JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH

How to cite this article:
BHATTACHARJEE P K. MODIFIED OPEN METHOD OF FIRST PORT INSERTION IN LAPAROSCOPIC SURGERY. Journal of Clinical and Diagnostic Research [serial online] 2007 October [cited: 2007 Oct 1]; 5:437-439.
Available from
http://www.jcdr.net/back_issues.asp?issn=0973-709x&year=2007&month=October&volume=1&issue=5&page=437-439&id=03

VIEW POINT

Modified Open Method of First Port Insertion in Laparoscopic Surgery

BHATTACHARJEE P K

Introduction

Various techniques, both the open and the closed, have been described for insertion of the first trocar during laparoscopic surgery. The conventional closed technique with blind insertion of Veress needle is associated with some of the serious complications of laparoscopic surgery [1],[2]. In 1971, Hasson first described the open method of port insertion using a cannula designed by him [3]. It affords peritoneal access under direct vision and is supposed to be a far safer method of establishing pneumoperitoneum, though one cannot claim it to be totally safe. The latter technique has the limitations of being more time consuming and having occasional gas leakage from around the trocar.

Increasingly, the open method of first trocar placement is replacing the closed technique in view of the lower morbidity associated with the former [4]. Though the choice of a particular technique is a matter of surgeon's preference, its safety, ease, rapidity, and cost effectiveness are points that need to be considered.

Described herein is a modified method of open placement of first port using the readily available, common instruments. It was found to afford an easy, safe, rapid, and cheap method of establishing pneumoperitoneum even in patients who had undergone previous abdominal surgery.

Operative Technique/Method

As a routine, all patients are initially catheterised, and the stomach is decompressed by placing a Ryle's tube. As in the standard procedure for Veress needle insertion, the surgeon stands at the patient's left side. The umbilicus is stretched transversely with the left hand, and a 1 cm long incision is made on superior umbilical fold using a No. 11 scalpel blade. The upper margin of the umbilicus is lifted up with an Allis tissue forceps, and using the back of the B.P handle or the right index finger, the underlying tissue is bluntly dissected to identify the *junction of the umbilical stalk and the linea alba* [Table/Fig 1]. The correct identification of this point is the key to the rapid and smooth access. At this point, the abdominal wall is the thinnest and the peritoneum is intimately adherent [5].

Table/Fig 1

Identification of the junction of the umbilical stalk and the linea alba.

With the umbilical scar stretched and the abdominal wall elevated by the retraction on upper margin of the umbilicus with the Allis forceps, a vertical cut, <5 mm in length, is made on the umbilical stalk and the adjoining linea alba [Table/Fig 2]. The peritoneum is entered carefully, using the tip of a medium-sized closed haemostat, and opened up to stretch the opening enough to introduce the tip of

Department of Surgery, I.P.G.M.E & R/S.S.K.M Hospital, Kolkata , India.
Corresponding author: Dr Prosanta Kr. Bhattacharjee. Flat No 10-C, 9, Mandeville Gardens, Kolkata 19, India.
Tel.: 0332565-0403; Mob: 09434194957; e-mail: prosantabh@rediffmail.com

the little finger. Exploration with the finger tip, probing with the tip of a haemostat, and direct visualisation of the peritoneal cavity with the blades of the haemostat being open [Table/Fig 3] exclude any adhesions around the incision. The assistant keeps the blades of the haemostat open and guides the surgeon to gently introduce the tip of the 10 mm cannula (without the trocar) directly into the incision line. The haemostat and the Allis forceps are removed, and the trocar is gently pushed, against minimal resistance, into the peritoneal cavity with the right hand while keeping the abdominal wall elevated with the left hand. Subsequent establishment of pneumoperitoneum is rapid and uniform. The port site incision being small is sutured easily with a figure of eight sutures with port closure (Vicryl®).

Table/Fig 2

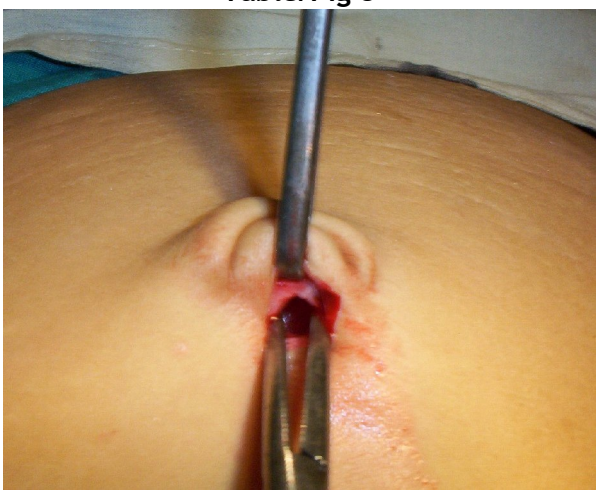
Vertical cut (<5 mm in length) is made on the umbilical stalk and the adjoining linea alba.

There is no need to fix the cannula to the abdominal wall nor is there any gas leakage, as the fascial opening, being slightly smaller than the diameter of the cannula, grips the later tightly.

Discussion

The most important and potentially dangerous first step in laparoscopy is safe and successful insertion of the first port. There are four basic techniques of peritoneal access in laparoscopic surgery: blind Veress insertion, direct trocar insertion without previous pnuemoperitoneum, optical trocar insertion, and open laparoscopy.

Table/Fig 3



Direct visualisation of the peritoneal cavity, with the blades of the haemostat being open.

The first two are blind techniques and have been associated with various complications such as subcutaneous emphysema, gas embolism, injury to intra-abdominal structures (hollow viscus, solid organs, and vessels), etc. Chances of serious injuries are less in the open procedure, though a complication like direct entry into a loop of small gut has been reported [6]. The technique described above is a modified open laparoscopic technique. We combine the advantages of open procedure of visualising peritoneal cavity (though limited) and exploring the same with the finger tip, before introduction of the trocar, with that of the closed technique of avoiding gas leak, by keeping the incision on the umbilical cicatrix and adjoining linea alba small. Unlike Hasson technique, there is no need of any special instrument. Access into the peritoneal cavity and establishment of subsequent pneumoperitoneum are completed rapidly, average time taken being 3 minutes (range 2–5 minutes). There was no incidence of any intraoperative injury in over 300 cases (including 24 cases with previous abdominal surgical scars) in which the procedure was practised, though there were two instances where the peritoneum got pushed down from the parietes and it was not possible to gain access into the peritoneal cavity initially. Subsequent establishment of pneumoperitoneum with Veress needle introduced on the Palmer's point pushed the peritoneum up and enabled the trocar to be introduced. One of these two cases also developed a periumbilical haematoma that resolved spontaneously. Cases have been followed up over last 6 years, and there has been no incidence of umbilical hernia so far.

Though similar procedures have been described by Lal et al. [4] in 2002 and Jared et al. [7] in 2005, there are some basic differences between them. Jared et al. made a skin incision to the left of the umbilicus, while standing on the patient's *right* side, and used a pair of suture scissors to cut the umbilical stalk directly down to the peritoneum instead of just incising the sheath. Lal et al. had preferred an incision on the inferior umbilical fold. They had to use silk thread to fix the cannula to the abdominal wall and to place the paraffin gauze around the cannula to minimise gas leak.

The technique described herein is accomplished while standing to the patent's left side, and hence there is no need to change sides during the commonly performed laparoscopic cholecystectomy. Limiting the incision up to the sheath and subsequent entry into the peritoneal cavity with a haemostat minimise the risk of inadvertent injuries. Moreover, as the cannula fits in snugly into the incision on the sheath, which is smaller than its diameter, there is no chance of gas leak and the cannula may remain fixed at a desired length; thus, there is no need of the fixation stitch and the paraffin gauze, as described by Lal et al.

Conclusion

This simple technique of first trocar insertion is safe and easily to learn. The controlled, effortless insertion minimises the penetration force at the instrument–tissue interface and reduces chances of trocar-induced injuries. Avoiding the sharp pointed trocar minimises the chances further. It may be safely practised even in patients with previous laparotomy scars. Rapid establishment of pneumoperitoneum is an additional advantage.

References

[1] Yuzpe AA. Pneumoperitonem needle and trocar injuries in laparoscopy. A survey on possible contributing factors and prevention. J Reprod Med 1990;35:485–90.
[2] Gunenc MZ, Yesildaqlar N, Binqol B, Onalan G, tabak S, et al. The safety and efficacy of direct trocar insertion with elevation of the rectus sheath instead of the skin for pneumoperitoneum. Surg Laparosc Endosc Percutan Tech 2005;15:80–1.
[3] Hasson HM. A modified instrument and method for laparoscopy. Am J Obstet Gynecol 1971;110:886–7.
[4] Lal P, Sharma R, Chander R, Ramteke VK. A technique of open trocar placement in laparoscopic surgery using the umbilical cicatrix tube. Surg Endosc 2002;16:1366–70.
[5] Mochado MA, da Rocha JR, Machado MC. An alternative of open laparoscopy. Rey Hosp Clin Fac Med Sao Paulo 1998;53:174.
[6] Sadeghi-Nejad H, Kavoussi LR, Peters CA. Bowel injury in open technique laparoscopy cannula placement. Urology 1994;43:559–60.
[7] Jared LA, Sunil B, Mathew EB, Mark AV, Nayan DS. Safe and rapid laparoscopic access – a new approach. World J Surg 2005;29:800–3.