

Laparoscopic Splenectomy – A Report of Two Cases

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ABSTRACT

Laparoscopic splenectomy for haematological diseases has recently attracted much attention and hailed as a viable alternative to traditional splenectomy using the laparotomy route. We report two cases of laparoscopic splenectomy for idiopathic thrombocytopenic purpura; the first of such procedures performed in Brunei. There was reduced post-operative pain, earlier return of gastrointestinal function and a reduced post-operative hospital stay.

Keywords: splenectomy, laparoscopy, laparoscopic splenectomy, lateral approach

INTRODUCTION

Splenectomy has been a treatment modality for various haematological diseases for a period of time. The traditional surgical technique which requires a generous laparotomy incision for the complete mobilisation and removal of the spleen, has been effective but is associated with certain undesirable side effects like post-operative pain, long ileus, possible pulmonary and wound infections, long hospital stay and long overall post-operative recovery. The benefits of the laparoscopic approach to cholecystectomy have stimulated an enormous interest in the minimally invasive approach to the removal of other abdominal organs, including the spleen. We report two cases of laparoscopic splenectomy performed successfully in patients with idiopathic thrombocytopenic purpura (ITP). These were the first cases of laparoscopic splenectomy performed in Brunei.

CASE REPORTS

Case 1

A 24-year-old woman with ITP for 3 years became dependent on high-dose prednisolone of 300 mg daily. This was complicated by the development of a Cushingoid habitus. The decision to perform a splenectomy was made because medical management had increasingly compromised her immune status. At the time of surgery, the platelet count was 56,000/mm³. The surgery was uncomplicated and operative blood loss was about 100 mL and the operation lasted 270 minutes. Nasogastric tube was removed the next day and diet re-introduced on the third post-operative day. No intramuscular analgesia was requested during the recovery period. She was

discharged on the fourth post-operative day with a platelet count of 397,000/mm³. She remained well at 4 months.

Case 2

A 21-year-old woman with ITP who was initially managed on prednisolone therapy of 60 mg/day and intravenous γ -globulin infusion, was referred for splenectomy after her condition became refractory after 1 year of medical management. The patient underwent laparoscopic splenectomy with a platelet count of 150,000/mm³ at the time of surgery. There was no intra-operative complication. Operative blood loss was about 200 mL. The operative time was 300 minutes. The nasogastric tube was removed the next day and she was able to eat from the second post-operative day. She did not request for any parenteral analgesia post-operatively and was discharged on the fourth post-operatively day with a platelet count of 355,000/mm³. She has remained asymptomatic 4 months after surgery.

Technique of laparoscopic splenectomy

Both patients received polyvalent pneumococcal vaccination two weeks prior to the operation. Surgery was performed under general endotracheal anaesthesia with antibiotic prophylaxis. A nasogastric tube was inserted routinely. The operation began with the patient in the supine position and a 10 mm trocar was inserted subumbilically using the open technique. The patient was then repositioned and placed in the lateral decubitus position with the left side up. Table extension and elevation of the kidney rest were used to exaggerate the distance between the rib cage and the iliac crest for laparoscopic access. The back was maintained in a vertical plane; however, the patient could readily be rolled to a 45° decubitus position to facilitate a left subcostal incision should there be a need to convert to open splenectomy.

The surgeon and the first assistant stood facing the patient while the second assistant was stationed on the opposite side. Pneumoperitoneum was then established and maintained at around 15 mmHg. Four additional trocars were inserted as shown in Fig 1 under direct vision. A 30° viewing laparoscope provided an excellent view of the operative field. A thorough inspection of the abdomen for accessory splenic tissue was made. A fan retractor was used to retract the stomach, left lobe of the liver and spleen whenever necessary. Mobilisation of the spleen began

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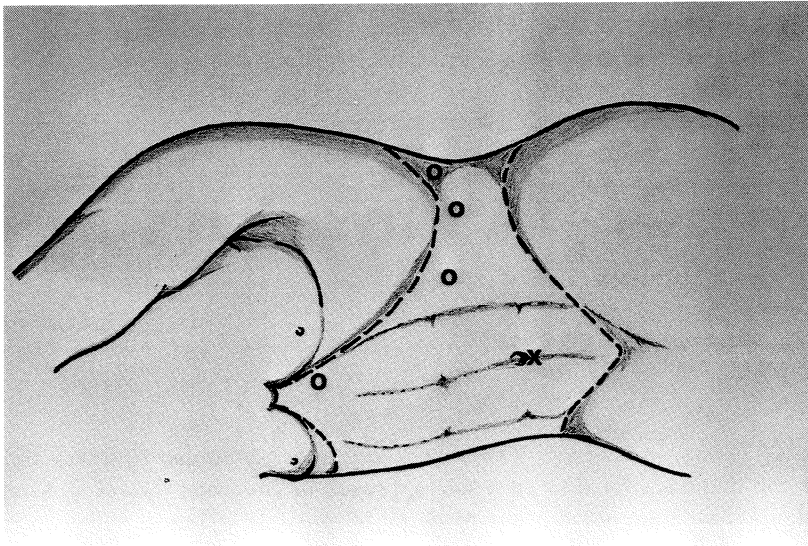


Fig 1 – Trocar sites for laparoscopic splenectomy. X = 10 mm trocar and O = 12 mm trocars.

at its lower pole exposing towards the hilum. The splenocolic ligament was divided using electrocautery scissors and the hilar connective tissue was similarly dealt with. The tail of the pancreas was readily identified. The splenic hilar vessels were controlled with an endovascular stapler (EndoGIA, US Surgical Corp, Norwalk, Connecticut). The stapler was applied as close to the splenic hilum as possible to avoid iatrogenic injury to the tail of the pancreas. The short gastric vessels were then clipped with Endoclip (US Surgical Corp, Norwalk, Connecticut) and divided. Finally, the lateral attachment of the spleen was divided with electrocautery scissors. With the division of all the splenic ligaments, the staple line and vascular clips were examined for haemostasis and security. Extraction of the spleen was accomplished by morcellation within a plastic bag. Special care was taken to avoid splenic rupture and intra-abdominal spillage to prevent the development of splenosis.

DISCUSSION

The major concern in performing laparoscopic splenectomy is that, with the complex vasculature and peritoneal attachments of the spleen, the consequences of operative complications are potentially disastrous. The introduction of mechanical

staplers specifically dedicated to laparoscopic surgery has made the procedures of advanced abdominal surgery simple and yet safe. There has been several case reports and small series detailing the technique of laparoscopic splenectomy with promising results⁽¹⁻⁴⁾. Most reports describe an anterior approach to laparoscopic splenectomy with the patient in a supine position. We adopted the lateral approach as it provides an excellent exposure of the lateral and retroperitoneal organs with gravity assisting the medial and anterior displacement of the stomach, small bowels, transverse colon, omentum and dissected tissues while the position of the spleen remains relatively unchanged due to its lateral attachments.

Both our patients did not require any intra- or post-operative blood transfusion. This may be due to the excellent exposure of the lateral approach in controlling the splenic and short gastric vessels thus preventing excessive bleeding. The most remarkable aspects of this procedure were reduced post-operative pain, lack of ileus and shortened hospital stay. Our operative time was long and this is understandable and attributable to the early 'learning curve' inherent to the new procedure. With increasing experience, the operative time will reduce. With the introduction of the ultrasonic scalpel (Harmonic Scalpel, Ethicon Endosurgery, Cincinnati, Ohio) the operative time may even reduce further without compromising the safety of the operation⁽³⁾.

In conclusion, laparoscopic splenectomy can be performed safely and does not result in increased intra-operative transfusion requirements. The patients recover more quickly with reduced post-operative pain; there is also an earlier return of normal gastrointestinal function and a shorter hospital stay.

REFERENCES

1. Delaitre B, Maignien B, Icard P. Laparoscopic splenectomy (letter). *Br J Surg* 1992; 79:1334.
2. Carroll BJ, Phillips EH, Semel CJ, Fallas M, Morgenstern L. Laparoscopic splenectomy. *Surg Endosc* 1992; 6:183-5.
3. Hashizume M, Sugimachi K, Kitano S, Shimada M, Baba H, Ueno K, et al. Laparoscopic splenectomy. *Am J Surg* 1994; 167:611-4.
4. Glasgow RE, Yee LF, Mulvihill SJ. Laparoscopic splenectomy: the emerging standard. *Surg Endosc* 1997; 11:108-12.