ISSN: 2573-9565

Review Article

Journal of Clinical Review & Case Reports

Laparoscopic Entry via the DE-ALWIS METHOD

Alwis Seneviratne

Master of Surgery, Former Head of Department Ob. / Gyn. Cayman Islands

***Corresponding author**
De Alwis Seneviratne, Associate Professor, Master of Surgery, Former Head of Department Ob. / Gyn. Cayman Islands, St. Matthew's University School of Medicine P.O.Box 10826, Grand Cayman KY1-1007, Cayman Islands, Office: 345-345-6066; Fax: 345-945-0161; E-mail: sarath@candw.ky

Submitted: 29 Nov 2019; **Accepted**: 03 Dec 2019; **Published**: 09 Dec 2019

Abstract

Despite the rapid advances in laparoscopic surgery in the past 2 decades the initial entry still accounts for approximately 40% to 50% of laparoscopic complications and should be considered the most dangerous step of a laparoscopic procedure. In this review, the authors share a technique for initial umbilical entry, and provide alternative entry sites in cases where umbilical entry is comtraindicated. Rev Obstet Gynecol. 2009; 2(3):193-198 doi; 10.3909/riog0088. Laparoscopy for diagnostic purposes to a modality for minor and major surgical procedures, had been advancing rapidly over the last 3 decades.

The initial entry still accounts for about 40-50% of laparoscopic complications and is the most dangerous step of this surgical procedure [1, 2]. Laparoscopic entry using a veres needle followed by a blind insertion of a sharp trocar is the common method used by gynaecologists [3-5]. There is no concensious as to which laparascopic entry is superior and the common recommendation is use the entry methods with which the surgeons feel comfortable [6]. Umbilical entry is not suitable in certain instances, such as previous midline abdominal incision, previous umbilical hernia surgery, previous pelvic peritonitis and so forth, due to the presence of pelvic adhesions. An open surgery does not guarantee against a visceral injury [7].

Introduction and Method

Undoubtedly, laparoscopic surgery has come to stay due to the many advantages over laparotomy. This includes cosmetically pleasant smaller incisions, faster recovery, quicker return of bowel function, less incidences of bowel ileus, quicker return to normal duties and many surgeries have become day care surgeries with no overnight stay.

All surgical procedures have an innate possibility of complications.

Many complications such as vascular injuries are among the most dangerous complications of laparoscopic surgery, the vast majority of them occurring during the initial set up phase of the surgery with the Veres needle or trochar placement. The genitourinary injuries, the bladder injury are the commonest, 0.02% and 8.3%. Incisional hernias, port-site metastasis and gas embolism are reported complications.

It is extremely important to seek measures to reduce such complications. A high morbidity and mortality are associated with injuries during Verse needle and trocar insertions. The basic principle of our umbilical entry technique is to take advantage of the negative intraperitoneal pressure that is generated by pulling on the abdominal fascia.

The Original Alwis Method

Step 1: Vertical insertion of Veres needle at the umbilicus. Aspirate to check for possible bowel contents.
Step 2: If no bowel contents are seen, infuse 0.1-0.2 L CO2 (0.4-0.5L for obese patients) and rest the Veres needle flat on the abdomen by the assistant.
Step 3: Abruptly life the lower abdomen. This creates an increased negative pressure in the lower abdomen. The noise can be heard but ideally it should be recorded using a microphone on the skin (like a diaphragm on the stethoscope) connected to a recorder that shows intensity, or pitch of the sound as seen on some radios. If the sound is heard, it is certainly intraperioneal. If no sound, but you still feel that you are in the correct place go to step 4.
Step 4: Infuse up to 1 L of CO_2, stop and ballot the abdomen. It should feel like a waterbed. If the abdomen is firm or there is no sensation of waterbed, the placement is preperitoneal. Rarely the abdomen can be tight and the waterbed sign negative if the patient is not adequately paralyzed.

Factors for sensitivity and specificity of the test.

1. If the sound is heard at 0.1-0.2 L (0.4-0.5) L in obese patients), then the Veres needle is 100% certain to be in the intraperitoneal space.
2. I no sound is heard, the needle is either:

a) Preperitoneal, or

b) There is blood, fluid, air, or excess gas (CO_2), in the pelvis and there is no surface tension to create a negative-pressure.

eg: After a Hysteroscopy Procedure

Principle of the test

The visceral organs have a thin layer of peritoneal fluid, on the peritoneal surface that exerts surface tension. For example, when a person stand on the head, the bowels remain in the anatomical position due to the surface tension. When you abruptly life the abdominal wall after 100-400 cc of gas or air, the negative pressure rises and the air from the positive pressure rushes into the area of the negative pressure, making a distinct sound that can be hear in a quiet setting or recorded using a microphone. The procedure described involves meticulous care before and during the surgical technique. There have been no internal injuries in 4 decades.

References

1. Harkki-Siren P, Kurki T (1997) A nationwide analysis of laparoscopic complications. Obstet Gynecol 89: 108-112.
2. Jansen FW, Kapiteyn K, Trimbos-Kemper T, Hermans J, Trimbos JB (1997) Complications of laparoscopy; a prospective multicentre observational study. Br J Obstet Gynaecol 104: 595-600.
3. Sandor J, Ballagi F, Nagy A, Rakoczi I (2000) A needle-puncture that helped to change the world of surgery, Homage to Janos Veres. Sur Endosc 14: 201-202.
4. Jansen FW, Kolkman W, Bakkum EA, de Kroon CD, Trimbos-Kemper TC, et al. (2004) Complications of laparoscopy; an inquiry about closed-versus open-entry technique. Am J Obstet Gynecol 190: 634-638.
5. Lingam K, Cole RA (2001) Laparascopic entry port visited; a surey of practices of consultant gynecologists in Scotland. Gynaecal Endosc 10: 335-342.
6. Merlin TL, Hiller JE, Maddern GJ, Jamieson GG, Brown AR, et al. Systematic review of the safety and effectiveness of methods used to establish pneumoperitoneum in laparoscopic surgery. Br J Surg 90: 668-679.
7. Brill AI, Nezhat F, Nezhat CH, Nezhat C (1995) The incidence of adhesions after prior laparatomy; a laparoscopic appraisal.