Avoiding complications in endoscopic surgery

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We all want to perform surgery and have no complications. But if you operate and for long enough, you will have complications. Recognizing that unfortunate truth mandates preparation for injury prevention.

Why do complications occur?

Poor knowledge of anatomy, distractions, being above one's limits of expertise, inadequate preparation for a case, overconfidence, being in the learning curve of new technology or surgical technique, not knowing how to properly use an instrument, being in a rush, inadequate or inappropriate tissue dissection, and inability to recognize different tissues or structures are all familiar causes that may lead to visceral injuries. If you want to avoid injuries, avoid what is listed above.

At the end of every operation, check for injuries to the bladder, ureters, rectum, sigmoid, and small bowel. Dictate the findings in the operative report. Intraoperative recognition of an intestinal injury is a blessing compared to a late diagnosis with full blown peritonitis. There are no excuses for preventable complications. An additional few minutes spent dissecting and clearly identifying the bladder, rectum, or ureters is more rewarding and much shorter than 10 to 45 minutes necessary to repair any of these structures. The time is extended even further if another surgeon is requested.

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Laparoscopic mortality and its major causes: Entry injuries

Laparoscopic mortality is directly related to the type of injury. Major vascular injuries and unrecognized intestinal injuries are associated with the highest mortality: 9% to 17% for vascular[1] and 3.2% for unrecognized intestinal injuries.[2] The riskiest time for vascular and intestinal injuries is at closed entry: 83% of major vascular injuries[1] and 55% of intestinal injuries occur at closed entry.[2] For this reason, closed entry with the Veress needle and initial trocar insertion must be performed by expert surgeons or trainees under their direct supervision.

Once an entry major vascular injury is under control, remember to perform a thorough inspection of the entire gastrointestinal tract, since 50% of such injuries are associated with intestinal injuries. It is a simple fact: the bowel is in between the abdominal wall and the retroperitoneal vessels.

Avoidance of mortality at entry

The open technique of creating a transumbilical 1-cm incision and using a blunt trocar is not associated with entry deaths.[1] Proper technique mandates elevating the umbilicus when making the skin and fascial incision, since aortic injuries, not lethal, have been described when this was not done.

Intestinal injuries are not reduced with the open technique, but they are promptly recognized. Remember that intestinal adhesions are present in 27% of patients with a previous laparoscopy and 80% are at the umbilicus.[2]

If you use the Veress needle and closed trocar insertion, you need to increase the distance from the entry point to the aorta, which is 0.4, 2.4, and 2.9 cm in normal, overweight, and obese patients, respectively.[3] Elevate the umbilicus, insert the Veress needle at 45 to 90 degrees according to normal to obese body mass index, and ensure that the pressure is < 10 mmHg. Inflate the abdomen to 25 mmHg, place traction on the umbilicus and insert the optical trocar at 45 degrees towards the pelvis with the patient in supine position. Immediately check for any injury below the umbilicus. Once all trocars are in place, reduce the intra abdominal pressure to your working level, and introduce the endoscope through another trocar site and inspect the umbilical area for unrecognized intestinal injury.

If you like the Palmer point entry site, the patient must be in supine position and a nasogastric tube must have decompressed the stomach to prevent gastric injury. The distance to the aorta is 10 cm[3] but the stomach and spleen are at risk.

There should never be an intestinal or major vessel injury with insertion of secondary trocars as they must always be inserted under direct visualization.

NEXT: Prevention of bladder injury

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