

## MINIMALLY INVASIVE SURGERY FOR IDIOPATHIC THROMBOCYTOPENIC PURPURA : STUDY OF 28 CASES.

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### Abstract

The purpose of this study is to report the experience and results of laparoscopic splenectomy for autoimmune thrombocytopenic purpura in a general surgery department. This is a retrospective study obtained from a prospective database collection on laparoscopic splenectomy for Idiopathic Thrombocytopenic Purpura (ITP) between January 2009 and June 2013. Twenty-eight patients underwent surgery. Fifty percent of patients had a platelet count of  $<50000/\text{mm}^3$ . The mean operative time was  $195 \pm 68.3$  minutes. The mean estimated blood loss was  $127.8 \pm 250$  ml. The morbidity rate was 10.8% and the mortality rate in our series was 3.5%. Thus, laparoscopic splenectomy is a safe and feasible operative technique when performed by an expert hand.

**Keywords:** ITP, laparoscopic, splenectomy.

### Introduction

Since it was first performed in 1992 by Delaitre, Laparoscopic Splenectomy (LS) has become the gold standard in the treatment of certain hematological diseases. The aim of this study is to report the results of this procedure in the management of Idiopathic thrombocytopenic purpura (ITP) in the Moroccan setting.

### Materials and methods

This is a retrospective study from a prospective database collected between 1 January 2009 and 30 April 2013. We included all consecutive laparoscopic splenectomies performed for ITP. We excluded all laparoscopic splenectomies for non-hematological diseases and splenectomies by conventional approach. The indication of LS for patients was made after multidisciplinary consultations between the surgeon, the internal medicine specialist and the intensivist /anesthesiologist.

For each patient we collected:

- Epidemiological data, the indication of splenectomy, personal history, and laboratory findings.
- The preoperative management (corticosteroids, immunoglobulins, vaccination, Transfusion)
- Data concerning the surgical technique and operative data (operating time, blood loss, conversion to conventional surgery, presence of accessory spleens, intraoperative incidences)
- Postoperative results (duration of ICU stay, hospital stay, postoperative complications)

### Operative Techniques

All patients benefitted from preoperative vaccination against *Streptococcus pneumoniae* and *Haemophilus influenzae* type B. In the operating room, after general anesthesia, patients were placed on the operating table in a supine position with a 45 ° tilt to the right. In some cases we used a strict lateral position. Four trocars were placed at approximately 1 cm below and along the left rib margin. They may be placed lower in case of splenomegaly. We always start with control of the inferior polar splenic pedicle and the short gastric vessels (with clips or ultracision), thus facilitating

dissection in the hilum of the tail of the pancreas and the control of the splenic pedicle. We first proceed to the section-ligation of the splenic artery and then the splenic vein using clips or the section-ligation en mass of the pedicle using aendoGIAstapler. The procedure continues with the freeing up of the spleen from its upper and rear attachments and then the protected extraction of the specimen is made by a counter incision joining two adjacent trocar openings or a Pfannenstiel incision. A drain is placed in the splenic lodge

## Results

Twenty eight patients during the period of study had LS for autoimmune thrombocytopenic purpura (ITP). The study included 7 male and 21 female, with a sex ratio of 1:3 (M:F). The average age was  $38.4 \pm 14.8$  yrs. Associated morbidity and clinical characteristics of patients are described in Tables I and II.

Table (I, II): Associated morbidity and clinical characteristics of patients

History	N	%
Diabetics	4	14.3
Allergy to Penicillin	3	10.7
Pulmonary Tuberculosis	1	3.6
Hematologic Tuberculosis	1	3.6
Abdominal Surgery	2	7.2
Chronic Renal Failure	1	3.6
HIV	1	3.6

Table I

Symptoms	%
Purpura	46.4
Ecchymosis	51.4
Hematochezia	7.2
Epistaxis	7.2
Gingivorrhagia	29.6
Metrorrhagia	18.5
Hematuria	3.7
Anemic syndrome	22.2
Splenomegaly	29.6
Upper left Quadrant Tenderness	14.8

Table II

Abdominal ultrasonography and computed tomography were performed in 17 (60.7%) and 5 patients (17.8%) respectively. Splenomegaly was present in 35.3% of the cases (6patients/17). The average size of splenomegaly was 19 cm with a maximum size of 28cm. Two accessory spleens were identified. Laboratory findings identified

thrombocytopenia in 78.5% of cases (22 patients), and it was severe (platelet levels  $<20000/\text{mm}^3$ ) in 50% of patients. The median platelet count was  $9000/\text{mm}^3$ . One of our patients received a platelet transfusion for a preoperatively platelet count of  $<1000/\text{mm}^3$ . The mean operative time was  $195 \pm 68.3$  minutes. The mean estimated blood loss was  $127.8 \pm 250$  ml. Intraoperative transfusions were necessary in 4 patients. The conversion rate was 14.3% (4cas), 3 cases following uncontrollable hemorrhage and a case for significant splenomegaly impeding dissection. Accidental small bowel injury occurred during specimen extraction in one patient which required end to end resection and anastomosis. An accessory spleen was found and removed in 4 patients. In six patients with splenomegaly, the mean operative time was  $225 \pm 30$  minutes, the average length of hospital stay was  $6.6 \pm 2.6$  days. Three of our patients required ICU stay. The first case was for intraoperative bleeding with blood loss requiring intraoperative transfusion of 8 platelet units (initial platelets count of  $2000/\text{mm}^3$ ). The 2 others were in the ICU for postoperative monitoring, the LS had lasted 210 minutes for one of the patients and the other had a platelet count of  $<1000/\text{mm}^3$  preoperatively and had required platelet transfusion. Immediate postoperative complications (10.8%) included hemorrhage requiring surgery 6 hours after the initial operation. A second patient had a subphrenic abscess, treated with antibiotics and maintenance of drainage with favorable outcome, a third patient had a surgical wound infection treated by local antiseptics. The mortality rate in our series was 3.5%. This involved the patient who required reoperation but died the same day at the ICU due to hemorrhagic shock. The average length of postoperative stay was  $4.9 \pm 2$  days. Two cases of recurrence were noted in our series, the first at one month, and the second at 11 months after surgery. Both were given corticosteroid therapy with favorable outcome.

## Discussion

Laparoscopic splenectomy for benign hematological disease has become a gold standard. Described by Delaitre in 1992 [1], its major indication is for ITP [2-3] after failure of medical treatment. This indication may vary between 47% and 88% depending on the series [2-4]. Patients with ITP have spleens of normal or slightly increased size and the results appear to be better than for other indications [5-14]. In 2004, Napoli et al. [15] published a study in which a high performance abdominal CT was performed in 22 patients preoperatively and it was noted

intraoperatively that the imagery examinations provided a sensitivity of 100% when it came to the number and location of accessory spleens. In our series, CT scan was performed in only 5 patients. It identified an accessory spleen in 2 patients. Intraoperatively, LS has reduced operative time, bleeding, and duration of postoperative hospitalization [8-9-16]. However in the case of splenomegaly, there is increased operative time, increased blood loss, an increase in postoperative complications and a longer length of hospital stay [9-10-11]. Intra and Post-operative hemorrhage can occur in 3% to 25% of cases [2, 3]. Age and the indication of the splenectomy are the most incriminating factors in the occurrence of complications [17]. Prophylaxis with antibiotics should be started at the induction of anesthesia. Postoperatively, it is continued by a twice-daily intake of Oracilline (Penicillin V) for at least two years in adults and five years in children to reduce the risk of serious infections. [17]. In our series, all patients were started on antibiotic prophylaxis based on Oracilline.

### Conclusion

LS has become a safe and feasible approach for ITP through the standardization of the surgical techniques and the development of new materials for dissection and hemostasis.

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