

Basic technique in laparoscopic HBP surgery

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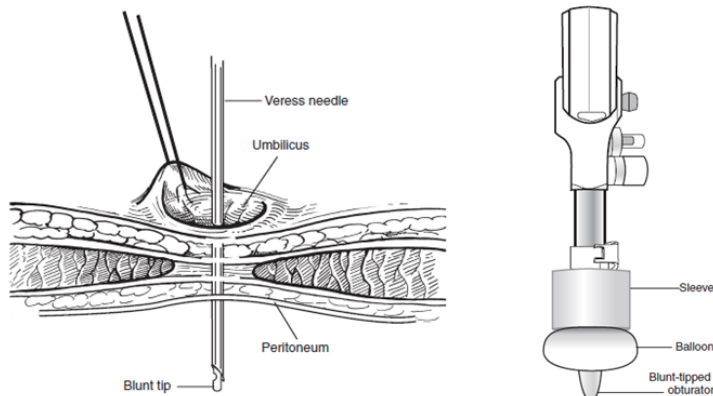
The field of laparoscopic HBP surgery has expanded rapidly, largely because of improvements in surgical technique driven by advances in device technology. Techniques of laparoscopic surgery have evolved greatly over the past several years. While laparoscopic HBP procedures began with cholecystectomy, the field has rapidly expanded to include choledochal cyst excision, hepatectomy, distal pancreatectomy and finally, pancreaticoduodenectomy. The expansion of laparoscopic HBP surgery has been largely attributed to the combination of technologic advancements and development of surgical techniques.

INSUFFLATION

Inspect the insufflator before the start of the case to ensure proper function, and check the CO₂ cylinder to ensure an adequate quantity of gas. A rapid increase in pressure, above the preset limit, should cause flow of gas to cease. Then set initial pressure on the machine at 15 to 20mmHg.

INITIAL ACCESS

For laparoscopic HBP surgery, the initial entry is usually made in the umbilicus, the lower midline, or the ipsilateral lower quadrant. There are two entry method; Veress Needle and “Open” laparoscopy.



TROCAR PLACEMENT

After placing the primary trocar, insert a laparoscope into the abdomen and perform a thorough survey, looking for any evidence of injury, adhesions, or unexpected pathology during Veress needle and primary trocar placement. Place all secondary trocars under direct vision. Trocars that are placed too close together make it difficult to dissect in the abdomen and limit movement because handles and trocars collide.

DISSECTION

Safe dissection during laparoscopy requires knowledge of the characteristics and location of tissue planes. With blunt and sharp dissection, these planes can be exploited to expose the desired structures and organs with little trauma and minimal bleeding. Many use a combination of scissors with monopolar electrocautery, bipolar electrocautery, ultrasonic energy, and blunt dissection with the tip of the irrigator aspirator.

HEMOSTASIS

- **Electrocautery**

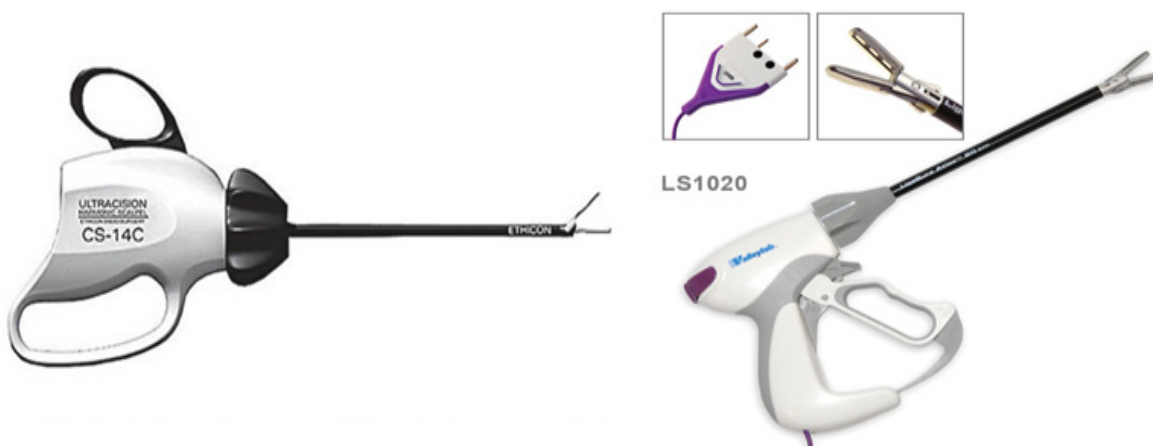
Electrocautery was initially the mainstay for hemostasis during laparoscopic dissection, but it is slowly being replaced by other technologies.

- **Ultrasonic Technology**

Laparoscopic dissection with excellent hemostasis can be accomplished using US energy to achieve precise cutting and coagulation.

- **LigaSure System**

A specialized electrosurgical generator system has been developed (LigaSure, Valleylab, Boulder, CO) to reliably seal tissue and blood vessels up to 7mm in diameter during laparoscopic surgery.



STAPLING

In laparoscopic surgery, there have been many reports describing the usefulness of a stapler transection for the tissue as a quick, and secure method of closure of the remnant tissue.

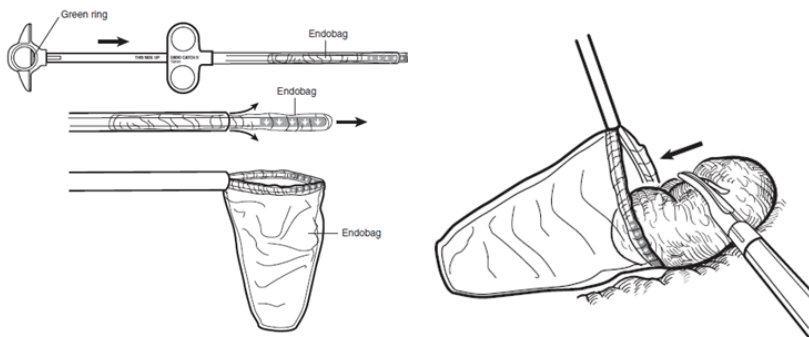


RETRACTION

Abdominal retractors can be of great assistance in situations in which organs must be displaced in order to see better during dissection. A standard grasper has the potential to perforate the organ it was intended to retract. Several retractors have proved to be valuable for surgery in the retroperitoneum.

RETRIEVAL

Anyone who has struggled to place an organ or tissue in a bag will immediately appreciate advanced in retrieval technology.



INTRAOPERATIVE IMAGING

New advances in ultrasound technology allow laparoscopic imaging in many different situations. Intraoperative laparoscopic ultrasonography allows the surgeon to determine the presence of multifocal liver or pancreatic lesions.

SUMMARY

Techniques in laparoscopic HBP surgery have changed rapidly over the past 15 years, due in large part to advances in equipment. New technologies for trocar insertion, dissection, hemostasis, retraction, tissue retrieval, suturing, stapling, and intraoperative imaging have improved the ability to perform more complex laparoscopic HBP surgeries.