Splenectomy In Acquired Hemolytic Anemia

F Parray, N Wani

Citation

F Parray, N Wani. *Splenectomy In Acquired Hemolytic Anemia*. The Internet Journal of Surgery. 2004 Volume 7 Number 1.

Abstract

The therapeutic effects of splenectomy in 18 patients of acquired hemolytic anemia managed from 1982 to 2002 at Sher-i-Kashmir Institute of Medical Sciences, Srinagar (Jammu & Kashmir), India were studied. The mean age was 43 years (range 12-72 years). Male to female ratio was 1:3.5. the main preoperative finding was anemia in all patients. The mean Hb was 7.2 g% (range 5.2-9.0g%). None of these patients presented with thrombocytopenia or leucopenia. The response to splenectomy was excellent i.e., 76% showed complete response and 12% showed partial response. However, the morbidity (16%) and mortality (5.5%) observed was quite high. Overall 88% patients were benefited by the procedure. Thus, we conclude that splenectomy is an excellent treatment to improve hematological parameters in patients with acquired hemolytic anemia refractory to other types of therapy.

INTRODUCTION

Splenectomies have been performed as early as 2.000 years ago, as per references in ancient Greek and Roman literature. The first total splenectomy for disease is attributed to Adriano Zaccarello in 1549, although it has been suggested that excised viscus was an ovarian cyst. Clark (1676) performed splenectomy in dogs with survival. Nicholas Mathias is credited with first total splenectomy for trauma in 1678[1]. Mayo in 1928 did a retrospective study of 500 splenectomies with special reference to mortality and end results. Mainly splenectomies were done for anemia and leukemia; 80 percent patients had very good results and lived comfortably[2].

The land mark report of king and shumacker (1952) poslutated that spleen may play a role in resisting infection particularly in infancy[3] which was supported by other authors in coming years[4].

However, with the advent of safe anaestheia, modern surgical techniques, broad spectrum antibiotics and specific vaccines, the morbidity and mortality following splenectomy is definitely on a decline, hence more and more studies were conducted in last 35 years in an attempt to determine the true morbidity, mortality and long term infection following splenectomy.[5,6,7]

MATERIAL & METHODS

Our Study included 18 patients with various hematological disorders subjected to be splenectomy from 1982 to 2002 at Sher-i-Kashmir institute of Medical Sciences Srinagar (J&K) India in the department of Surgery.

Medical records of all retrospective cases were reviewed. Preoperative management included a detailed clinical examination, hematological and coagulation studies. Patients with very low hemoglobin were build up with pre-operative transfusions of whole blood. Preoperative antibiotics like ampicillin and gentamycin or a third generation cephalosporin were used for prophylaxis. Cortiosteroids were given in the pre-operative period in all patients. All patients were put on I/V fluids post operatively for 24-48 hours. Hydrocortisone was used and tapered for 48-72 hours in the post-operative period. Antibiotics were routinely given in the post operative period.

A preset routine was followed by taking blood samples on day “0” , day “3” and day “7” for assessment of hematological parameters which included hemoglobin (Hb%), total leukocyte count (TLC) and platelet count (PC) and again on follow up in 1st month, 3rd month and 6th month. The mean of all these readings were used for comparison with pre-operative parameters to assess the response as described under:[7,8,9,10]

Response in an anemic patient

Figure 1

1. Complete response (CR)	-	Hb 10g% or above.
2. Partial response (PR)	-	Hb 8-10g%.
3. No response (NR)	-	Hb< 8g%.

Since none of the patients in this group presented with thromobocytopenia or leucopenia, hence those criteria are excluded here[8,9,10].

The follow up was complete in 94% cases. The duration of follow-up ranged from 1 week to 8 years with a mean of 8 months. The diagnosis of all these patients was confirmed after surgery by histopathological examination of spleen.

RESULTS

The age distribution ranged from 12-72 years. Mean age was 43 years. Male to female ratio was 1:3.5. the preoperative hematological parameters of our study group are described in Table 1. Mean Hb was 7.2g%. The response to splenectomy is described in Table 2. the mean splenic weight was 830 gms (range 225-2000 grams). The accessory spleen was found in 2 patients (10%). The morbidity was quite significant; 3 patients (16%) developed complications; 2 developed intra abdominal abcess and other patient developed wound dehiscence. One patient (5.5%) died on 7th post operative day secondary to sepsis who was the youngest patient in the study group.

Figure 2

Table 1: Preoperative hematological parameters (n=18)

Disorder	Range	No. of pts	percentage
Anemia	Hb < 8g% Hb 8-10g%	12 6	(67) (33)
Thromboytopenia	X	Nil	X
Leukopenia	X	Nil	X

All patients presented with anemia and none of the patients with thrombocytopenia or leucopenia.

Figure 3

Table 2: Response to Splenectomy

Disease	Total No. of patients	Response Mean post. Operative Hb%		Percentage
Acquired Hemolytic Anemia	17	CR (Hb > 10g%) PR (Hb 8-10g%) NR (Hb < 8g%)	13pts 2 Pts 2 pts	76 12 12

One patient died in post-operative period (not included)
CR = Complete Response
PR = Partial Response
NR = No Response

DISCUSSION

The blanket term embraces all hemolytic disorders that are not due to inborn defects in the red blood corpuscles. It is possible to define 2 broad groups, an autoimmune and a secondary. In autoimmune an antibody has developed which coats the erythrocyte and shortens its survival by rendering it more liable to phagocytosis in the spleen and elsewhere. It may arise apparently spontaneously (idiopathic acquired hemolytic anemia) or during the course of certain infections and of disease involving antibody producing cells. Almost always the presence of antibody can be demonstrated by a positive direct antiglobulin reaction, the comb's test. In the secondary group an antibody cannot be demonstrated and the coomb's test is usually negative. It includes certain abnormalities (acquired) or the erythrocyte, for example pernicious anemia, malaria, chronic infection, extensive burns and has been reported after implantation of plastic heart valves. It may also occur in association with malignant tumors in young people.[11] In our study group of 18 patients mean age was 43 years (range 12-72 years) consistent with Musser et al[7] but less then other study[12] out of 18 patients, 4 patients were males (22%) and 4 patients (78%) were females consistent with other studies[13] but on the contrary some authors report a higher incidence of males[7]. the main pre-operative hematological finding was anemia in all the patients. The mean Hb was 7.2g% (range 5.2 -9.0g%). None of the patients presented with thrombocytopenia or leucopenia. All the patients were on steroids pre-operatively. All the patients received whole blood in the pre-operative period. Splenectomy drastically decreased the need of post operative transfusions.

All patients were subjected to elective splenectomy. 3 patients (16%) developed complications in the postoperative period. 2 patients developed intraabdominal abscess and other patient developed wound dehiscence. 1 patient (5.5%) was lost on 7th postoperative day secondary to sepsis. 2 patients (10%) were found to have accessory spleen quite less as observed in other study[6]. The mean splenic weight was 830 gms (range 225-2000 grams) quite near to Musser et al. (1984) study[7]. Our results of morbidity and mortality (16% & 5.5%) are somewhere between as observed by others[12,13].

The response to splenectomy in terms of hematological parameters was excellent. Out of 18 patients, 13 patients (76%) showed complete response, 2 patients showed partial response (12%) while as 2 patients did not improve (12%). Overall 88% patients were benefited by the procedure. Thus, we conclude that splenectomy is an excellent form of treatment to improve hematological parameters in patients with acquired hemolytic anemia refractory to other types of therapy provided the patient is diagnosed, discussed and prepared for the surgery by an expert team of a hematologist and a surgeon.

CORRESPONDENCE TO

Dr. Fazl Q. Parray 44-Rawalpora, Govt. Housing Colony.

(Sanat-nagar), Srinagar -190005 J&K India Tel No: 0194-2433433,2431155 E-mail: fazlparray@rediffmail.com

References

1. Cooper MJ and Williamson RCN: Splenectomy: Indication, hazards and alternative. Br J Surg 1984; 71:173-80.
2. Mayo WJ: A review of 500 splenectomies with special reference to mortality and end results. Annals of surg 1928; 88: 409-15.
3. King H, Shumacker HB (jr): Splenic studies: Susceptibility to infection after splenectomy performed in infancy. Annals of surgery 1952; 136:239-41.
4. Horan M and colebatch JH. Relation between splenectomy and subsequent infection. Arch Dis. Childhood 1962;37:398-414.
5. Al-Awani SMSW, Al-Saleem HA, Knox Macaulay H, et al; splenectomy for hematological disorders in Eastern province of Saudi Arabia. Int. surg 1992; 77:60-63.
6. Little JM: A prospective study of 100 splenectomies Aust N.Z. J.Surg Aug, 1978; 48-4: 390-96.
7. Musser G, Lazar G, Hocking W, et al. splenectomy for hematological disease. Annals of Surg 1984; 200: 40-5.
8. Wani NA and Parray FQ: Therapeutic splenectomy in Immune thrombocytopenic purpura. World J.Surg 2000; 24; 92-94.
9. Wani NA and Parray FQ: Therapeutic splenectomy in hematological disorders. JK Practitioner 2001; 8-3: 143-146.
10. Parray FQ, Wani NA and wani KA. Therapeutic splenectomy in Hereditary spherocytosis. JK Practitioner 1998; 5-4: 280-82.
11. Macpherson AIS: Prognosis after splenectomy journal of the Royal College of Surgeons of Edinburgh Jan 1981; 26, 1:12-27.
12. Albrechtsen D and Ly B: Complication after therapeutic splenectomy for hematologic disease in adults. Acta Clinc Scand 1980; 146:577-81.
13. Dawson AA, Jones PF and King GJ: Splenectomy in the management of hematological disease. Br. J.Surgery 1987; 74: 353-7.

Author Information

Fazl Q. Parray, M.S.
Assistant Professor, Department of Surgery, Sheri-Kashmir Institute of Medical Sciences

Nazir A. Wani, M.S FRCS, FICS.
Ex. Chairman & Head, Department of Surgery, Sheri-Kashmir Institute of Medical Sciences