EUROPEAN ACADEMIC RESEARCH
Vol. II, Issue 11/ February 2015

Impact Factor: 3.1 (UIF)
DRJI Value: 5.9 (B+)

ISSN 2286-4822
www.euacademic.org

Laparoscopic Splenectomy – Optimal Solution in Autoimmune Trombocytopenic Purpura

B. MASTALIER
Colentina Clinic of Surgery, Bucharest, Romania
UMF Carol Davila, Bucharest, Romania
W. ELAIAH
VIOLETA DEACONESCU
IRINA GAL-PENCIUC
M. LEOVEANU
Colentina Clinic of Surgery, Bucharest, Romania
IOANA SIMION
C. DRĂGHICI
Colentin ICU 2, Bucharest, Romania
MIHAELA TEVET
Hematologic Unit, Bucharest, Romania
SABINA ZURAC
Colentina Pathological Department, Bucharest, Romania
C. BOTEZATU
Colentina Clinic of Surgery, Bucharest, Romania

Abstract

Introduction: the laparoscopic splenectomy became in the last years the surgical treatment of choice in partients with idiopathic thrombocytopenic purpura, which didn't respond to medical treatment.

Material and method: this retrospective study presents our experience in splenectomies, open and laparoscopic, that were performed in the last year in patients with ITP, as well as the advantages of the minimally invasive method.

Results: we performed 6 splenectomies in patients with ITP, from which 5 were laparoscopic. The postoperative evolution was without complications, with zero mortality and there were no incidents or accidents during the interventions, except a converted laparoscopy and a reintervention during the first postoperative 24 hours for a intraperitoneal bleeding.

Conclusions: the main advantages for laparoscopic splenectomy are lower postoperative analgesia, rapid regain of digestive tolerance, shortening of hospitalization.

Keywords: splenectomy, laparoscopy, idiopathic thrombocytopenic purpura.

Introduction

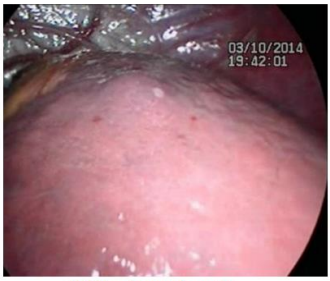
Autoimmune thrombocytopenic purpura is a condition characterized by thrombocytopenia, which can lead to an increased risk of bleeding (1). It may be primary (idiopathic) or secondary, the latter may occur in patients with systemic erythematosus lupus, chronic lymphocytic leukemia, lymphoma, HIV infection, etc. The initial treatment is the administration of corticosteroids, splenectomy being the backup solution, when the disease is unresponsive to medical therapy (2). Initially, splenectomy was indicated as the method of treatment for hereditary spherocytosis by Burgard by Sutherland in 1910 (3) and idiopathic thrombocytopenic purpura by Kaznelson in 1916 (4). Untill 1951, when Harrington et al. found the role in inducing thrombocytopenia for the plasma immunoglobulin, splenectomy represented the only treatment for IPT (5). Currently, splenectomy is chosen as a treatment method in patients with ITP, in which the tombocytopenia does not tend to correct itsself after 4-6 weeks of corticosteroids or in which the thrombocytopenia returns after, initially, the disease responded to corticosteroid administration (6). Laparoscopic splenectomy has become in recent years the surgical treatment of choice in patients diagnosed with idiopathic thrombocytopenic purpura unresponsive to drug therapy. The frst laparoscopic splenectomy was perfrormed for the first time in 1991 by Delaitre and Maignien (7). Compared with the open technique, laparoscopic splenectomy offers the advantages of reduced postoperative pain, shortener period of hospitalization, with rapid social reintegration of the patient (8-10).

Methods

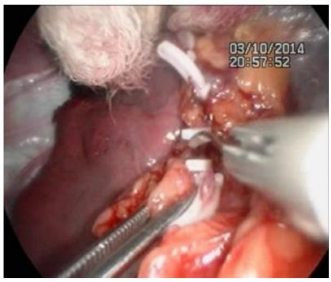
We performed a descriptive observational single-center retrospective study based on medical records and operative protocols for patients undergoing splenectomy for ITP in the past year.

General Surgery Clinic collaborated with Hematologic Diseases Unit for proper selection of cases with surgical indication and appropriate postoperative surveillance. There were 6 patients diagnosed with ITP, for 5 of them laparoscopic splenectomy being performed; in a case of laparoscopic intervention conversion to open technique was required. The surgical indication was represented by symptomatic thrombocytopenia refractory to 4-6 weeks medical therapy, remission of trombocytopenia only at toxic doses of steroid, recurrent thrombocytopenia after initial response to steroid therapy. Regarding the surgical laparoscopic procedure, the approach in all cases was the posterolateral type, with the patient positioned in right lateral decubitus. Trocars were placed as follows: 10 mm optical trocar on the perpendicular line navel - left costal margin at 3-4 cm from the costal margin, working 10 mm trocar 2 cm anterior and superior from the iliac spine and two 5 mm trocars (one below the xyphoid and one below the left costal line on the

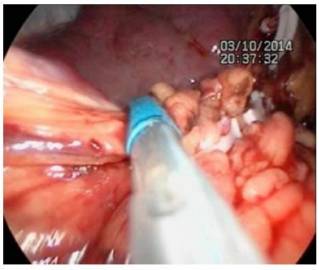
medioclavicular line). The using of the coagulation-sealing device type Ligasure allowed shortening the intervention. The approach of the vessels was conducted as close as possible to the hilum of the spleen. The distribution of the splenic vessels was either masterly type (single vascular trunk) in 2 cases, either the distributed type in 4 cases. The extraction of the spleen was made through a trocar hole, in a bag, after its fragmentation. There were no intraoperative incidents or accidents, except for a conversion to laparotomy due to the breaking of the splenic capsule. Intraoperative, we detected no detected accesory splines. The average duration of intervention was 160 minutes for laparoscopy, and 100 minutes for the open technique. In one case, reintervention was necessary, due to an intraperitoneal bleeding from a minor source (short gastric vessel) in the first 24 hours .



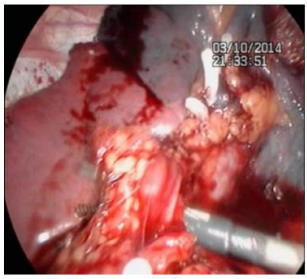
ITP spleen in situ



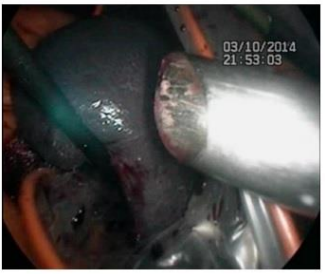
Splenic polar vessel



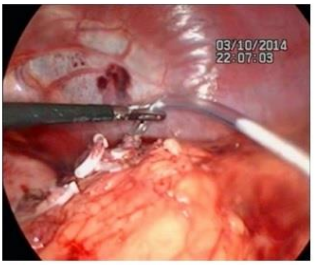
Gastrolienal ligament



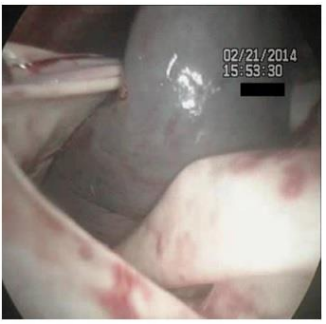
Splenic pedicle



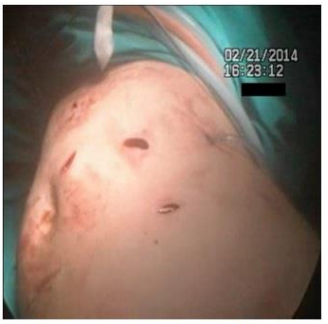
retrieving the spleen with the Endobag



drainage under the left diaphragm

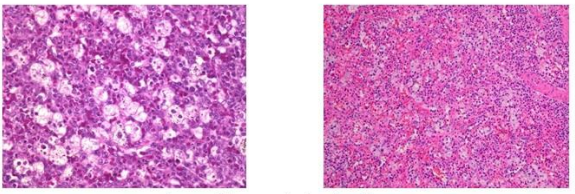


retrieving the spleen using a glove



final appearance of the abdomen

The postoperative course was simple in all cases, except for the reintervention described above (required laparotomy in order to solve the bleeding source; afterwards, the evolution was simple). Postoperative hospitalization for laparoscopic resolved cases was 3 days, and 5 days for the patient who underwent open splenectomy, respectivly for the one who underwent the reintervention. Unlike patients who received open technique, those who underwent laparoscopic splenectomy had a lower postoperative analgesic demand and they also regained quicklier their feeding capacity in the postoperative period. In all cases we obtained cure, with the remission of the thrombocytopenia. Histopathologic examination of the spleens revealed an average weight of 275 grams, the increase in spleen red pulp, without identifing monoclonal cell proliferation.



ITP spleen – histopathological images

Conclusions

Splenectomy represents the backup therapeutic method for patients with unresponsive to drug therapy ITP. Several studies have concluded that laparoscopic splenectomy is feasible and safe, being associatiated with lower morbidity and a faster recovery of patients, compared with the open technique (11). Given the high risk of intraoperative bleeding in ITP patients, they require good preoperative preparation, which according to the existing protocols , consists of iv immunoglobulin administration, corticosteroids orally or platelets in patients with severe thrombocytopenia (12). Mortality and morbidity are higher in the open splenectomy copared with the laparoscopic one, but there are no conclusive data to provide information on the differences in growth rate of the platelets between the two techniques (13). PTI is a benign condition, patients rarely showing significant bleeding episodes, but there may be cases of deceases through intracranial haemorrhage or infection, that the patients can develop due to cytotoxic treatment , or even after splenectomy (14). Old age influences negatively the postsplenectomy evolution, because these patients may develop bleeding complications more frequently (15). Laparoscopic splenectomy has the advantage of a shorter hospital stay, postoperative analgesic requirement is lower and patients regain their digestive tolerance earlier and they quicklier reintegrate into society. The main desanvantage of the laparoscopic technique is the longer duration of the intervention. However, in the laparoscopic technique, the identification of accesory spleens is more difficult, requiring a more carefully intraoperative exploration associated with thorough preoperative imaging investigations. Otherwise, scintigraphy after splenectomy may discover accesory splines, explaining the treatment failure (16). There are no significant differences between open and laparoscopic technique regarding the intraoperative blood loss, the rate of complications , the medical costs or the hematologic response (17).

REFERENCES

1. Rodeghiero F, Stasi R, Gernsheimer T. Standardization of terminology, definitions and outcome criteria in immune thrombocytopenic purpura of adults and children: Report from the international working group. Blood 2009;113(11):2386-2393.
2. Bromberg M. Immune thrombocytopenic purpura: The changing therapeutic landscape. N Engl J Med 2006;355(16):1643-1645.
3. Sutherland GA, Burghard FF. The treatment of splenic anaemia by splenectomy. Lancet 1910;2:1819-22.

4. Kaznelson P. Verschwinden der hämorrhagischen diathese bei einem falle von essentieller thrombopenie (frank) nach milzexstirpation: splenogene thrombolytische purpura [German]. Wien Klin Wchnschr 1916;29:1451-54.
5. Harrington WJ, Minnich V, Hollingsworth JW, Moore CV. Demonstration of thrombocytopenic factor in blood of patients with thrombocytopenic purpura. J Lab Clin Med 1951;38:1-10.
6. Dameshek W, Rubio F Jr, Mahoney JP, Reeves WH, Burgin LA. Treatment of idiopathic thrombocytopenic purpura (ITP) with prednisone. JAMA 1958;166:1805-15.
7. Delaitre B, Maignien B, Icard P. Laparoscopic splenectomy. Br J Surg 1992;79(12):1334.
8. Cordera F, Long KH, Nagorney D, et al. Open vs. laparoscopic splenectomy for idiopathic thrombocytopenic purpura: Clinical and economic analysis. Surgery 2003;134(1):45-52.
9. Park A, Marcaccio M, Sternbach M, et al. Laparoscopic vs. open splenectomy. Arch Surg 1999;134(11):1263-1269.
10. Winslow ER, Brunt LM. Perioperative outcomes of laparoscopic vs. open splenectomy: A meta-analysis with emphasis on complications. Surgery 2003;134(4):647-655.
11. Brunt LM, Langer JC, Quasebarth MA, Whitman ED. Comparative outcome of laparoscopic versus open splenectomy. Am J Surg 1996;172:596–601.
12. George JN, Woolf SH, Raskob GE, et al. Idiopathic thrombocytopenic purpura: a practical guideline developed by explicit methods for the American Society of Hematology. Blood 1996;88:3–40.
13. Kojouri K, Vesely SK, Terrell DR, George JN. Splenectomy for adult patients with idiopathic thrombocytopenic purpura: a systematic review to assess long-term platelet count responses, prediction of response, and surgical complications. Blood 2004;104: 2623–2634.
14. Schattner E, Bussel J. Mortality in immune thrombocytopenic purpura: report of seven cases and consideration of prognostic indicators. Am J Hematol 1994;46:120–126.
15. Cortelazzo S, Finazzi G, Buelli M, et al. High risk of severe bleeding in aged patients with chronic idiopathic thrombocytopenic purpura. Blood 1991;77:31–33.
16. Shimomatsuya T, Horiuchi T. Laparoscopic splenectomy for treatment of patients with idiopathic thrombocytopenic purpura. Comparison with open splenectomy. Surg Endosc 1999;13:563-6.
17. Fernando Cordera, MD, Kirsten Hall Long, PhD, David M. Nagorney, MD, Erin K. McMurtry, Cathy Schleck, Duane Ilstrup, MS, *and* John H. Donohue, MD. Open versus laparoscopic splenectomy for idiopathic thrombocytopenic purpura: Clinical and economic analysis. Surgery 2003; 134:45-52.