

Splenectomy in the Surgery Department “A” at the University Hospital Point G Bamako

O. Sacko¹, M. Sissoko¹, S. Koumaré¹, L. Soumaré¹, M. Camara¹, S. Keita¹, S. Diallo², D. Dakouo¹, M. Coulibaly¹, A. Diakit¹, M. Traoré³, G. Soumaré⁴, A. F. Traoré¹, B. Touré⁵, M. Diallo⁶, M. Konaté⁶, A. Koné¹, Y. Dianessy¹, B. Traoré¹, A. Koita¹, Sanogo Zimogo¹

¹Department of Surgery “A”, University Hospital of Point G, Bamako, Mali

²Department of Surgery “B”, University Hospital of Point G, Bamako, Mali

³Department of Gynecology-Obstetrics, University Hospital of Point G, Bamako, Mali

⁴Department of Internal Medicine, University Hospital of Point G, Bamako, Mali

⁵Department of Hematologie, University Hospital of Point G, Bamako, Mali

⁶Reference Health Center of Commune 6, Bamako, Mali

Email: ousacko72@gmail.com

How to cite this paper: Sacko, O., Sissoko, M., Koumaré, S., Soumaré, L., Camara, M., Keita, S., Diallo, S., Dakouo, D., Coulibaly, M., Diakit, A., Traoré, M., Soumaré, G., Traoré, A.F., Touré, B., Diallo, M., Konaté, M., Koné, A., Dianessy, Y., Traoré, B., Koita, A. and Zimogo, S. (2019) Splenectomy in the Surgery Department “A” at the University Hospital Point G Bamako. *Surgical Science*, 10, 347-354.

<https://doi.org/10.4236/ss.2019.1010038>

Received: August 9, 2019

Accepted: October 6, 2019

Published: October 9, 2019

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Abstract

We conducted a retrospective study that included patients with erythrocyte and hemolytic pathology justifying a splenectomy and patients presenting splenic trauma for which hemostasis splenectomy is required. We performed 27 total splenectomy in which 26 are by laparotomy (92.86%) and 1 by laparoscopy (3.57%). A partial splenectomy was performed by laparoscopy. The morbidity was marked by 2 cases of infectious syndrome and 1 case severe anemia. The mortality was 7.14% (n = 2). Splenectomy is part of the therapeutic arsenal for benign or malignant hematological disorders that constitute the main indication for elective splenectomy. Splenectomy was one of the most common operations in abdominal surgery. During the past decade, an increased rate of late complications, specially septic and thromboembolic complications are well documented. The risk is related to the indication of splenectomy, and is less than 1% in adults without immunodeficiency. However, these overwhelming postsplenectomy infections are associated with a high mortality rate. The best treatment of these infections is preventive measures which are based on vaccination and education of asplenic patients.

Keywords

Splenectomy, Hematology, Septic Complication, Vaccination

1. Introduction

The spleen is often the seat of several local and general affections which are often

manifested by splenomegaly that can put the patient's vital prognosis at risk. Therefore they justify more and more practice of ablation of the spleen for therapeutic purposes. The purpose of splenectomy is to treat local disease and complications related to splenomegaly. Affections leading to splenomegaly are numerous in intertropical Africa. Their frequency varies from one country to another 1% - 2% [1] [2]. Hemopathies, whether benign or malignant, constitute more than half of the indications for splenectomy. The other indications are represented by portal hypertension accompanied by hypersplenism, infectious pathology, benign or malignant tumor pathology, overload diseases and trauma. However, this therapeutic or hemostatic splenectomy can be complicated by hemorrhage, severe pneumococcal infection and thromboembolism. In Mali the hospital frequency was 0.29% (26 cases) [1] [2]. The objective of this work was to determine the frequency, the operative indications and the therapeutic modalities.

2. Methodology

This was a retrospective and descriptive study conducted from January 2007 to December 2016, for a period of 10 years, in the "A" surgery department at Point-G Hospital. Included in this study were all patients admitted and operated on for splenomegaly (erythrocyte and hemolytic pathology) and splenectomy performed in an emergency for splenic trauma. The clinical and paraclinical parameters as well as the surgical procedure were studied. Apart from cases of splenic trauma, all the patients were referred to us by the doctors of the hematology and internal medicine department. The classification of splenomegaly was made according to that of Hackett. The consent of the patients was obtained in writing. The analysis of the data was done using the Epi info version 6.0 software.

3. Results

We collected 28 cases of splenectomy, the male sex accounted for 53.57% (n = 15) and the female 46.43% (n = 13). The sex ratio was 1.15 in favor of men. The average age was 37.18 years, 60.71% of our patients were referred to us by hematologist physicians.

The reason for consulting our patients is reported in **Tables 1-5**.

Table 1. Distribution of patients by reason of admission.

| Reason for admission | Frequency | Percentage |
|--------------------------------|-----------|------------|
| Splenomegaly | 13 | 46.43 |
| Abdominal-pelvic mass | 10 | 35.71 |
| Splenic sequestration | 3 | 10.71 |
| Post-traumatic spinal bleeding | 2 | 7.14 |
| Total | 28 | 100 |

Table 2. Distribution of patients according to the result of the clinical examination.

| Palpation | Frequency | Percentage |
|--------------------------------|-----------|------------|
| Mass of the left hypochondrium | 16 | 57.14 |
| Left flank mass | 4 | 14.29 |
| Mass of the left iliac fossa | 7 | 25 |
| Peritoneal irritation | 1 | 3.57 |
| Total | 28 | 100 |

Table 3. Distribution patients as indicated operative.

| Etiology | Frequency | Percentage |
|--------------------------|-----------|------------|
| Isolated hypersplenism | 6 | 21 |
| Drepanocyt dares | 6 | 21 |
| Splenic lymphoma | 6 | 21 |
| Splenic cyst | 3 | 11 |
| Beta-thalassemia | 2 | 7.5 |
| Thrombocytopenic purpura | 3 | 11 |
| Traumatisme | 2 | 7.5 |
| Total | 28 | 100 |

Table 4. Distribution of patients according to the surgical procedure.

| Procedure | Effective | Percentage |
|---------------------|-----------|------------|
| Laparotomy | 26 | 92.86 |
| Laparoscopy | 2 | 7.14 |
| Total splenectomy | 27 | 96.43 |
| Partial splenectomy | 1 | 3.57 |

Table 5. Distribution according to the notion of transfusion.

| Concept of transfusion | Frequency | Percentage |
|------------------------|-----------|------------|
| No transfused | 17 | 60.71 |
| Inoperative | 7 | 25 |
| Post operative | 2 | 7.14 |
| Preoperative | 2 | 7.14 |
| Total | 28 | 100 |

Splenomegaly was the most frequent reason for consultation with a rate of 46.43%. The mean duration of progression of the disease was between 0 and 5 years, was the most common with a percentage of 67.86% of patients admitted for splenomegaly, 35.71% of the splenectomized patients had a good general condition with an index of WHO performance side grade 2.

Palpation found a mass of the left hypochondrium in 57.14% of patients. Stage 2 splenomegaly of Hackett was the most common stage with a rate of 60.7% of cases. The abdominal ultrasound was the imaging examination performed in 93% of the cases (n = 26). CT was performed in 7.14% of cases (n = 2).

All patients received postoperative immediate (100% of cases) pneumo 23 vaccine and antibiotic therapy was instituted in all patients.

The follow-up was simple in 82.14% of cases, they were complicated in 3 patients (10.72% of cases), including 2 cases of infectious syndrome, and decompensated anemia (1 case). Mortality was 7.14% (n = 2).

4. Discussion

We collected 28 cases of splenectomy for a 10-year period, *i.e.* an annual hospital frequency of 2.8%, which corresponds to the frequency reported by some authors [1] [2], the average age of patients was 37 years. Male sex accounted for 53.57% of cases with a sex ratio of 1.15 in favor of men. These epidemiological data found in this work confirm that of the literature [3] [4]. The doctors of the hematology department sent us 26 patients or 92.85% for surgical management of their splenomegaly, 2 patients or 7.14% were received in an emergency context for splenic trauma following a car accident public roads. The most common physical sign found in our patients was a mass of the left hypochondrium corresponding to splenomegaly (n = 16) or 57.14% of cases, 60.7% of splenomegaly was classified stage 2 of Hackett. Ultrasound was the morphological examination requested (93% of cases), it was contributory in 100% of cases, sensitivity in the diagnosis of splenomegaly is recognized by most authors [3] [4]. Indications for splenectomy in our study were largely dominated by pathology s hematological 92.85% (n = 26) which confirms the art literature data [3] [4] [5]. The development of modern hematology has led to the indication of a therapeutic splenectomy in a number of pathologies where the spleen participates in the abnormal destruction of the figured elements of the blood, notably microspherocytosis, thalassemias, sickle cell disease, and idiopathic chronic thrombocytopenic purpura [6] [7]. The splenectomy is part of the arsenal therapeutic meet these conditions hematologic benign or malignant, which are the main indications for splenectomy in “cold”. It improves thrombocytopenia purpura thrombocytopenic and allows the resolution of symptoms related to an enlarged spleen large [4]. A preparation medical in term of vaccination in patients who need to be splenectomized is important because the has splenic function is absent in splenectomized, they are particularly exposed to infection with encapsulated bacteria. Thus, triple vaccination is recommended 15 days to six weeks before splenectomy involving pneumococcal vaccination, anti-meningococcal vaccination, and anti-Haemophilus influenzae vaccination by many authors [3] [4] [8], in our study given the very limited to our patients only the pneumococcal vaccine that targets the most involved in germ infection s post splenectomy was administered in all patients, this attitude is shared with other African authors [1] [2]. The PREOC cern main surgeon is to minimize blood loss surt out into the

splenic surgery. The preoperative embolization of the splenic artery in cases of massive splenomegaly (spleen greater than 20 cm) is an interesting asset in that it has shown a benefit in terms of blood loss and transfusion requirements without increasing overall morbidity [9], in our study the technical means did not allow its realization. The splenectomy for affection s hematological s is usually “rate up”, that is to say by first of the elements vascular. We performed 27 cases of total splenectomy (96.43%) using this technique, which is also used by other authors [3] [4] [10]. This approach is essential in case of splenomegaly or the so-called “flipping” technique usually reserved for the emergency is not feasible. If splenomegaly and whatever the path chosen first ligation short vessels is gradually upwards allows the exposure of the tail of the pancreas and omentum Pancreaticosplenic containing the splenic pedicle spleen. The first ligation of the splenic artery and its branches allows a venous emptying which limits blood loss [4]. The track’s first surgery: splenectomy by midline laparotomy or subcostal left has long been the way first choice particularly if splenomegaly. We operated 26 patients or 92.86% of cases by median laparotomy (**Picture 1**). It still offers some advantages in the case of massive splenomegaly (**Picture 2**),



Picture 1. Intraoperative picture of splenomegaly surgery “A” CHU Point G.



Picture 2. Splenectomy piece photo surgery “A” CHU Point G.

which is the case in our study with, in particular, a shorter duration of intervention and smaller blood losses. However, the advent of minimally invasive splenectomy gradually supplants the approach by laparotomy remains the remedy in case of impossibility of a minimally invasive approach especially for spleens of more than 20 cm. Laparoscopic splenectomy is considered the “gold standard” for the surgical treatment of pathological spleens of normal or slightly increased size (diameter less than or equal to 15 cm). The advantages of this technique are: shorter postoperative stay time, lower complication rate (fewer lung, scar, or infectious complications), lower transfusion rate, and faster recovery of activity [11]. In this study we performed 2 cases of laparoscopic approach splenectomy (7.14%) in 2 patients with pathological spleen slightly increased in volume. Laparoscopic splenectomy requires a mastery of laparoscopic surgery, as it may be technically difficult in some indications and/or in case of splenomegaly with a significant risk of intraoperative hemorrhage or conversion to laparotomy. Splenic preservation has become a goal in trauma a fortiori in the treatment of benign splenic lesions. We performed 1 case of partial splenectomy or 3.57% of cases in a patient with a splenic cyst, Guodiris [5] reported 100% of cases of partial splenectomy (n = 3). The anatomy of the spleen lends itself to partial resection because its vascularization is terminal and segmental. Indications for partial splenectomy are splenic trauma and benign cystic lesions [12] [13] [14]. Partial splenectomy poses the problem of hemostasis of the parenchymal section slice. Whatever the technical orientation chosen, the operative indication applies only to 5 cm and/or symptomatic cysts and conservative treatment is preferred [15]. If splenectomy is initially a surgical procedure, the risk of infection caused by this procedure must be managed pre- and postoperatively. In our study 2 patients is 7.14% of cases had an infectious syndrome in postoperative whose support has needed an antibiotic suitable. One case of severe anemia (3.57%) was found in this study and its management required a blood transfusion. The two main complications of splenectomy are infectious and thromboembolic complications [7] [15] [16]. Infectious complications are the most frequent however the exact incidence of these infectious complications is still poorly understood and extremely variable in the literature, up to 25% in some series [16] [17]. This disparity is due to the heterogeneity of patients and indications of splenectomy. The consequences were simple in 82.14% of our patients. Mortality in our series was 7.14% (n = 2). Mortality related to splenectomy varies in the literature between 10% and 30% [3] [4].

5. Conclusion

Hematological pathologies largely represent the indications for splenectomy “cold”. The infectious risk associated with this surgical procedure must be taken into account pre, and postoperatively. The heterogeneity of patients and indications operative require adapting the procedure surgical in each case to minimize the morbidity and mortality associated with this gesture.

Conflicts of Interest

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

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