



Laparoscopic Entry, But How?

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Abstract

Background: Safe abdominal entry in laparoscopic surgery is still debated. In patients known or suspected to have periumbilical adhesions, open entry technique (Hasson method) or alternative sites other than umbilicus for insertion may be chosen, Palmer's point is the most preferred.

Method: A 27-year-old G0 P0 married women admitted to our infertility clinic for achieving pregnancy. She had infraumbilical midline laparotomy for perforated appendicitis. On physical exam, she had midline incision scar from umbilicus to symphysis, external genitalia, vagina, and cervix were unremarkable. Trans-vaginal ultrasound was unremarkable, either. Blood cell count, serum chemistry and day 3 hormonal profiles, spermogram were within normal range. But Hysterosalpingogram revealed bilateral occlusion at tubal distal ends. For further work-up, laparoscopy was performed.

Results: Due to midline incision and suspicion of periumbilical adhesions, open entry technique (Hasson method) for pneumoperitoneum was preferred. No complications were occurred. After pneumoperitoneum was achieved, laparoscopy revealed that Douglas pouch was obliterated, bilateral fimbrial ends were not seen, whole surface of the peritoneum is covered by omentum and the transvers colon was attached to the upper abdomen from side to side. The operation was ended without any intervention and considered to send the patient to the ART department. The patient was discharged at the same day.

Conclusion: The safety of laparoscopic techniques depends more on skill, education, and a clear appreciation of the anatomy and physics of the abdominal wall than on the technique itself. It is important that surgeons should choose the laparoscopic entry technique they are familiar with and feel most comfortable with.

Keywords: Laparoscopy; Entry; Palmer's point; Hasson method; Adhesions

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Introduction

This video shows adhesions after having lower abdomen midline laparotomy. Transvers colon is attached to the upper abdomen from side to side and whole surface of the peritoneum is covered by omentum. Laparoscopic entry is tricky in this case. Abdominal entry is a prime concern for laparoscopic surgeons because at least 50% of major complications occur prior to commencement of the intended surgery hence; abdominal entry in laparoscopic surgery is still debated. The last word hasn't said yet about the optimal way of laparoscopic entry because there are no adequate randomized clinical trials; very large numbers of patients would required in each arms and this looks impossible to be achieved. So, it is said that there is no superiority of any laparoscopic entry technique over another. We discuss the laparoscopic entry techniques especially in case of known or suspected periumbilical adhesions.

Case Presentation

A 27-year-old G0 P0 married women admitted to our infertility clinic for achieving pregnancy. She had infraumbilical midline laparotomy for perforated appendicitis. On physical exam, she had midline incision scar from umbilicus to symphysis, external genitalia, vagina, and cervix were unremarkable. Trans-vaginal ultrasound was unremarkable, either. Blood cell count, serum chemistry and day 3 hormonal profiles, spermogram were within normal range. But Hysterosalpingogram revealed bilateral occlusion at tubal distal ends. For further work-up, laparoscopy was performed. Due to midline incision and suspicion of periumbilical adhesions, open entry technique (Hasson method) for pneumoperitoneum was preferred. A transverse incision is made in the sub umbilical region and the upper skin flap is retracted with Allis forceps. The lower flap is retracted using a small right-angled retractor. Subcutaneous tissue is dissected till the linea alba and the rectus sheath is

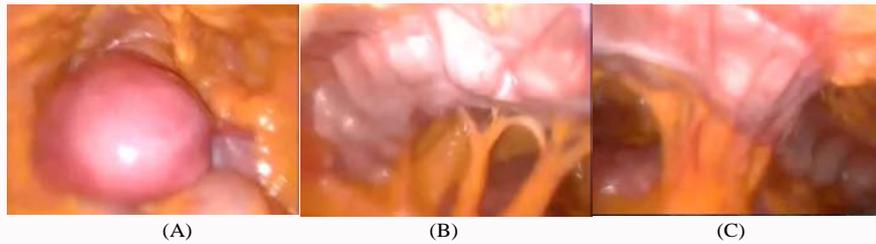


Figure 1: (A-C) Douglas pouch was obliterated, bilateral fimbrial ends were not seen, whole surface of the peritoneum is covered by omentum and the transvers colon was attached to the upper abdomen from side to side.

visualized. Stay sutures are taken on either side of the midline. Rectus sheath is incised in the midline along the line of linea alba pointing upwards. A haemostat is stabbed into the peritoneum, holding the stays up. The give-way of the peritoneum can be felt as peritoneum is perforated and then the haemostat is opened to widen the opening. Finger is inserted to feel all around inside the abdominal cavity to feel any possible adhesion. Then blunt trocar-cannula inserted for the first port after visualizing the intra-peritoneal viscera. No complications were occurred. After pneumoperitoneum was achieved, laparoscopy revealed that Douglas pouch was obliterated, bilateral fimbrial ends were not seen, whole surface of the peritoneum is covered by omentum and the transvers colon was attached to the upper abdomen from side to side (Figure 1A-C). The operation was ended without any intervention and considered to send the patient to the ART department. The patient was discharged at the same day.

Discussion

In our case if you had chosen Palmer's point, you might have injured bowel because transverse colon was attached to the upper abdomen from side to side.

Safe abdominal entry in laparoscopic surgery is still debated. Abdominal access of any laparoscopic surgery carries a significant risk of bowel and vascular injuries. At least 50% of major complications occur prior to commencement of the intended surgery [1-3]. Thus, preventing the complications associated with initial abdominal entry is a prime concern for laparoscopic surgeons.

The umbilicus is least likely to have omentum or bowel adhesions, perhaps because it is usually spared at laparotomy by circumscribing the incision to one of its sides. Also because the peritoneum is dimpled upward in a cone-shaped configuration at the base of the umbilicus, it is less likely that omentum and intestine will become attached and adheres to its peritoneal surface [4].

Adhesions at the umbilical area are found in approximately 10% of all laparoscopies. In women with no previous abdominal surgery, umbilical adhesions are found in 0% to 0.68% of laparoscopies. 0% to 15% in women with prior laparoscopic surgery, 20% to 28% in those who had previous laparotomy with horizontal suprapubic incision, 50% to 60% in those who had previous laparotomy with longitudinal incision [5-8]. Current mostly used procedures are: open technique (Hasson method), closed technique (Veress needle) and direct trocar entry without pre-existing pneumoperitoneum.

In patients known or suspected to have periumbilical adhesions, open entry technique (Hasson method) or alternative sites other than umbilicus for insertion may be chosen (Palmer's point is the most preferred) [5,9-11].

The left upper quadrant or Palmer's point was developed by Raoul

Palmer in 1974 who advocated the insertion of the Veress needle at a range of 3 cm below the left subcostal in the midclavicular line [12].

Open entry technique (Hasson method), which is first described in 1971 by Hasson, is mainly used in high-risk patient populations such as patients with multiple abdominal surgeries, severe endometriosis, a history of pelvic inflammatory disease, or a prior tubo-ovarian abscess. Compared with other access methods, the Hasson technique is relatively time consuming and tends to cause a greater difficulty in maintaining a pneumoperitoneum due to gas leakage [5,13,14].

Dingfelder first describes direct trocar entry in 1978. Direct trocar entry is a one blind step instead of three when compared to Veress entry, faster than any other method, near exclusion of entry failure compared to Veress entry and above all, there is possibility of immediate recognition of intra-abdominal iatrogenic injuries [5,15].

The Society of Obstetricians and Gynecologists of Canada practice guideline recommends left upper quadrant (LUQ, Palmer's) laparoscopic entry in patients with suspected or known periumbilical adhesions or history or presence of umbilical hernia, or after three-failed insufflation attempts at the umbilicus. The open entry technique may be utilized as an alternative to the Veress needle technique [5].

Also Royal College of Obstetricians and Gynecologists say that the umbilicus may not be the most appropriate site for insertion following previous abdominal surgery. The most usual alternative site is the left upper quadrant, where adhesions rarely form, although even this may be inappropriate if there had been previous surgery in this area or splenomegaly. The Hasson method of open laparoscopic entry is an alternative to closed laparoscopy that avoids the use of sharp instruments after the initial skin incision [5,9].

In the regard of laparoscopic entry techniques, latest Cochrane review says there is insufficient evidence to recommend one laparoscopic entry technique over another. An open-entry technique is associated with a reduction in failed entry when compared to a closed-entry technique, with no evidence of a difference in the incidence of visceral or vascular injury. An advantage of direct trocar entry over Veress needle entry is noted for failed entry and vascular injury [16].

Conclusion

This is a dilemma whether to choose Palmer's point entry or Hasson method entry in case of known or suspected periumbilical adhesions. We just want to emphasize or take into consideration that as in our case Palmer's point is not 100% safe like the other methods, as well. The surgeons all over the world should keep in mind this case. Although several articles have been written on the safest, quickest, and easiest method, the current literature fails to provide a fail-proof or risk-free method of entering the peritoneal cavity at laparoscopy.

The safety of these techniques depends more on skill, education, and a clear appreciation of the anatomy and physics of the abdominal wall than on the technique itself. It is important that surgeons should choose the entry technique they are familiar with and feel most comfortable with.

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