denominator and limb defects produced from these procedures as the numerator. So the conditions of nonresponding hospitals would not have any influence on the incidence when studied in this way. Furthermore, the incidence as calculated in this study was standard. The incidence in the general population was calculated as:

\[
\text{Incidence of limb defects in general population} = \frac{(\text{cases of limb defects without CVS exposure})}{(\text{total no.}) - (\text{CVS no.}) - (\text{referred cases with limb defects})}
\]
\[
= \frac{25}{(78,742 - 1362 - 4)}
\]
\[
= 0.032\%
\]

We admit that our way of collecting information was not rigorous. We managed to examine 13 of the 29 cases of limb defects. Also, we must trust the professional expertise of the practicing obstetricians (the level of clinical practice in Taiwan is rather close to that in Japan). Major limb defects are so gross that a regular obstetrician should be able to recognize them.

We emphasize that our observation may not be valid for CVS performed in other parts of the world. We wanted to stress that CVS performed in such a setting would result in this kind of catastrophe. However, it remains to be answered why CVS in the series of Firth et al., which was performed in a very similar way to that in the United States and Canada, will result in such a high incidence of limb defects. Fortunately, ever since we warned about the possible harmful effect of early CVS, severe limb defects after CVS were practically not seen in Taiwan. This is because the number of CVS procedures was reduced markedly, and if done, it is delayed until after 10 weeks' gestation with ultrasound dating.

In Taiwan, we are in the process of establishing a birth defect monitoring system. However, we think the puzzle of CVS and limb defects may not be solved from this kind of system. If so, it is already answered from these systems in some developed countries. Our series represents the opportunity to observe a “never again” phenomenon.

Fon-Jou Hsieh, MD
Bor-Ching Sheu, MD
Department of Obstetrics and Gynecology
National Taiwan University Hospital
Number 7
Chung-Shan South Road
Taipei 100
Taiwan

Reference

THE INCIDENCE OF ADHESIONS AFTER PRIOR LAPAROTOMY: A LAPAROSCOPIC APPRAISAL

To the Editor:

Brill et al (Obstet Gynecol 1995;85:269–72) seem to imply that, when dealing with patients at risk for bowel adhesions, open laparoscopy offers no safety advantage over the closed technique. They state that the danger of injury to the fatty appendages of the bowel and the bowel itself is the same “regardless of the technique applied.” I disagree with this point on two accounts.

First, although bowel injury can occur with either closed or open laparoscopy, in my opinion, its likelihood with the two techniques is not the same. My view on this point is not based on data from the literature, notable for its paucity (understandably, we doctors loathe to report mistakes), but on the following theoretical consideration. If bowels are unexpectedly adherent to the underside of the anterior abdominal wall, bowel injury is inevitable with traditional laparoscopy, even with operator experience and caution, resulting from the blind insertion of the Veress needle and/or trocar into the abdomen. However, under the same circumstances, bowel injury can be avoided with the open approach. Most bowel injury observed with open laparoscopy is a consequence of scalpel laceration, which occurs in the process of incising the fascia and, inadvertently, the peritoneum with it. Thus, it can be avoided by exercising the same degree of caution used when entering the peritoneal cavity during a laparotomy. Open laparoscopy is in essence a “mini” infraumbilical laparotomy. In many years of experience with open laparoscopy, I have found it particularly useful for the prevention of bowel injury to enter the peritoneum with a closed hemostat rather than with a knife and to incise the fascia transversely rather than vertically. With such an incision, the rectus muscle will alert the surgeon to the depth of the incision, making it virtually impossible to incise together the fascia, the peritoneum, and any bowel attached to it. With these two simple precautions, I have not had any bowel injury in well over 1000 cases.

Second, should bowel injury occur during open laparoscopy because of inexperience or imprudence, the likelihood that it will be recognized at the operating table is greater than when the same injury occurs during closed laparoscopy. This should not come as a surprise because with the open technique, the injury occurs under the eye of the surgeon. Of course, prompt recognition in such instances will allow repair of the bowel without delay, which generally guarantees an
uneventful recovery. Hasson\(^1\) "readily" recognized the only bowel injury he incurred in his series of 150 cases. Penfield,\(^3\) in a review of 10,840 open laparoscopy cases, found six cases of bowel injury, of which four were recognized instantly and repaired, with no postoperative morbidity. As the literature will attest, most fatalities of laparoscopic bowel injury seem to be the consequence not of the injury itself, but of its delayed diagnosis.

The possibility of avoiding bowel injury, coupled with the ability to readily recognize such an injury at the operating table, leads me to conclude that open laparoscopy should be the approach of choice in patients at risk for bowel adhesions.

Nicola Perone, MD  
Department of Obstetrics, Gynecology, and Reproductive Sciences  
The University of Texas Health Science Center at Houston  
Houston, TX 77008

References


In reply:

We believe that Perone has misinterpreted our conclusions. We did not assert that the risk of inadvertent injury to the bowel is equally likely with a closed or open trocar insertion technique in patients who have undergone prior laparotomy. Our closing paragraph simply states that neither approach to peritoneal entry is entirely free of this danger. Perone seemed to be open to this opinion in a previous publication,\(^1\) in which she wrote: "As for the important aspect of safety, any conclusion that open laparoscopy is safer than closed laparoscopy must be based on a much larger randomized series (20,000–30,000 cases)."

The surgical window for open laparoscopy is at the inferior rim of the umbilicus, where the abdominal wall consists of skin fused with a single layer of fascia and peritoneum (Hasson HM. Window for open laparoscopy [letter]. Am J Obstet Gynecol 1980;137:869–70). With the technique of open laparoscopy, one enters the peritoneal cavity by methodically dissecting these tissue layers and visualizing the peritoneum. To exercise the same degree of caution used during laparotomy, visual access must remain unimpeded and the underlying anatomic relationships should be predictable. In some patients, limiting the initial incision and subsequent dissection to this region of the abdominal wall can be visually and technically difficult because of the anatomic variation of the umbilicus itself, a large abdominal panniculus, and scarring or retraction secondary to a prior midline laparotomy. Prior laparotomy in the vicinity of the umbilicus can alter dramatically the usual subumbilical anatomic relationships between the linea alba, rectus muscles, properitoneal adipose tissue, and peritoneum. Tissue planes can become unrecognizable secondary to fusion of the peritoneum and overlying fascia by scar formation, attenuation of the fascial plane, and fixation of the rectus muscles.

When performing laparoscopy in patients having undergone prior laparotomy, we have observed that adhesions between the anterior abdominal wall and the underlying bowel or its appendages can be categorized into two groups. In the first, the bowel is either attached directly or suspended by omentum and adhesions to the region of the prior abdominal scar caudal to the umbilicus. In these patients, the anatomic integrity of the subumbilical layers is usually intact. Less frequently, the bowel is attached directly to the abdominal wall below the umbilical fossa, anatomically annealed to the fascia and without any discernible layer of peritoneum. This latter presentation has been observed more frequently in patients who have had multiple midline laparotomies, especially when the abdominal incision was extended lateral and superior to the umbilicus. Although the open laparoscopic technique may better ensure the avoidance of injury to the bowel in the first group, it would not necessarily lower this risk in the second. Injury to the bowel will not always be avoided by simply maintaining awareness of the depth of the incision into the fascial layers. In Hasson's original series of 150 patients,\(^2\) one woman suffered inadvertent entrance into the small bowel because of its intimate adherence with the overlying peritoneum.

Entering the lumen of the bowel upon incision of the fascia during open laparoscopy is not a consequence of poor judgment, inexperience, or imprudence. It remains one of the predictable complications of the open technique (as reported in our study and the experience of others\(^2\)) and even of laparotomy, especially when performed in patients with multiple prior laparotomies.

Andrew J. Brill, MD  
Farr Nezhat, MD  
Cousa H. Nezhat, MD  
Camran Nezhat, MD  
Department of Obstetrics and Gynecology  
University of Illinois at Chicago  
820 South Wood Street  
Chicago, IL 60612

References