Introduction

Q: Is laparoscopy safe in women who have undergone previous abdominal surgery?
A: The cynic’s answer to this question may well be ‘don’t even think about it’, but that would be to deny women who have previously undergone open abdominal surgery the undoubted advantages of the laparoscopic approach for subsequent operations. Yes, there is an increased risk of inadvertent bowel injury in such cases, but knowledge of and practice at using a variety of entry sites and entry techniques can reduce this risk to a minimum.

Q: What is the incidence of bowel adhesions?
A: In their prospective single-centre study of 814 patients, Auderbert and Gomel found the incidence of periumbilical adhesions to be as follows: no previous surgery 0.68%, previous laparoscopy 1.6%, transverse suprapubic incision 19.8%, midline incision 51.7%.

Because of the high risk of bowel being densely adherent to the underside of a midline incision, using closed entry techniques (i.e. with a Veress needle) in women with a midline scar is absolutely contraindicated. Most gynaecologists feel comfortable using closed entry techniques in women with a previous transverse suprapubic incision, but, in view of the known 20% chance of periumbilical adhesions, perhaps we should be considering alternative entry techniques more often. Not only is there an increased risk of periumbilical adhesions, but adherence of the greater omentum to the underside of a Pfannenstiel incision can pull the transverse colon down, making it more at risk from the Veress needle and primary trocar.

Inadvertent bowel injury can be minimised by following the recommendations for closed entry outlined in the RCOG Green-top Guideline, Preventing Entry-Related Gynaecological Laparoscopic Injuries (Box 1).²

Box 1. Recommendations for minimising inadvertent bowel injury during closed entry laparoscopy²

- Ensure that the operating table is flat.
- Use a vertical incision at the base of the umbilicus.
- Insert the Veress needle only to the depth required to penetrate the peritoneum.
- Use confirmatory tests of intraperitoneal placement; for example, Palmer’s test or low insufflation pressure.
- Inflate to 20–25 mmHg before inserting the primary trocar.
- Perform a 360° inspection following insertion of the laparoscope.
- Carry out careful inspection on removing the laparoscope at the end of the operation.

Hasson open entry

Hasson first described his open entry technique in 1974.³ Although it is the preferred entry method for most general surgeons, the technique has never really been embraced with much enthusiasm by gynaecologists. It is certainly the entry technique that should be used in all thin women, as it will avoid accidental injury to the great vessels on the posterior abdominal wall. The main reason why it is used infrequently by gynaecologists is that they feel unfamiliar with the technique, despite the fact that it is part of the Basic Practical Skills course. To overcome this reluctance I would advocate taking three steps:

1. Spend some time observing and learning the technique from a gynaecologist or general surgeon colleague who is thoroughly familiar with it.
2. Have a separate Hasson entry pack of instruments immediately available in the operating theatre whenever required. The pack should include two pairs of Littlewood forceps, two small/medium Langenbeck retractors and two pairs of curved artery forceps; for example, Fraser-Kelly (Figure 1).
3. Use the technique on all thin patients. As well as being safer for them, they are usually the easiest patients in whom to gain successful access to the peritoneal cavity. This will then build confidence at using the Hasson
technique in more challenging cases, such as the obese patient, where it is also recommended.

The key to success is to evert the base of the umbilicus with Littlewood forceps, with either a small vertical or transverse incision to the root of the umbilical stalk. At this point the abdominal wall is thin and the underlying peritoneum usually adherent. Good retraction with small Langenbeck retractors gives a good view of the deeper layers, which can be picked up between curved artery forceps; I find these significantly better than the ubiquitous Spencer Wells forceps found in most gynaecology sets. Following incision of the peritoneal layer, the primary trocar can be inserted with minimum force.

Gas leakage around the primary trocar can be a problem with Hasson entry. This can be minimised by the following steps:

- making the peritoneal incision as small as possible prior to insertion of the primary trocar
- tying stay sutures in the linea alba/rectus sheath around the primary trocar to effect a seal
- using a specific Hasson entry trocar and cannula with flanges to prevent gas leakage.

There is a common belief that using the Hasson entry technique will avoid damage to the adherent bowel at or near the umbilicus, or at least that if the bowel is damaged it will be recognised and repaired immediately. The published evidence, however, does not support either of these assertions. If bowel, particularly small intestine, is densely adherent to the underside of the umbilicus, it is perfectly possible to dissect right through the bowel into the peritoneal cavity without being aware of having done so, either during entry or on withdrawing the laparoscope at the end of the procedure. In the presence of a lower midline laparotomy scar, therefore, the preferred strategy to minimise the risk of bowel injury is to enter the abdominal cavity well away from the umbilicus, i.e. to use an alternative site entry.

**Alternative sites**

Although many experienced gynaecologists feel comfortable with transvaginal or transuterine insertion of the Veress needle into the peritoneal cavity, this approach cannot be recommended, particularly in women who have undergone previous surgery. The risk of bowel adhesions in the pelvis is significant and increases the risk of inadvertent bowel injury from this blind entry technique.

**Palmer’s point**

Raoul Palmer was a French gynaecologist who popularised the use of the laparoscope during the 1940s and 1950s, primarily as a diagnostic tool and latterly for sterilisation by tubal occlusion.

Palmer’s point is situated in the left midclavicular line, 2–3 cm below the costal margin (Figure 2).5 We know that the left upper quadrant is the area where adhesions are least likely to be found following previous surgery, except, of course, where the surgery was performed in this area; for example, splenectomy.

![Figure 1. Hasson entry pack of instruments](image1)

![Figure 2. Position of Palmer’s point](image2)

**Closed entry technique**

**Preoperative preparation**

If there is increased risk of splenomegaly, perform an ultrasound scan of the left upper quadrant.

- The woman should be flat on the operating table.
- Empty the stomach with an orogastric or nasogastric tube.
- Make a small skin incision over Palmer’s point.
● Insert the Veress needle followed by preferred tests of correct placement.
● Create a 25 mm Hg pneumoperitoneum.
● Use a 5 mm trocar and laparoscope.

Following successful insertion of the 5 mm laparoscope, secondary ports can be inserted under direct vision in order to clear adhesions from under the umbilicus if they are present. It is sometimes possible to continue pelvic surgery using the same 5 mm scope throughout, although a better view of the pelvis is usually obtained by inserting another laparoscope via the umbilicus in the usual way.

Successful use of a closed entry technique at Palmer’s point using a 5 mm optical trocar for primary entry has recently been reported.6 This potentially reduces the risk of inadvertent injuries from the Veress needle and is certainly worth considering as an alternative to the traditional technique described above.

**Alternative site open entry**

Although the open entry Hasson technique is traditionally performed through the umbilicus, there is, of course, no reason why it cannot be performed anywhere on the abdominal wall. It is, after all, just a very small laparotomy incision. In the presence of a midline laparotomy scar, the open entry incision can be placed well lateral to the midline and beyond the lateral border of the rectus muscle. This minimises the risk of encountering bowel adherent to the midline scar and avoids having to cut through the bulk of the rectus muscle and potentially damaging the epigastric blood vessels.

It is certainly an option worth considering where there are concerns about using the closed entry technique at Palmer’s point.

**Medico-legal aspects**

Inadvertent bowel injury, particularly at laparoscopy, is the complication that gynaecologists dread, probably above all others, for a variety of reasons. First, there may be embarrassment at having caused the injury in the first place, and then at having to ask a surgical colleague to come to our aid. Far more importantly, there is the risk, particularly where the injury is unrecognised, that the woman may develop life-threatening peritonitis, requiring further surgery and frequently a prolonged recovery, with long-lasting consequences. This scenario is, not surprisingly, the basis of many medico-legal claims.

To minimise the risk of harming our patients and of being the defendant in a subsequent claim for negligence, there are some rules that should be observed: see Box 2. Adherence to these rules will not only help to minimise the risks for our patients, but also to help defend any claim for negligence if a complication occurs.

**Box 2. Rules for minimising the risk of harm from laparoscopy and avoiding claims for negligence**

- Do not undertake procedures for which you do not feel adequately trained or which you are not confident at performing. Everyone who undertakes laparoscopy following previous surgery must be knowledgeable about alternative entry techniques and proficient at performing them.
- Patient consent should be obtained following a thorough discussion of the risks; these should be clearly documented in the notes. The information given should include:
  - that the risk of bowel injury may well be higher than the generally quoted rate of 1–3 per 1000 in women who have previously undergone extensive abdominal surgery
  - an explanation of the entry technique to be used and why you have chosen that method
  - that conversion to open surgery may be necessary
  - that the option of open surgery via laparotomy from the outset may be preferable to even attempting laparoscopy.
- The operation notes should include:
  - details of the entry technique
  - confirmation that a 360° view was obtained immediately after insertion of the laparoscope
  - confirmation that careful inspection was undertaken when the laparoscope was removed at the end of the operation.

**References**


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