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General Surgery

A PROSPECTIVE OBSERVATIONAL STUDY ON SURGICAL INDICATIONS FOR SPLENECTOMY IN A TERTIARY CARE CENTER.

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ABSTRACT

Background: Spleen mediates important immunologic, storage and hematologic functions. A person can undergo a splenectomy for various causes which includes both surgical and non surgical. The recent trend being towards spleen preservation, it is necessary to critically analyse the indications for splenectomy and assess if the desired post operative outcomes are achieved by splenectomy.

Materials and Methods: This prospective observational study was carried out on patients of Department of General Surgery, Mysore Medical College and Research Institute, Mysore, from august 2017 to November 2019. 45 adult subjects (both male and females) aged ≥ 18 years, who underwent elective or emergency splenectomy for various indications were studied.

Results: The most common indication for splenectomy was trauma in 27 patients(60%) followed by splenic abscess(15.6%). Most of the patients underwent emergency splenectomy i.e., 25 cases(55%) . In our study the majority received blood transfusion, 15.5% developed wound infection and 2 cases(4.4%) needed reexploration due to rebleeding.

KEYWORDS : splenectomy, splenic trauma

I. INTRODUCTION

Spleen is a reticulo-endothelial organ situated in the upper left quadrant of the abdominal cavity which serves as a major site of destruction of abnormal cellular elements of blood and is important in the defense against bacterial infections.[1-3] Since the first deliberate removal of a diseased spleen by Quittenbaum in 1826 splenectomy has become a well established surgical procedure.[4] Splenectomy is performed as a diagnostic and therapeutic procedure for a wide spectrum of indications. The absolute indications include ruptured spleen, treatment of splenic cysts and abscesses as all organs are usually affected, and tumour resection involving adjacent organs. In most institutions, trauma is the primary indication for splenectomy, although it is becoming less common in recent years with more non-operative management of splenic injury.[5] An emergency laparotomy is indicated for a positive FASTin the shocked patient. A CT scan with intravenous contrast is the single most useful investigation in the hemodynamically stable patient as it can assess for intraperitoneal fluid, solid organ injury and retroperitoneal haematoma. Elective splenectomy is a surgical treatment for a wide range of diseases including unexplained splenomegaly, autoimmune, malignant, hereditary and congenital disorders.[6-8] Splenectomy carries a high risk of perioperative complications and predisposes to overwhelming post-splenectomy infections (OPSI).[9] Splenectomy, independent of its indications, induces an early and late increase in the incidence of venous thromboembolism and infections.

The underlying pathology influences the incidence of both complications. Improvement in surgical techniques and laparoscopic splenectomy have reduced the perioperative complications. The risk of overwhelming post-splenectomy infection (OPSI) has significantly reduced due to the availability of perioperative vaccinations but not eliminated.[10] Recent trends show a paradigm shift towards spleen preserving procedure to retain its immunological function and to avoid life threatening complications.[11]The objective of this study is to describe the various indications for splenectomy in a tertiary care centre in South India.

II. Material And Methods

This prospective observational study was carried out on patients of Department of General Surgery, Mysore Medical College and Research Institute, Mysore, with Institutional Ethical Committee approval from August 2017 to November 2019. 45 adult subjects (both male and females) of aged ≥ 18 years were studied.

Study Design: Prospective observational study
Study Location: This was a tertiary care teaching hospital based study done in Department of General Surgery, Mysore Medical College and Research Institute, Mysore
Study Duration: August 2017 to November 2019.
Sample size: 45 patients.

Patients above 18years of age who underwent elective or emergency splenectomy for various indications during the study period were included. Children who underwent splenectomy, patients who had splenectomy as a part of multivisceral resection and patients who had partial splenectomy were excluded.

The data collected were the patient's demographic details, indications for splenectomy (elective vs emergency splenectomy and diagnostic vs therapeutic splenectomy), surgical approach, post-operative complications. Preoperatively all patients underwent investigations including complete haemogram, ESR, USG abdomen, CT abdomen.

These data were tabulated and analysed.
All statistical analyses were performed using SPSS V 16. Descriptive statistics such as frequency and percentages was used to describe the demographic, clinical details and the indications. Institutional Ethical Clearance was obtained prior to starting the study.

III. Result

A majority of the patients were in the age group of 31 – 40 years ie, 20 cases(44%) (Table. 1) and about 66% of the study population were males.

Table 1: Age of study population

Age group	No. of cases
10 – 20	5
21 – 30	11
31 – 40	20
41 – 50	6
51 - 60	3

The most common indication for splenectomy was trauma in 27 patients(60%) (Figure. 1), as all these had grade 4 or 5 injuries and were unstable. This is followed by splenic abscesses(15.6%). Malignancy was present in 4.5 % of cases .Rest all patients underwent splenectomy for other causes like splenic infarct, hydatid disease of spleen , tuberculosis , left sided portal hypertension etc.

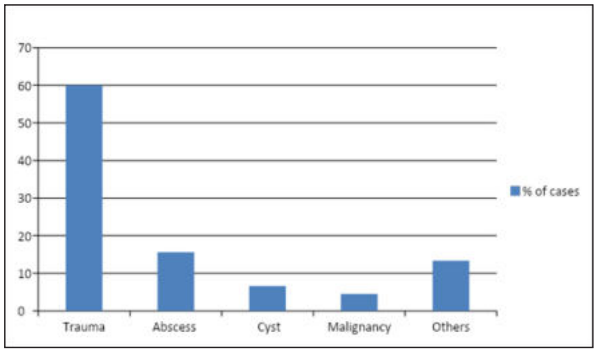

Figure 1: Indications for splenectomy

About 84% of the patients presented with abdominal pain and among them 5 cases had fever in addition to pain. 7 patients were asymptomatic at presentation. Of the study group 18 had hemoglobin value of <10g% at the time of presentation constituting about 40%(fig 2).

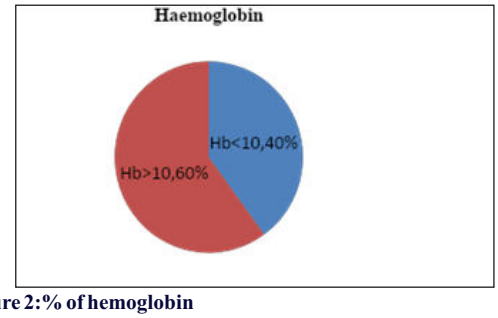

Figure 2:% of hemoglobin

Most of the patients underwent emergency splenectomy i.e., 25 cases(55%) of which 24 cases had splenic trauma (96%) and one had ruptured splenic abscess. Remaining 20 surgeries were conducted electively (Fig 2).

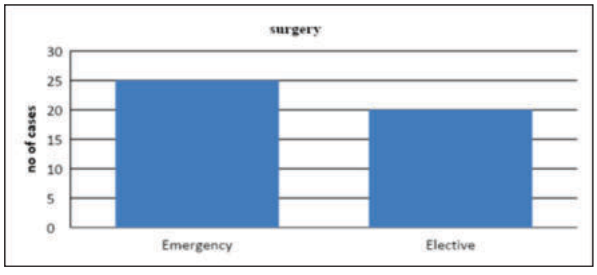

Figure:2 Type of surgery

Among the study group 20 emergency cases and 4 elective cases needed blood transfusion perioperatively (fig 3).

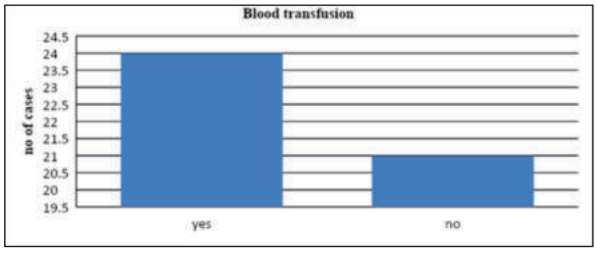

Figure3 :Requirement for Blood transfusion

Postoperatively one trauma patient who underwent emergency splenectomy and one splenic abscess case operated electively developed rebleeding & drop in Hb, hence reexploration was needed. 7 cases developed postoperative wound infection and one had burst abdomen(fig 4)

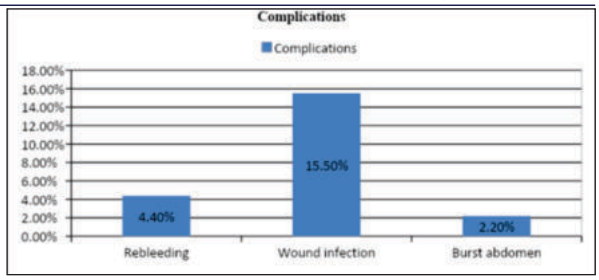

Figure 4: Postoperative complications

I. DISCUSSION

The current management of trauma is usually dictated by the age of the patient, the experience of the institution, the individual surgeon and the type of trauma. But splenectomy or splenic repair is warranted in an unstable patient despite resuscitation. Because the risks of uncontrolled haemorrhage and major transfusion are greater than OPSI, splenectomy should be performed without delay if splenic bleeding is not controlled during laparotomy. In our study the most common indication for splenectomy was trauma followed by splenic abscess. Splenic abscess is not a frequent clinical problem. However, if the diagnosis is missed, splenic abscess does carry very high mortality reaching more than 70% and with appropriate treatment, the mortality can be reduced to less than 1%. A CT scan is the gold standard for diagnosis. The scan also helps doctors to plan treatment by delineating the details of the abscess and the topography of the surrounding structures. The gold standard for treatment of splenic abscess is splenectomy; however, recent studies have shown success using different approaches based on abscess characteristics.

Splenectomy is generally a safe procedure. But as with any surgery, splenectomy carries the potential risk of complications, including:bleeding, blood clots, infection, injury to nearby organs, including your stomach, pancreas and colon. In our study 15.5% developed wound infection and 2 cases(4.4%) needed reexploration due to rebleeding. Majority of the emergency cases and few elective cases underwent blood transfusion perioperatively. It would be prudent to institute similar prophylactic measures in these patients to prevent infection as for asplenic individuals. Pre-operatively, elective patients receive Pneumococcal, Meningococcal and Haemophilus influenza vaccination, at least 2 weeks prior to the surgery. In case of emergency surgery, they receive vaccination as soon as possible. In this study all of them received vaccines as per standard schedule. After discharge from hospital,l all patients were followed up on OPD basis.

II. CONCLUSION

The spleen, whether anatomically and physiologically normal or diseased, may significantly worsen the clinical picture in a variety of medical disorders. However, splenectomy should be undertaken only after careful balancing of the short and long term risks and potential benefits to the patient. Most of this risk seems to be due to the underlying splenectomy indication and not to splenectomy alone. In this study the most common indication for splenectomy was trauma as all these cases had been presented with grade 4 or 5 injury.

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