

Open Port Placement of the First Laparoscopic Port: A Safe Technique

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ABSTRACT

Background: Blind insertion of the Veress needle and of the first trocar is a significant cause of complications in laparoscopic surgery. Despite this risk, the closed technique is still more popular than the open one. Our aim is to report the results of our experience with the routine use of the modified open technique in laparoscopic surgery and to describe the technical details of the creation of pneumoperitoneum by the open technique that we used.

Methods: A prospective study was conducted in the department of surgery at Maulana Azad Medical College and associated Lok Nayak Hospital, New Delhi. A modified method of open laparoscopy was performed on 755 consecutive patients requiring laparoscopy or laparoscopic surgery over a 5-year period from August 1998 to February 2003 in 1 surgical unit.

Results: The mean time taken was 4 minutes (range, 2 to 10). No intraoperative complications occurred during trocar insertion. Forty-nine (6.49%) patients had minor umbilical sepsis, 22 (2.91%) had periumbilical hematoma, but none had umbilical hernia during 3 months of follow-up after surgery.

Conclusion: Based on our own experience, we recommend open laparoscopy as a safe and easy approach for routine laparoscopic interventions.

Key Words: Open port placement, Pneumoperitoneum.

INTRODUCTION

Hasson introduced the open method of port insertion for laparoscopic procedures some 3 decades ago.¹ Blind insertion of the Veress needle and of the first trocar is a significant cause of complications during laparoscopic surgery.²⁻⁷ Despite this risk, the closed technique is still more popular than the open one. Nevertheless, open laparoscopy has not been widely adopted mainly due to gas leakage from the wound and because it is time-consuming. Injuries to underlying viscera and vessels by needles and trocars have been reported even when the open technique is used.⁸⁻¹⁰ The aim of this article is to report the results of our experience with the routine use of the open technique in laparoscopic surgery. At our institution, we started using the open technique to create pneumoperitoneum during the last decade. Many techniques have been mentioned in the literature¹¹⁻²² for creation of pneumoperitoneum by the open technique; the one used by us is simple and effective. The objective of this study was to evaluate the time taken and complications for open laparoscopy.

METHODS

A prospective study was conducted in the department of surgery at Maulana Azad Medical College and associated Lok Nayak Hospital, New Delhi. A modified method of open laparoscopy was performed in 755 consecutive patients requiring diagnostic laparoscopy or laparoscopic surgery over a 5-year period from August 1998 to February 2003 in 1 surgical unit. The major indication for performing laparoscopy was cholelithiasis in 530 (70.19%) patients. Other indications were diagnostic laparoscopy in 116 (15.36%) patients, interval appendectomy in 88 (11.65%), and laparoscopic varicocele ligation in 21 (4.32%). Thirty-eight (5.03%) patients had undergone previous abdominal surgery or a laparoscopic procedure.

Technique

The modifications to the technique of open laparoscopy described herein make it simple and efficient while maintaining the safety inherent with this technique. The skin of the abdominal wall is prepared and draped. A small transverse or semicircular incision approximately 1.5 cm to 2

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cm is made in the inferior umbilical fold, and the skin edges are retracted with small Langenbeck retractors and the fat separated from the umbilical scar. The umbilical scar is picked up by the small Allis forceps or towel clip at the highest point and retracted up to facilitate the lifting up of the abdominal wall (**Figure 1**). An incision is made in the umbilical scar in a vertical direction to incise only the fascia and rectus sheath (**Figure 2**). The little finger is then introduced through this incision, and the preperitoneal fat and the peritoneum are perforated with the finger, which is also used to explore the area around the incision for adhesions. Alternatively, the peritoneum is gently entered with the tip of closed artery forceps, while keeping the abdominal wall elevated with Allis forceps or towel clip applied to the umbilical scar. The blunt tip cannula (Hasson's), if available, is inserted through the incision, or in its absence, the metallic or plastic cannula without the trocar is used. The cannula is fixed to the abdominal wall with a silk thread after placing wax gauze around it and the skin edge to prevent air leakage. After insufflation of carbon dioxide through the sleeve, the optical equipment is introduced in the usual manner.

The creation of pneumoperitoneum is faster and uniform with the open laparoscopic technique. The port site is closed in layers after suturing the rectus with nonabsorbable suture.

RESULTS

No intraoperative complications occurred during trocar insertion. The mean time taken from incision to the insertion of the cannula was 4 minutes (range, 2 to 10). Forty-nine patients (6.49%) had minor umbilical sepsis, 22 patients (2.91%) had periumbilical hematoma, but none had



Figure 1. Traction on the umbilicus to show the umbilical scar.

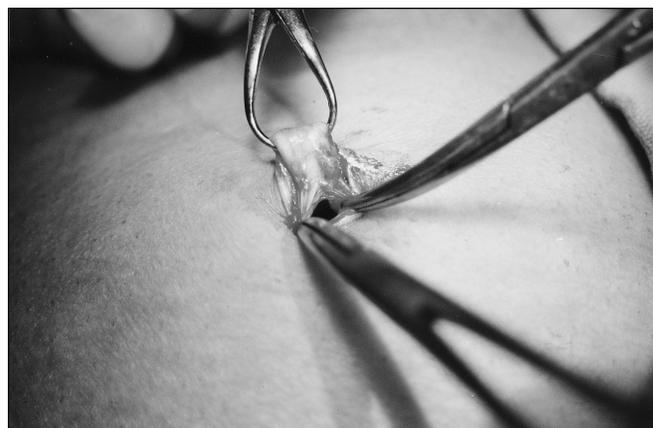


Figure 2. Incision given on the umbilical scar and the rectus sheath to enter the peritoneal cavity.

umbilical hernia during 3 months of follow-up after surgery.

DISCUSSION

The 2 most common techniques used to gain entry into the peritoneal cavity during laparoscopic general surgery are the blind Veress needle/trocar insertion and open trocar placement under direct visualization. Many of the fatal complications associated with operative laparoscopy arise from creation of the pneumoperitoneum, such as subcutaneous emphysema, gas embolism, injury to internal abdominal organs during entry of the Veress needle or the first laparoscopic trocar.²⁻⁷ Even when all the necessary safety measures are observed and despite complete mastery of the technique, this complication cannot be completely avoided during the blind procedure. The technique of, so-called, open laparoscopy with the introduction of a blunt trocar under direct vision is the sole alternative available for the prevention of such injuries. The advantages of this procedure are that, with appropriate practice, it takes no longer, can be used in all possible situations, including previous surgery. In our series the wound infection was higher than that of the international figure of 0.6%.⁸ The reasons attributed to this could be either an improper sterilization technique or inability to completely clean the umbilicus before the surgery. Through the use of open laparoscopy, injuries to blood vessels and viscera can be virtually completely eliminated and patient safety considerably improved.

CONCLUSION

Open laparoscopy can lead to elimination of the risks of blind insufflation and trocar insertion observed in the

classical technique. Based on our own experience, we recommend open-port placement of the first laparoscopic trocar as the routine approach for all laparoscopic interventions.

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