

Haemostasis in laparoscopic splenectomy

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Abstract

Laparoscopic splenectomy reduces the morbidity associated with open access surgery. Obtaining haemostasis in laparoscopic splenectomy is a challenge. In cases described in this series haemostasis was achieved with titanium clips, bipolar diathermy and ultrasonic dissector. It is less costly to use of vascular staplers and quicker than intra corporeal suture ligation.

Key words: *Laparoscopy, Splenectomy, Haemostasis*

Introduction

Splenectomy by open surgical access involves a midline or left sub costal incision which can cause a substantial morbidity. Post operative pain which can affect mobilization and breathing, wound infection and incisional hernia are a few to mention.

These complications can be reduced by laparoscopic approach which requires smaller incisions (1-3). In addition it provides a clear vision by magnification and zooming which enable a better surgical dissection (4). Exposure of peritoneal cavity to exterior is less and there is minimal tissue handling resulting a lower risk of post operative infections. Early mobilization, feeding and early discharge from hospital are other potential advantages.

Achieving haemostasis in laparoscopic surgery, however, is a challenge to be met. The vessels which need to be controlled are short gastric and splenic arteries and veins.

Vascular staplers are effective in controlling the splenic vessels but are expensive. They may be controlled by clips where cost is considerably less but should be reliable to hold a large vessel well. Bipolar diathermy and ultrasonic dissector too

obtains haemostasis (5). After the initial investment maintenance costs of these are less. The alternative is to use intra-corporeal ligation. However suture ligation increases the operating time, as it requires extra skill.

In order to prove the safety and efficacy of clips and energy sources which are less costly we present our experience using a series of patients who underwent the procedure.

Methods

A retrospective analysis of laparoscopic splenectomies performed from 2008 was carried out. In all surgeries informed consent has been obtained. The surgeries were performed under general anaesthesia. Patients were placed in right lateral decubitus position with a 45degrees inclination. The head end of the table was elevated by 30 degrees. A pneumoperitoneum was established with veress needle with an insufflation pressure of 14mmHg. A 10mm camera port was inserted 5cm from the left costal margin. Additional ports for retraction and two hand dissection were inserted as follows (Table 1).

Table 1: Site, size and functions of the ports created

Port site	Port size	Port function
Epigastric	5mm	Retraction of stomach/spleen
Midway of xiphoid and umbilicus	5mm	Left hand working
Mid clavicular, umbilical level	10mm	Left hand working
Anterior axillary	5mm	Retraction of colon/ pancreas

Gastrocolic, gastrosplenic, splenocolic, splenophrenic ligaments were mobilized. Mobilization using ultrasonic dissector and bipolar diathermy allowed a quick and bloodless procedure. With entry into the lesser sac, at an early stage of the surgery, the splenic artery was defined and clipped. The splenic hilum was dissected exposing splenic artery and vein once the spleen was completely mobilized. The vessels were controlled by bipolar diathermy, clips and divided with ultrasonic dissector. The spleen was placed in a pouch made by fashioning an uri bag. The pouch together with spleen was retrieved via a mini incision of about 5cm. The following parameters were recorded; duration of surgery, blood loss, conversions to open surgery

Results

A total number of 18 patients had undergone the procedure (females = 13). The age at surgery ranged from 10 to 72 years. Two patients were between 10-19 yrs, 13 between 20-50 yrs and three between 51 and 70 yrs.

The duration of surgery ranged from 60 to 270 minutes, the operating time improving in the latter patients. Average blood loss was 100 ml and no one required blood transfusion. There were no conversions to open surgery.

Discussion

Haemostasis during laparoscopic splenectomy is an important step. The short gastric vessels can be easily controlled with energy sources as they are small in diameter. The splenic artery and vein may be too large to control with energy sources per-se.

In our patients the splenic artery was dissected early as soon as the gastro-splenic ligament was divided. The splenic artery was located at the upper border of the pancreas and controlled with clips. Subsequent to complete mobilization of the spleen, the splenic artery and vein were dissected out at the hilum. The splenic artery could be easily controlled with clips and divided with ultrasonic dissector adding to

sealing of the vessel. The splenic vein size was suitable to control with clips. Using bipolar quaternary prior to clip application tends to shrink the vessel allowing easy application of clips. Division with ultrasonic dissector adds to sealing of the vessel. In our series all cases had successful hilar control with clips and energy sources. It did not increase the operating time as it is an easy technique. There were no conversions to arrest bleeding or any other failure.

Conclusions

Clips, bipolar diathermy and ultrasonic dissector provide safe and effective control of splenic artery and vein at the hilum and other vessels in the splenic attachments. The use of above is more economical than the use of vascular staplers and quicker than ligation.

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