

Original Research Article

Modified Hasson technique: a quick and safe entry of first port into the abdomen

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ABSTRACT

Background: Laparoscopy is the standard technique for abdominal surgeries. There has been a debate over the safest laparoscopic entry technique over the past two decades. But, no technique has been regarded as the best, leading to numerable techniques. We use a modified Hasson technique to enter the peritoneal cavity. Hence, we conducted a study to evaluate the efficacy of our modified Hasson technique.

Methods: A retrospective study was conducted in the Department of General Surgery, Al Azhar Medical College Hospital from January 2013 to December 2018.

Results: A total of 156 patients were studied. Inguinal hernia repair was the most common indication. The mean entry time was 2±0.7 minutes. The postoperative complications included port site seroma [1 (0.6%)] and port site infection [1 (0.6%)]. Both the complications were found at the umbilical port and all following surgery for appendicular perforation. There was no incidence of preperitoneal placement of port, intraabdominal injury, port site hematoma or port site hernia. There was no mortality in the study group.

Conclusions: Modified Hasson technique is a safe and quick technique to enter the abdomen.

Keywords: Abdominal cavity, Complications, Hasson technique, Laparoscopy

INTRODUCTION

Laparoscopy is the standard technique for abdominal surgery. Laparoscopy has a lot of benefits over the open procedure in terms of early recovery, short hospital stay, improved cosmesis, and reduced risk of postoperative adhesions.¹ However, the first port entry injuries of laparoscopy carry greater morbidity and even mortality compared to laparotomy.¹

Although all laparoscopy surgeons' main concern is to prevent unwarranted injury during first port entry, the studies reveal laparoscopy-induced intestinal injury to be 3.6%.² The overall complications of laparoscopy are low,

but they can be life-threatening.² Over the last two decades, there has been a lot of improvement in laparoscopy to prevent complications such as improved optics, electronics, and other ancillary instruments. There has also been improved surgical proficiency and expertise, laparoscopy training centers, workshops, and online videos. These help in adopting useful tips to prevent complications.

Though there are multiple techniques to place the first port into the abdomen, all of them follow two main principles, closed and open. In the closed technique, a needle (Veress) is inserted into the abdominal cavity, insufflated, and then a port is placed. The closed

technique is associated with an increased risk of injury to the bladder, bowel, and major abdominal vessels. To avoid these complications, Hasson, introduced the open technique. In the open technique, the first port is placed by opening the abdominal cavity. This technique requires a specifically designed cannula, blunt obturator, and trumpet valve fitted with sleeve. The incision should be just enough to dissect the fascia, incise it, and to enter the peritoneal cavity under vision.³

Many surgeons feel that Hasson technique is superior to the closed entry technique. But there are conflicting evidences in various studies; lacking a unified opinion.⁴ Hence, we conducted a study to evaluate the efficacy and outcome of modified Hasson technique.

METHODS

A retrospective study was conducted in the Department of General Surgery, Al Azhar Medical College Hospital, India. The patients who underwent laparoscopy by modified Hasson technique between January 2013 and December 2018 were included in the study. The patients who underwent previous abdominal surgeries and patients with incomplete data were excluded from the study.

The data recorded included age, gender, indication for surgery, and first port entry time. The complications of intraoperative injuries, seroma, bleeding, and infection was documented.

All patients were operated under general anaesthesia. One to two centimeters curved incision was placed supraumbilically. After separating the subcutaneous fat, the fibrous stalk of the umbilicus is followed to its junction with the linea. The tissues beneath are held back by Langenbeck retractors to identify the point where the peritoneum is always found to be adherent to the fascia above (Figure 1). Then a small 1 cm incision is placed on the anterior rectus sheath and the defect is dilated with the retractors to allow passage of a blunt tipped oblique ended cannula, under direct vision (Figure 2). This is in contrast with the original Hasson's technique where an incision is made a little lower where many layers are encountered to get into the peritoneum (Figure 3). The insufflation tube is then, applied to the connector valve. After high-flow insufflations, a laparoscope is introduced, and organs below the entry site and the remainder of the abdominal cavity are examined in the usual manner. Time is recorded from incision to insertion of the laparoscope and noted as the "entry time". The closure of the anterior rectus defect was done under direct vision with vicryl 2/0 in a 'U' shaped suture.

Post-procedure, 0.2% Ropivacaine was infiltrated around the port sites. Sutures were removed on 5th day post-operatively.

Statistics

IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp. was used to analyse the data. The age and first port entry time were expressed in mean±standard deviation. The gender, indication for surgery, and complications were expressed in number and percentage.

RESULTS

A total of 176 patients underwent laparoscopic procedures by modified Hasson technique during the study period. Twelve patients with previous abdominal surgeries and 10 patients with incomplete data were excluded from the study. Hence, a total of 156 patients were included in the study.

The mean age of the study population was 37±13 years. Males were a little more predominant (M:F=80:76). The indications for surgery included Acute appendicitis (52 patients; 33%), Cholelithiasis (33 patients; 21%), Inguinal hernia (53 patients; 34%), Varicocele (10 patients; 6%), and benign masses (8 patients; 5%). The mean entry time was 2±0.7 minutes (Table 1).

Table 1: Patient characteristics and entry time.

Patient characteristics	
Age	37±13 years
Gender (Male:Female)	80:76
Indications	N (%)
Appendicitis	52 (33)
Inguinal hernia	53 (34)
Cholelithiasis	33 (21)
Varicocele	10 (6)
Benign masses	8 (5)
Entry time	2±0.7 minutes

Table 2: Laparoscopic entry-related complications.

Complications	Number (%)
Extraperitoneal port placement	0
Intraperitoneal injury	0
Failure to enter the abdomen	0
Port site seroma	1 (0.6)
Port site infection	1 (0.6)
Port site hematoma	0
Port site hernia	0
Mortality	0
Total	2 (1.2)

The postoperative complications included Port site seroma [1(0.6%)] and port site infection [1(0.6%)]. The port site seroma, as well as the port site infection, were found at the umbilical port following surgery for

appendicular perforation. There was no incidence of port site hematoma, preperitoneal port placement, intra-abdominal injury or port site hernia. There was no mortality in the study group (Table 2).

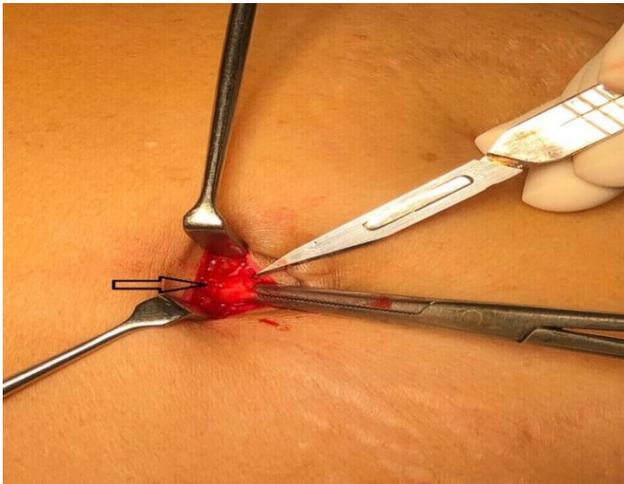


Figure 1: Rectus sheath seen through the supraumbilical incision.

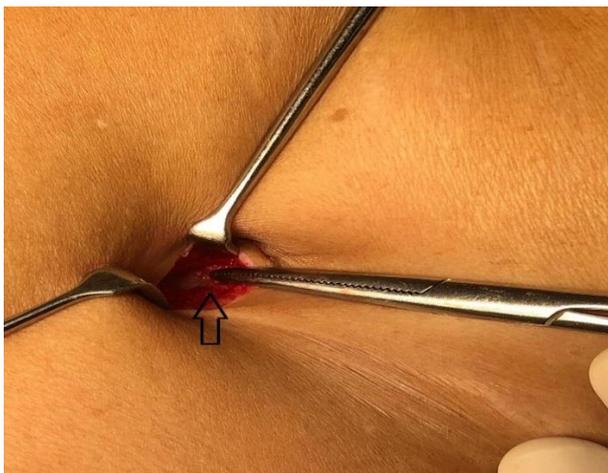


Figure 2: Incision in the rectus sheath.

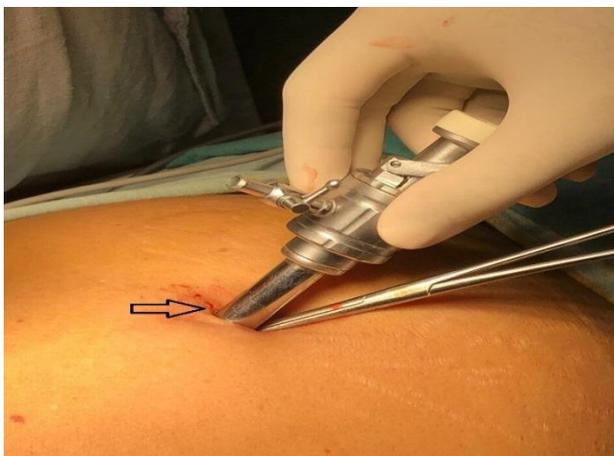


Figure 3: The port placed.

DISCUSSION

Over the past, two to three decades, many new techniques, guidelines, and technologies have been introduced to abolish the risks associated with the first port entry in laparoscopy. But, no single instrument or method has achieved the desire.⁴

Injury to the intra-abdominal organs is the common and potentially avoidable complication of classic Veress technique. This occurs due to the blind introduction of the primary trocar or Veress needle. Apart from classic Veress technique of port placement, there are other methods such as open technique, direct trocar placement, use of radially expanding trocars, optical trocars, and shielded trocars.⁵

In 1971, Hasson introduced an open technique to eliminate the risks of classic Veress technique. The advantage of Hasson technique is that the peritoneal cavity is accessed under direct vision. But, the Hasson technique is time consuming compared to the closed technique.³ The open technique also carries a risk of more tissue dissection during the port placement, leading to a seroma, hematoma, and infection. Sometimes, there can be a failure to enter the abdomen, which can be converted to Veress technique to achieve the peritoneal entry.⁶ The European Association of Endoscopic Surgery stated that there is no evidence of open technique is being superior or inferior to the other techniques.⁷

As there is no guideline for the first port entry, there are various techniques have been followed worldwide.⁸⁻¹⁰ Hence, we modified the open technique to avoid its disadvantages. In this modified Hasson technique, we place an incision supraumbilically and reach a point of least resistance of penetration of the first trocar. The technique we inculcated simplifies the first trocar entry avoiding the risk of excessive dissection and failure to enter the peritoneum. This also makes the laparoscopy entry less tedious and safer. In this series, the mean first trocar entry time was 2 ± 0.7 minutes, which is lesser than the classic Hasson technique (Hasson et al, 3 to 10 minutes; Zaraca et al, 4.8 minutes).^{3,11} There were a total of two (1.2%) complications in this study which is comparable to the classic Hasson's technique as mentioned in Hasson et al (0.5%), and Zaraca et al (2.2%).^{3,11} We had no occurrence of injury to internal organs, port site hematoma, extraperitoneal insufflation, port site herniation or failure to access the peritoneal cavity. There was no mortality in the study group.

CONCLUSION

Our modified Hasson technique helps us achieve faster, safer and reliable first port entry in laparoscopy. We recommend our technique to all cases of laparoscopy as it was superior to all other techniques in terms of entry time as well as complications. The technique is easy to learn and inculcate.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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