

Splenectomy: Indications in the General Surgery Department of Ignace Deen Hospital

Mamadou Sakoba Barry^{1,2}, Boubacar Barry¹, Sandaly Diakité^{1,2}, Aboubacar Touré^{1,2}, Aissatou Taran Diallo^{1,2}

¹General Surgery Department, Ignace Deen National Hospital at Conakry University Hospital, Conakry, Guinea

²Faculty of Health Sciences and Technology, Gamal Abdel Nasser University of Conakry, Conakry, Guinea

Email: sakoba1983@mail.com

How to cite this paper: Barry, M.S., Barry, B., Diakité, S., Touré, A. and Diallo, A.T. (2024) Splenectomy: Indications in the General Surgery Department of Ignace Deen Hospital. *Surgical Science*, 15, 219-224. <https://doi.org/10.4236/ss.2024.154021>

Received: March 11, 2024

Accepted: April 20, 2024

Published: April 23, 2024

Copyright © 2024 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0). <http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Introduction: Splenectomy is the surgical removal of the spleen. It can be performed during various pathologies, ranging from abdominal trauma to hemoglobinopathies. The progress made in the knowledge of the immune functions of the spleen and the fear of post-splenectomy infectious complications have favored the development of surgical or non-surgical splenic preservation techniques calling into question the dogma of splenectomy. The aim of this study was to determine the indications for splenectomy. **Methodology:** This was a retrospective, descriptive study lasting 5 years in the general surgery department of the Ignace Deen National Hospital. All files of splenectomized patients were included, our variables were clinical, therapeutic and progressive. **Results:** We collected 42 cases of splenectomies out of the 2478 surgical procedures performed, representing 1.7% of the department's surgical activities. The average age was 44 years. The age group of 41 to 50 years was the most represented, *i.e.* 26% (n = 11) of cases. Sex ratio = 1. Abdominal pain was the reason for consultation in patients, *i.e.* 100% (n = 42) of cases. The antecedents were dominated by recurrent malaria with 52.3% (n = 22) of cases, then recurrent anemia in 21% (n = 9), and 16.7% (n = 7) had sickle cell disease. Splenomegaly was found in 31 patients, or 73.6%. Ultrasound was performed in all patients. The indications for splenectomy were: isolated splenomegaly with risk of rupture (38%, n = 16), hypersplenism (26%, n = 11) and trauma to the spleen (19.04%, n = 8). Total splenectomy was performed in all cases. The surgical consequences were favorable in 85.7%, (n = 36) with morbidity of 14% (n = 6) and mortality of 9.52% (n = 4). The average length of hospitalization was 10.4 days with extremes of 1 and 22 days. **Conclusion:** Splenectomy constitutes a relatively common surgical procedure in our context. The indications for splenectomy were isolated splenomegaly with risk of rupture, hypersplenism and trauma to the spleen and total splenectomy was the rule.

Keywords

Splenectomy, Indications, Ignace Deen

1. Introduction

Splenectomy is the surgical removal of the spleen. It can be performed during various pathologies, ranging from abdominal trauma to hemoglobinopathies [1].

The progress made in the knowledge of the immune functions of the spleen and the fear of post-splenectomy infectious complications have favored the development of surgical or non-surgical splenic preservation techniques calling into question the dogma of splenectomy [2].

Currently, hematological diseases constitute the main indication for “cold” splenectomy. It is effective on hemolysis by allowing a significant increase in the lifespan of red blood cells and reduces the incidence of pigmentary cholelithiasis [3]. It exposes patients to a significant infectious risk, the incidence of which is 2% and mortality around 1.4% [4].

Manual assistance techniques, different laparoscopic approaches, new coagulation instruments and hemostatic products have simplified the surgical procedure and favored indications in cases of hematological diseases and/or splenomegaly [5].

Several authors believe that conservative surgery has a beneficial effect on the prevention of infectious accidents by reducing splenic hyperactivity without affecting the defense potential with the risk of recurrence of clinical manifestations of a hematological nature while placing emphasis on vaccination [6].

The management of splenectomized patients today represents a real public health issue. This is a potentially serious situation because removal of the spleen carries a risk of serious bacterial infections, with particular susceptibility to encapsulated bacteria, notably pneumococcus, which is involved in 50% to 80% of infections [7].

The objective of this work was to determine the indications for splenectomy in the general surgery department of the Ignace Deen National Hospital.

2. Methodology

This was a 5-years descriptive retrospective study, from January 1, 2017 to December 31, 2021, carried out in the general surgery department of the National Ignace Deen Hospital, Conakry University Hospital.

The study material consisted of consultation registers, operative reports and patient files.

All complete files of patients admitted and splenectomized regardless of the indication for splenectomy and the age of the patient were included in the study. In this study, we excluded incomplete patient files.

Were not included in the study patients whose treatment did not involve

splenectomy.

We carried out an exhaustive recruitment of all patients who underwent splenectomy in the surgical department during the study period.

The study variables were sociodemographic, clinical, therapeutic and prognostic. The data were collected using a pre-established sheet and were entered using World, Excel and Power Point software from the Office 2016 pack and analyzed using Epi Info software in version 7.2.2.6 and SPSS version 19;

The statistical comparison test was the Chi² with a risk $p < 0.05\%$ considered statistically significant with a 95% CI.

3. Results

During our study we collected 42 cases of splenectomy files out of the 2478 surgical interventions performed, representing 1.7% of the department's surgical activities.

The average age of the patients was 44 years with extremes of 6 and 79 years. The age group of 41 to 50 years was the most represented with 26.19% ($n = 11$), the other Sociodemographic characteristics of patients are listed in **Table 1**.

Table 1. Sociodemographic characteristics of patients.

Characteristics	Effective	Percentage
Sex		
Male	21	50
Female	21	50
Sex-ratio = 1		
Age range		
≤10	5	11.90
11 - 20	1	2.38
21 - 30	3	7.14
31 - 40	8	19.05
41 - 50	11	26.19
51 - 60	4	9.52
61 - 70	5	11.90
>70	5	11.90
Average age = 44 years		Extreme: 6 and 79 years
Socio-professional category		
Cultivators	9	21.43
pupil/student	7	16.67
Civil servants	6	14.29
Housewives	14	33.33
Workers	6	14.29

There was no sexual predominance. Abdominal pain was the main reason for consultation found in all patients, in 100% of cases. Fever in 52% (n = 22), abdominal distension in 66.6% (n = 28). Regarding the history, recurrent malaria was found in 52.3% (n = 22), recurrent anemia with thrombocytopenia in 21% (n = 9) and sickle cell disease in 16.7% (n = 7). Physical examination revealed splenomegaly in 73.6% (n = 31) cases. Ultrasound was performed in all patients. Isolated splenomegaly with risk of rupture, hypersplenism and trauma to the spleen were the main indications for splenectomy during our study (**Table 2**). Total splenectomy by laparotomy was performed in all patients (100% of cases). The average length of hospitalization was 10.4 days with extremes of 1 and 22 days. The surgical outcomes were favorable in 85.71% (n = 36) of cases. Morbidity linked to surgical site infection represented 2 patients, for a percentage of 4.76. A mortality of 9.52% (n = 4) cases were recorded. Among the deaths, we noted anesthetic shock (2.38%) and 3 (7.14%) by hemorrhagic shock.

The monitoring of the patients' progress over the 6 months postoperatively revealed no complications.

Table 2. Frequency of indications.

Indications	Effective	Percentage
Isolated massive splenomegaly	16	38.10
Hypersplenism	11	26.19
Spleen trauma	8	19.04
Spleen tumor	2	4.76
Total	42	100

4. Discussion

The limitations of this study were the poor record keeping and the lack of monitoring of progress beyond 6 months.

During the study period, we recorded a significant frequency of splenectomies. Our result was similar to that reported by Davidson RN *et al.* In France [6] who found 1.4% of splenectomies out of all the interventions carried out at the Lille University Hospital. In our context, splenectomy is performed immediately for all trauma to the spleen.

We noted a predominance of young adults. The same observation was made by Hafsia R. *et al.* [7] in Tunisia who reported an average age of 27.7 years. On the other hand, Koffi KG *et al.* [8] in Ivory Coast found an average age of 11.43 years old. This difference could be explained by the fact that the study by Koffi G *et al.* was carried out in pediatric surgery.

Recurrent malaria, recurrent anemia and sickle cell disease were the main predisposing factors to the splenomegaly found in our study. The same observation was made by Kouadio K *et al.* [9] in Ivory Coast. Our country being a country of endemic parasites, notably malaria and the low use of mosquito nets

within the population on the one hand, on the other hand the spleen which reacts by increasing in volume during the sequestration of red blood cells in diseases hemolytics explain the high frequency of these factors.

In addition to the hemostasis splenectomies reported in our series, the other indications are comparable to those of Kouadjo K *et al.* [9] in Ivory Coast, who found that the main indications were isolated massive splenomegaly with risk of rupture in 88.5% of cases and cytopenia due to hypersplenism in 79.5% cases. These results are similar to those found by Legrand A *et al.* [10] in France who noted in their sample on the risk of infection in splenectomized patients that the indication for splenectomy was reported in 47% for an underlying pathology (haematological, tumor or hypersplenism indication), 36% were hemostasis splenectomies (iatrogenic or traumatic) and 17% were performed for diagnostic purposes.

Total splenectomy was performed in all patients in our study. The same observation was made in Dakar, Senegal by Diouf and Coll [1].

On the other hand, Koffi KG *et al.* [8] in Ivory Coast reported 28% of partial splenectomies. Partial splenectomy may be indicated in children because it reduces anemia and the need for transfusion in severe forms of hemoglobinopathy while preserving residual immune function of the spleen with the need to subsequently perform a total splenectomy in the majority of cases [8].

It currently represents an effective therapeutic means of Splenomegaly. This involves improving cytopenia due to hypersplenism, and/or avoiding spontaneous rupture of the diseased organ, and/or eliminating pain and/or treating and preventing infection [11].

The morbidity rate found in our study was comparable to that reported by Aeron *et al.* who found in their study a morbidity of 7.5% [12].

This result is different from the results of Djouf C *et al.* [1] who reported a case of death from hemorrhage following hemostasis disorders and Kouadio K *et al.* [9] who reported a case of death occurring after hemoperitoneum due to loosening of the vascular pedicle ligation. In the literature there is no consensus on a precise duration during which a patient who has undergone a splenectomy must be hospitalized [13]. However, it lasts around 10 days [14].

5. Conclusions

Splenectomy is a relatively common surgical procedure in our environment. The main indications were massive splenomegaly, trauma to the spleen and hypersplenism and total splenectomy by laparotomy was the rule in our study.

The use of the vaccine, the establishment of an adequate technical platform and the acquisition of surgical laparoscopy could improve the vital prognosis of patients.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Diouf, C., Ndoeye, N.A., Fall, M., Faye, A.L., Kane, A., *et al.* (2020) Indications and Results of Splenectomy in Children in the Pediatric Surgery Department of the Aristide Le Dantec University Hospital: About 10 Cases African and Malagasy Review for Scientific Research. *Health Sciences*, **1**, 1107-1113.
- [2] Rapp, C., Debord, T., Imbert, P., Lambotte, O. and Roué, R. (2002) Spontaneous Splenic Rupture in Infectious Diseases: Splenectomy or Conservative Treatment? Report of Three Cases. *La Revue de Médecine Interne*, **23**, 85-91.
[https://doi.org/10.1016/S0248-8663\(01\)00518-5](https://doi.org/10.1016/S0248-8663(01)00518-5)
- [3] Bonnet, S., Guédon, A., Ribeil, J.-A., Suarez, F., Tamburini, J. and Gaujoux, S. (2017) Indications and Outcome of Splenectomy in Hematologic Disease. *Journal of Visceral Surgery*, **154**, 421-429. <https://doi.org/10.1016/j.jviscsurg.2017.06.011>
- [4] Bisharat, N., Omari, H., Lavi, I. and Raz, R. (2001) Risk of Infection and Death among Post-Splenectomy Patients. *Journal of Infection*, **43**, 182-186.
<https://doi.org/10.1053/jinf.2001.0904>
- [5] Borie, F. and Philipe, C. (2009) Laparoscopic Splenectomy: Indications, Principles and Results. *Journal of Surgery*, **146**, 336-346.
<https://doi.org/10.1016/j.jchir.2009.08.030>
- [6] Davidson, R.N. and Wall, R.A. (2001) Prevention and Management of Infections in Patients without a Spleen. *Clinical Microbiology and Infection*, **7**, 657-660.
<https://doi.org/10.1046/j.1198-743x.2001.00355.x>
- [7] Hafsia, R., Zriba, S., Gouider, E., Bensalah, N., Borji, W. and Zaouche, A. (2009) Splenectomy in Constitutional Hemolytic Anemia: About 82 Tunisian Cases. *Medical Tunisia*, **87**, 323-327.
- [8] Koffi, K.G., Sanogo, I., Toure, A.H., Allangba, O.T., N'drioka, D., Aguehoude, C. and Sangare, A. (2000) Indications for Splenectomies in Major Hemoglobinopathies: About 21 Cases. *Médecine d'Afrique Noire*, **47**, 426-429.
- [9] Kouadio, K., Kouassi, J., Ehua, S., Kanga-Miessan, J. and Turquin, T. (2006) Splenectomies for Splenomegaly in Ivory Coast, Indications and Early Results. *Mali Medical Abidjan*, **3**, 1-26.
- [10] Legrand, A., Bignon, A., Borel, M., Zerbib, P., Langlois, J., Chambon, J.P., *et al.* (2005) Perioperative Management of Asplenic Patients. *Annales Françaises d'Anesthésie et de Réanimation*, **24**, 807-813. <https://doi.org/10.1016/j.annfar.2005.05.002>
- [11] Nghario, L., Ehua, S.F., Yassibanda, S., Coulibaly, A., NaliN, M. and Kanga, M.J.B. (2004) Splenectomy in Hematological Disorders. Indications and Results. About 22 Cases. *Médecine d'Afrique Noire*, **51**, 345-349.
- [12] Leshner, A.P., Kalpatthi, R., Glenn, J.B., Jackson, S.M. and Hebra, A. (2009) Outcome of Splenectomy in Children Younger than 4 Years with Sickle Cell Disease. *Journal of Pediatric Surgery*, **44**, 1134-1138. <https://doi.org/10.1016/j.jpedsurg.2009.02.016>
- [13] Gonzalez, M., Bucher, P., Ris, F., Anderegen, E. and Morel, P. (2008) Trauma to the Spleen: Predictors of Failure of Nonoperative Treatment. *Journal of Surgery*, **145**, 5-37.
- [14] Arikan, S., Yücel, A.F., Adas, G., Culcu, D., Gülen, M. and Arinc, O. (2001) Splenic Trauma and Treatments. Haseki Educational and Research Hospital Surgical Department Survey of the Feasibility of Surgery for Splenic Trauma. *Ulus Travma Acil Cerrahi Derg*, **7**, 250-253.