

Laparoscopy and Natural Orifice Surgery: First Entry Safety Surveillance Step

Daniel A. Tsin, MD, Andrea Tinelli, MD, Antonio Malvasi, MD, Fausto Davila, MD
Ramiro Jesus, MD, Raul Castro-Perez, MD

ABSTRACT

Background and Objective: We are sharing information regarding the surveillance of the first entrance port in laparoscopic and natural orifice transvaginal endoscopy surgeries. However, we are not analyzing techniques or other surgical findings.

Method: In this study, 160 women with previous abdominal pelvic surgeries underwent laparoscopic surgery, 145 patients underwent transvaginal Minilaparoscopy Assisted Natural Orifice Surgery (hybrid), and 3 patients underwent pure natural orifice transvaginal endoscopic surgery (pure). For those patients who had laparoscopy and hybrid procedures, the surveillance was from a laparoscope or gastroscope placed in a secondary port. Surveillance in pure cases was done using a gastroscopic retro view to see the pouch of Douglas.

Results: The laparoscopic procedures were gynecological procedures. The hybrid procedures included gynecological procedures as well as appendectomies and cholecystectomies; the pure procedures were cholecystectomies. There were a few minor vascular and bowel injuries in the laparoscopy group. There were no injuries in the transvaginal hybrid or pure procedures groups.

Conclusion: The surveillance of the first entrance port can be an effective precautionary step. The cumulative experience suggests that using such surveillance in cases involving patients with prior surgery may assist in

recognizing complications that might otherwise be missed.

Key Words: Laparoscopy, Complications, Minilaparoscopy Assisted Natural Orifice Surgery, NOTES.

INTRODUCTION

This article describes a multicenter experience with the implementation of a precautionary safety maneuver for the assessment of the first entry port (FEP) in peritoneoscopy.

Laparoscopy is an accepted method of treatment for some general surgery, gynecological and urological ailments. A randomized controlled study compared laparoscopy and laparotomy for benign gynecological procedures. The study showed that the risk of minor complications after gynecological surgery is 40% lower with laparoscopy than with laparotomy. However, the risk of major complications is similar.¹

Complications associated with laparoscopy often occur when the trocar passes through the abdominal wall for the FEP. Approximately half of these major complications occur during placement of the FEP. This complication rate has not changed significantly over the last quarter of a century.^{2,3} Generally, such complications are more likely to be encountered with patients who had previous abdominal surgery, compared to patients with no prior abdominal surgery. However, in any patient, it is possible that a surgeon may not visualize the injury and therefore may not address it properly and in a timely manner. Accordingly, the authors suggest reviewing the FEP area via a second port during laparoscopic procedures regardless of the FEP technique used.⁴⁻⁶

With the increased interest in natural orifice peritoneoscopy, the safety of that procedure has raised questions. The issue of the FEP is automatically addressed during transvaginal hybrid procedures. With minilaparoscopy, the authors observed the transvaginal entrance and, with the transvaginal optic, the authors surveyed the minilaparoscopy ports (MANOS). In the pure form of

The Mount Sinai Hospital of Queens, Long Island City, New York, USA (Dr Tsin).

Department of Obstetric & Gynecology, Division of Experimental Endoscopic Surgery, Imaging, Technology and Minimally Invasive Therapy, Vito Fazzi Hospital, Lecce, Italy (Dr. Tinelli).

Department of Obstetric & Gynecology, Santa Maria Hospital, Bari, Italy (Dr. Malvasi).

Universidad Autonoma de Mexico. Facultad de Estudios Superiores. Iztacala, Mexico (Drs. Davila, Jesus).

Hospital Universitario Abel Santamaria Cuadrado. Pinar del Rio. Universidad de Ciencias Medicas de Pinar del Rio, Cuba (Dr. Castro-Perez).

Address correspondence to: Daniel A. Tsin, MD, Director of Minimally Invasive Surgery, The Mount Sinai Hospital of Queens, 25-10 30th Avenue, Long Island City, New York 11102 USA. E-mail: LaserGYN@aol.com

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transvaginal endoscopic surgery with no abdominal ports (NOS), a flexible endoscope was used for a retro view of the vaginal FEP.

MATERIALS AND METHODS

We reviewed 160 laparoscopies (the laparoscopy group). The inclusion criteria for this group were the presence of utero-ovarian benign disease and previous abdominal pelvic surgery with laparoscopy or laparotomy. The preliminary medical evaluations excluded contraindication to laparoscopy. The laparoscopic procedures reviewed were performed with the patient under general anesthesia, and all patients were given a prophylactic dose of 2g cefazolin IV. An oral-gastric tube was placed to aspirate stomach contents. The operations were done either by the open entry method using the Hasson technique (Ethicon Endo-Surgery, Cincinnati, OH, USA) or by accessing the peritoneal cavity using a modified Direct Optical Entry (DOE) that used a bladeless trocar with an optical viewing port (Endopath or Endopath Xcel; Ethicon Endo-Surgery, Cincinnati, OH, USA) without previous pneumoperitoneum.

For the transvaginal procedure, we chose 148 patients (the transvaginal procedure group) following a pelvic bimanual examination showing no obliteration of the pouch of Douglas and no vaginal narrowing. The Papanicolaou test for these patients was negative. Bowel preparation was done to have an empty recto-sigmoid. The patients fulfilled all inclusion criteria for laparoscopy and culdoscopy. Intravenous antibiotic prophylaxis, with metronidazole 500mg and second-generation cephalosporin 1g, was initiated 1 hour before the time of the incision. The patients were placed in a lithotomy position and a Foley catheter was inserted. Careful separation of the legs provided enough room to operate in the European position.

Of the cases in the transvaginal procedure group, transvaginal MANOS was done using the Veress needle or a posterior colpotomy in 134 cases, and circular colpotomy was done with simultaneous vaginal hysterectomies in the remaining 14 cases. Posterior colpotomy was used as an FEP in all pure transvaginal NOS, as previously described.⁷⁻¹⁰

RESULTS

In the laparoscopy group, some entry injuries occurred in patients with previous surgery. Specifically, the authors encountered minor vascular injuries in 4 patients; these injuries included minor punctures of jejunal and omental small vessels. Minor bowel injuries (specifically, light ec-

chymosed bowel loops) were encountered in 7 patients; these injuries recovered spontaneously within the first few minutes. Invasive treatment was not necessary in these cases, although extra intraoperative time control of the lesions was required. In one case, a cut in the small bowel was adhering to the abdominal wall that inadvertently occurred during the placement of the FEP and was treated using intracorporeal suturing.

In the transvaginal procedure group, there were no entry injuries during the placement of the FEP. MANOS and NOS procedures were followed for 2 months. Surgeons encountered a complication in one transvaginal MANOS case that was due to an antibiotic drug-related fever that occurred soon after surgery (the complication was not related with the FEP).^{7,8}

All of the operations were done without any further intra- or postoperative complications. Each of the patients was discharged the day after the operation with no complications in the early postoperative period. Postoperative 4-week to 8-week follow-up showed no complications.¹⁰

DISCUSSION

None of the currently available entry forms into the abdominal cavity are free of complications.¹⁰ Thus, this article suggests looking at the FEP area by placing a laparoscope or flexible endoscope via a secondary port or via a retro view with a flexible endoscope. Viewing of the first and secondary port is part of the hybrid transvaginal procedure. The technique allows for a visual identification of the specific area. All injuries at the FEP site were recognized using this maneuver. All surgeries have their risks, and complications can occur even in the best hands. Attention should be focused on prompt recognition and proper treatment. There has been much debate over what is the safest approach to the FEP in laparoscopy. This small series study and other studies suggest that the presence of abdominal and pelvic adhesion is a factor of potential complication at the FEP. To promptly recognize such complications, the authors suggest a precautionary step for the surveillance of the FEP access in peritoneoscopy.

CONCLUSION

Several studies compare the safety of the FEP in laparoscopy. However, most of the research shows no overwhelming or definitive differences.¹⁰ Studies of the transvaginal approach, on the other hand, highlight the safety of microculdoscopy also known as Fertiloscopy

and Transvaginal Hydrolaparoscopy¹¹; early studies have also suggested the safety of transvaginal MANOS.¹²

Posterior exploratory colpotomy is a well-established procedure that is used in the pure transvaginal approach for NOS. Circular colpotomy was used in MANOS simultaneously done during vaginal hysterectomies, also an established procedure. While the search for the safest entry continues, we share our cumulative experiences^{7,8,10} and suggest whenever possible to do an endoscopic look at the FEP site.

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