

THE PATTERN OF INDICATIONS FOR SPLENECTOMY IN BASRAH

Ali Jaffer Aliwi[#] & Zeki A Al-Faddagh[@]

[#]MB,ChB, Al-Mawanee General Hospital. [@]MB,ChB, CABS, Professor of Surgery, Head of Department of Surgery, Basrah Medical College.

Abstract

Splenectomy is performed rather frequently in Basrah city, it is indicated for various disorders including abdominal trauma, hematological disorders and others. This study aimed to analyze the experience in splenectomies performed in Basrah and outlining their different indications.

This is a combined prospective and retrospective study of patients who underwent splenectomy in the five major hospitals in Basrah over 3 years period (2008–2010).

Patients underwent Splenectomy were 213, 54% underwent elective splenectomy while 46% underwent emergency splenectomy. 144 patients were males while 69 patients were females. The most common indications for splenectomy was trauma (44.6 %), B-thalassemia (18.3 %) and sickle B-thalassemia (17.3 %).

In conclusion, the most common indication for splenectomy in Basrah was abdominal trauma followed by hematological diseases, most commonly B-thalassemia and sickle B-thalassemia. All patients underwent conventional open splenectomy, no one underwent minimally invasive approach.

Introduction

The spleen is a prominent reticuloendothelial organ, weighing (70-250) gm, lies between the fundus of the stomach and the diaphragm, under cover of the 9th, 10th, 11th ribs. Normally, the spleen does not project below the costal margin. Its concave medial surface is related to the fundus of the stomach in front and to the upper part of the kidney behind. Its lower part is related to the splenic flexure of colon and the phrenico-colic ligament¹.

The most important functions are immune function, filter function, pitting, reservoir and cytopoiesis².

Splenectomy is a therapeutic procedure for a large amount of conditions³. Historically the first recorded splenectomy was performed on 29 year old woman in 1549 by Adrian Zacarilli⁴.

Trauma to the spleen (blunt, penetrating) is the commonest indication for

splenectomy³, especially after blunt mechanism of injury.

There is important role for conservative management of splenic injury, however, splenectomy is mandatory for hilar injuries, pulverized splenic parenchyma and injury grade II or higher in a patient with coagulopathy or multiple injuries⁵.

Regarding elective splenectomy, recent data suggest that ITP is now the most frequent indication^{3,6}, splenectomy done for those who had failure of medical therapy, prolong or undesirable side effect of steroid or for the first relapse³.

In thalassemia (group of inherited hemoglobinopathies), splenectomy is indicated for excessive transfusion requirement more than 200ml/kg/year, discomfort due to splenomegaly or painful splenic infarction^{3,7}. Regarding WBC disorders, splenectomy is indicated for symptomatic splenomegaly, hyper-

splenism and for improvement some clinical parameters, but, splenectomy doesn't alter the course of the disease³.

In 1970s, splenectomy as part of staging laparotomy for Hodgkin's lymphoma became the most common indication⁸, with introduction of sophisticated modern diagnostic and staging modalities, this indication become the less common⁹.

Elective splenectomy is indicated for hereditary spherocytosis, the condition which result from inherited deficiency of one of RBC membrane proteins (spectrin, ankyrin, band 3 protein or protein 4.2). It is the most common hemolytic anemia for which splenectomy is indicated³.

Splenic abscesses are uncommon conditions with incidence ranging (0.14%–0.7%)³, predisposing factors include malignancy, polycythemia vera, SCD, UTI, IV drug abuse and AIDS. splenectomy is the procedure of choice^{10,11}.

Parasitic infection is the most common cause of splenic cyst worldwide and majority are due to Echinococcus species³, For which splenectomy is indicated.

Wandering spleen is a rare clinical entity characterized by splenic hyper-mobility resulting from laxity or maldevelopment of the suspensory ligaments, it could present as an acute abdomen secondary to torsion of spleen in which splenectomy is mandatory^{12,13}.

Splenectomy is done as part of other procedure, as in enblock resection in CA stomach & CA body of pancreas².

This study aimed to outline the common indications for splenectomy in Basrah.

Patients and method

It is a combined prospective and retrospective study to the patients who underwent splenectomy in the period

extending from January 2008 to November 2010 in the five major hospitals in Basrah in addition to the pediatric surgical center in Basrah.

The number collected was 213 patients, questioner form has been designed, case notes of the all patients was retrieved and reviewed, identity of the patients, demographic data, indication for splenectomy and operative procedure were particularly noted.

The patient who underwent splenectomy in Basrah hospitals but their residency in other governorates were excluded.

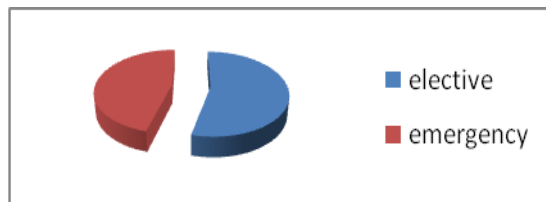
The spleen was approached via conventional open method, in this method the patient is placed in supine position with the surgeon at patient's right. A left subcostal incision paralleling the left costal margin and lying two fingerbreadths below, this is for elective splenectomies. A midline incision for emergency splenectomies, the spleen is mobilized by dividing ligamentous attachments then follows individual ligation and sequential division of short gastric vessels. Splenic hilar dissection then takes place. once the spleen is excised, hemostasis is secured, the bed is not routinely drained. A thorough search for accessory spleens in splenectomies for hematological disorders, at completion of surgery, the nasogastric tube is removed. None of the patient underwent laparoscopic splenectomy.

Chi square and p value has been calculated using SPSS protocol where needed

Results

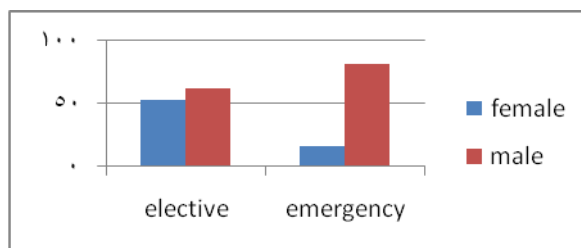
Over the study period (213) patients underwent splenectomy, 115 patients (54%) underwent elective while 98 (46%) patients underwent emergency splenectomy as shown in figure (1).

Figure 1: Patients who underwent elective and emergency splenectomy.



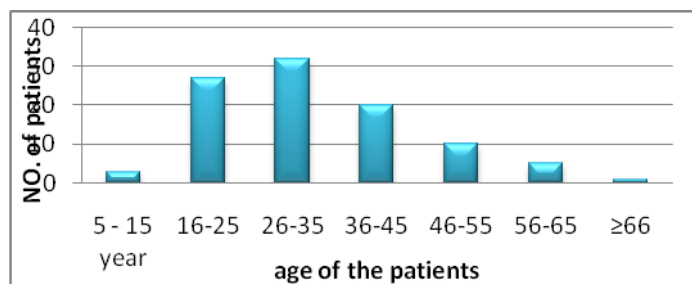
Among the splenectomized patients, 62 male patients (29.1%) and 53 female patients (24.9%) underwent elective splenectomy, while 82 male patients (38.5%) and 16 female patients (7.5 %) have had emergency splenectomy as shown in figure 2.

Figure 2: Sex distribution of the splenectomized patients.



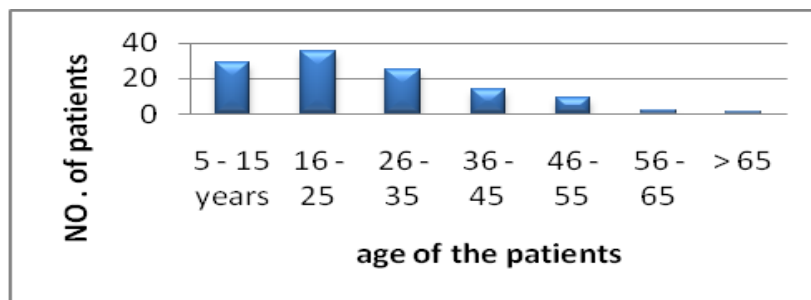
In emergency splenectomy, the age of the majority of patients extend between (16 – 45) year, their mean age was (27.7) year old there was no case reported below the age of 5 years old as shown in figure (3).

Figure (3): Age distribution of patients who underwent emergency splenectomy.



In elective splenectomy, the age of the majority of patients extend between (5-35) year, their mean age was (20.6) year old, no any case reported below the age of 5 year as shown in figure 4.

Figure 4: Age distribution of patients who underwent elective splenectomy.



Indications: 44.6% of patients underwent splenectomy due to trauma, 18.3 % due to B-thalassemia and 17.3 % due sickle B-thalassemia as shown in table I.

Table I: The indications for splenectomy in Basrah.

	Indication for splenectomy	NO of patients	Percentage
1	Trauma	95	44.6%
2	B-thalassemia	39	18.3%
3	Sickle B-thalassemia	37	17.3%
4	ITP	10	4.7%
5	Part of total gastrectomy	8	3.8%
6	Hydatid cyst	6	2.8%
7	Hereditary spherocytosis	5	2.3%
8	Hodgkin s lymphoma	3	1.4%
9	Splenic abscess	3	1.4%
10	Part of distal pancreatectomy	2	0.9%
11	Torsion of wandering spleen	2	0.9%
12	Myelofibrosis	1	0.47%
13	Hairy cell leukemia	1	0.47%
14	Spontaneous rupture of spleen	1	0.47%
	total	213	100%

Among splenectomized patients due to trauma, 69 patients underwent splenectomy due to blunt mechanism of injury and 26 patients due to penetrating mechanism of injury.

There was significant difference between the number of patients who underwent

splenectomy due to abdominal trauma over the years of study period, 43 patients in 2008, 25 patients in 2009 and 27 patients in 2010, with marked elevated number of patients who underwent splenectomy due penetrating injury in 2008.

Table II: The patients who underwent emergency splenectomy due to trauma in each year over the study period. chi square value 11.9, p value 0.003, significant statistical difference exists between the three mentioned years.

Year	Blunt injury	Penetrating injury	Total No.
2008	24	19	43
2009	23	2	25
2010	22	5	27

Discussion

In Basrah, splenectomy is performed rather frequently. Over the period of three years, splenectomy had been done for 213 patients with various conditions, 46% of patients underwent emergency splenectomy and 54% of them underwent elective splenectomy, similar result was found in eastern Saudi Arabia, 43% of patients underwent emergency splenectomy and 57% underwent elective splenectomy⁹. There was slight male preponderance in those patient who underwent elective splenectomy (male : female ratio is 1.7:1), while marked male preponderance in those with emergency splenectomy (male:female ratio is 5.1:1) this reflects the fact that in Basrah the men are more active making them vulnerable to various accident high male preponderance was reported in Kingdom of Saudi Arabia (male:female ratio 29.1:1)¹⁴, whereas Cocanour reported a male : female ratio of 2:1 for a series from Texas in USA¹⁵.

Among the splenectomized patients there was no any patients below 5years old, because of elective splenectomy should be postponed to the age of 5 years or more due to the elevated risk of postsplenectomy sepsis at this age group 3, and the conservative watchful approach in children with trauma^{16,17}. the number of patients who underwent elective splenectomy was higher than those with emergency splenectomy at 5 – 15 year age group, because high incidence of congenital hematological disorders at this age group.

The mean age of the patient who underwent emergency splenectomy was (27.7) years old, this reflect the segment of society that is very actively mobile.

The most common indication for splenectomy was trauma (95 patients 44.6 %) similar result obtained in eastern Saudi Arabia⁹.

Significant difference was found in the number of traumatic splenectomized patients in each year with marked

increase in penetrating injury to the spleen during 2008 (19 patients) while in 2009 there was (2 patients) and 2010 there was (5 patients), this could reflect the fact that there was major military operations in Basrah during March and April 2008.

Hematological disorders vary from one part of the world to other, based on the prevalence of such disease in that region⁸, sickle cell disease and thalassemia are prevalent in Basrha¹⁸. the second most common indication for splenectomy in Basra was B thalassemia (39 patients 18.3 %) followed by Sickle B thalassemia (37 patients 17.3 %) while in AL Qatif in Saudi Arabia the second most common indication for splenectomy is SCD followed by sickle B thalassemia¹⁹.

The incidence of splenectomy due to ITP and HS was low in our study (4.7%, 2.3%) respectively, this reflect the low prevalence of these disorders in our community, low incidence of splenectomy due to ITP and HS was noted in AL Qatif in Kingdom of Saudi Arabis¹⁹, while in western countries the second most common cause for splenectomy is ITP and HS is the most common hemolytic anemia for which splenectomy is indicated³.

Splenectomy has been done as part of other procedures⁸, patients with CA stomach underwent splenectomy as part of radical gastrectomy. Splenectomy in radical gastrectomy is not done as a routine because it does not improve the survival, however splenectomy done where there is direct invasion of the splenic hilum or there is evidence of gross nodal metastasis along the splenic artery²⁰. Also splenectomy was done as part of distal pancreatectomy in 2 patients with tumor in the tail of pancreas.

Although splenic involvement in hydatid disease is uncommon, representing less than 2% to 3.5% of all human infestations by *Echinococcus*^{21,22}, Splenectomy done to 6 patients with hydatid cyst in the

spleen where the parasitic infestation with *Ecchinococcus granulosus* is endemic in our city.

In spite of introduction of sophisticated modern diagnostic and staging modalities, Staging laparotomy with splenectomy has been done in (3 patients 1.4%) with an early stage of Hodgkin lymphoma, because of pathological staging of the abdomen will significantly influence the therapeutic management²³.

Elective splenectomy done to 3 patients due to splenic abscess, they are known case of SCD while one patient underwent emergency splenectomy due to spontaneous rupture of spleen, this patient was known case of SCD with splenic abscess. Splenic infarction is common in patient with SCD and in the presence of bacteremia predisposed by functional asplenia which is not uncommon in those patients making them liable to splenic infection and abscess formation¹⁹.

Two patients underwent emergency splenectomy due to torsion of wandering

spleen which is a rare condition account for less than 0.5 % of splenectomies in reported series¹³.

Although laparoscopic splenectomy is rapidly taking over conventional open splenectomy due its numerous advantages²⁴, no patient in our study had laparoscopic approach due to lack of facilities.

Conclusion

The most common indication for splenectomy in Basra is abdominal trauma followed by hematological diseases, most commonly B thalassemia and sickle B thalassemia, all patient underwent conventional open splenectomy, no one underwent minimally invasive approach.

Recommendation

Introduction of minimally invasive approach in Basrah by increasing the learning for laparoscopic splenectomy and by providing the facilities.

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