). The causes for injury are road traffic accident (66.7 %) followed by fall from height (25.5 %).

Rehmani B¹¹ analysed sixty-one patients of splenectomy specimens in 10 years duration. The age ranged from 17 - 79 years with twenty - six males and rest females. Hypersplenism was the commonest indication for splenectomy with eleven cases of primary hypersplenism and twenty - five cases of secondary hypersplenism. Portal hypertension was the major cause of secondary hypersplenism. Among haematological disorders; idiopathic thrombocytopenic purpura (ITP) was the commonest indication for splenectomy and common in young women of age range 20 - 35 years. The histopathology in all the cases of primary hypersplenism was congestive splenomegaly.

Another study by Glass et al¹² showed that the indication for splenectomy was haematological disease in 47% of cases and trauma in 21 % of cases. The most common haematological disorder was ITP.

In a study by Al-Salem¹³ in 26 patients the indication for splenectomy was hypersplenism. Kumar et al¹⁴ reported of 140 adult patients with splenectomy 88 % being due to, idiopathic thrombocytopenic purpura (ITP).

In the present study 31 splenectomy cases were analysed. Common indications were trauma spleen (38.70 %), congestive splenomegaly (58.06 %). The various causes of congestive splenomegaly are sickle cell anaemia with cholelithiasis in (16.66 %), sickle cell anaemia in (22.22 %), Thalassemia (27.77 %), Idiopathic thrombocytopenic purpura (22.22 %) and single case of portal vein thrombosis and splenic vein thrombosis.

Trauma was more common in the age group of 41-60 years (16.21 %), Hemoglobinopathies are more common in the age group of 1 - 20 years of age (45.16 %) and Idiopathic thrombocytopenic purpura was more common in the age group of 1 - 20 years (12.90 %). The male: female distribution in splenectomy cases was 2.8: 1.

CONCLUSIONS

In the present study of splenectomy specimens, majority of the cases showed features of trauma followed by histomorphological features related to haematological disorders predominantly sickle cell anaemia. Larger studies are needed for better understanding of this important organ.

Financial or Other Competing Interests: None.

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