



Lateral approach for laparoscopic splenectomy

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Abstract: Laparoscopic surgery has become the standard treatment for both benign and malignant diseases of the spleen that require splenectomy. Throughout the nearly last three decades, different approaches have been described since Delaitre and Maignien reported the first minimally invasive splenectomy in 1991. In general terms, indications for the laparoscopic approach are the same as for open surgery, except in traumatic cases, where the use of this approach remains controversial. The minimally invasive approach to the spleen has proven to be safe and feasible, and not only provides the already well-known advantages of this technique, but also has shown better outcomes than open surgery. Three patient-positions (anterior, semilateral, full lateral) have been described for the performance of laparoscopic splenectomy. Each of them has their advantages and disadvantages and the choice of one over the other will depend on the preferences of the surgeon. In this video we present the case of a woman affected by idiopathic thrombocytopenic purpura (IPT) refractory to pharmacological treatment who underwent a laparoscopic splenectomy in a full lateral decubitus position.

Keywords: Splenectomy; laparoscopy; minimal invasive surgery; lateral approach

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Introduction

Minimally invasive splenectomy has become the standard treatment for diseases of the spleen that require surgical treatment. Laparoscopic splenectomy not only provides the known advantages of the minimally invasive approach, but also has shown better outcomes than open surgery. Since the first cases were performed, different approaches [standard laparoscopic approach, hand-assisted laparoscopic surgery (HALS), single-incision laparoscopic splenectomy] have been reported, as well as different patient positions (anterior, semilateral and lateral) (1). Each of these techniques presents benefits in certain situations and in many occasions the choice depends on the preference of the surgeon. The lateral approach to laparoscopic splenectomy has the advantage of better visualization of the splenic hilum and the tail of the pancreas, thus avoiding injury and enhancing dissection of the ligaments. In case of necessity of conversion to open surgery, a subcostal incision may be used. The lateral

position provides shorter operative time, fewer perioperative and postoperative complications and shorter hospital stay compared to the anterior approach.

Operative techniques (2)

Patient positioning

The patient is placed in the right lateral decubitus position. The operating table is broken 20–30° both cephalad and caudad, and the patient is placed in moderate reverse Trendelenburg position. This position allows to expand the space between the left costal margin and the iliac crest of the patient.

Trocar placement

Pneumoperitoneum is created with Veress needle with an intraperitoneal pressure of 12 mmHg. Trocars are placed



Figure 1 Laparoscopic splenectomy in lateral approach (3). Available online: <http://www.asvide.com/article/view/31406>

in the left upper quadrant under laparoscopic visualization. There are different options for the placement of trocars. Four are used routinely.

- ❖ 11 mm port is inserted along the anterior axillary line above the patient's anterior superior iliac spine.
- ❖ 11 mm port used for the camera is placed on the mid-clavicular line.
- ❖ 2 or 5 mm trocar is inserted in left subcostal or subxiphoidly.
- ❖ 2 or 5 mm trocar is placed below the twelfth rib between the mid to post axillary line.

Dissection of the splenocolic ligament and the splenic hilum from the lower pole

Dissection begins with the mobilization of the splenic flexure of the colon with the help of the ultrasonic dissector. The presence of adhesions in this area is highly variable. The case shown in the video (*Figure 1*) is free of adhesions. The spleen is released from all peritoneal lateral attachments. Dissection of the splenic hilum begins from the lower pole and continued in a cephalad direction. The lower splenic vessels are divided with ultrasonic dissector or between clips.

Entry into the lesser sac—division of short gastric vessels

Once the lower pole of the spleen is released, it is possible to access to the lesser sac and the short vessels are divided. At this point of the dissection, the lateral approach allows to visualize the tail of the pancreas and thus avoid injury.

Control the artery first

With the lower pole mobilized, the splenic hilum is accessible. Initial ligation or clipping of the splenic artery reduces the size of the spleen and consequently facilitates the manipulation of this organ during the surgery.

Progress the dissection in cephalic direction

Then dissection progresses cephalad and with the spleen elevated, the splenic pedicle can be exposed.

Exposition of the splenic pedicle

This approach allows to spare the pancreatic tail, while the visualization, the dissection and ligation of hilar vessels are facilitated.

Stapling of splenic artery and vein

Elevation and medial mobilization of the spleen allows to see the anterior and posterior aspect of the splenic hilum and divide the vessels *en masse* with the stapler.

Control of hemostasis

Finally, hemostasis in the surgical field has to be checked, in particular, the potential sites of bleeding (stapled line, peritoneum and greater curvature of the stomach). A drain is left according to surgeon's discretion.

Extraction (and morcellation) of the specimen

The spleen is placed into a protective endobag before the morcellation. It is important not to exercise strong tractions on the endobag; subsequent disruptions result in intraabdominal contamination and subsequent splenosis or tumor dissemination.

Important tips

- ❖ Coagulation must be optimized preoperatively. Preoperative assessment of the patient: optimization of the coagulation status [especially the platelet counts in cases of idiopathic thrombocytopenic purpura (ITP)].
- ❖ Size and volume of the spleen should be evaluated

preoperatively.

- ❖ A wide operative field must be prepared that allows access to the midline if conversion to open surgery is necessary.
- ❖ Given its fragility, the spleen should never be grasped directly.
- ❖ Look for accessory spleen's accessory spleen [with imaging techniques (4)]. *Splenunculus* are found in 16% of the general population and up to 32% in patients diagnosed with ITP.
- ❖ An important issue, from the technical point of view, at the time of morcellation prior to removal, is to maintain the endobag under constant tension and use gynecological forceps. This technical gesture should prevent the bag from tearing.

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Footnote

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/ales.2019.04.05>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional

and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). The patient has given his consent for the recording and publication of the images in this video.

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