

## Incidence of incipient contralateral hernia during laparoscopic hernia repair

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### Abstract

**Background:** In addition to its well-known benefits of decreased postoperative pain and shorter recovery time, laparoscopic hernia repair has the major advantage of allowing the surgeon to explore the side contralateral to the clinically diagnosed hernia. The purpose of this study was to evaluate the incidence of incipient unsuspected contralateral hernia during totally extraperitoneal (TEP) laparoscopic inguinal herniorrhaphy and to analyze the risks and benefits of identifying these hernias at the time of the initial surgery.

**Methods:** We did a retrospective review of the charts of all of the 724 male patients who underwent laparoscopic TEP repair of 958 groin hernias between September 1991 and September 1999. The initial clinical impression of the existence of unilateral or bilateral hernias was noted and compared to our operative findings. The same surgeon performed all the repairs. Exploration of the contralateral side was performed in a systematic fashion. A second mesh prosthesis was placed if a contralateral hernia was found.

**Results:** Bilateral hernia repair was performed on 234 patients (32.3%). In 62 of them (11.2%), the contralateral hernia was diagnosed only at the time of the procedure. Operative time ranged from 14 to 185 min (median, 38.6). The operative time for the contralateral exploration ranged from 2 to 5 min (median, 2.8). The rate of complications was 4.1%, but no complications were directly related to the exploration of the asymptomatic side.

**Conclusion:** Our study shows that a large number of inguinal hernias are undiagnosed by physical examination (11.2%). Systematic contralateral exploration using the TEP approach is safe and does not greatly increase the operative time. Early identification and repair of a contralateral hernia obviates the need for reoperation, reduces overall costs to the health care system, and eliminates any further work loss for the patient.

**Key words:** Herniorrhaphy — Incipient hernia — Laparoscopy

Laparoscopic surgery has become a common method for hernia repair at our institution. One of the benefits of this approach is the ease with which a surgeon can explore the contralateral side. In this study, we reviewed the initial clinical impression of unilateral or bilateral hernia and compared it with our operative findings. We also analyzed the benefits of treating incipient hernia in those patients.

### Materials and methods

We did a retrospective review of the charts of all of the 724 male patients who underwent laparoscopic totally extraperitoneal (TEP) repair of 958 groin hernias between September 1991 and September 1999. The ages of the patients ranged from 17 to 84 years (median, 44.1). All the repairs were performed by the same surgeon (G.F.). A systematic exploration of the contralateral side was performed in each case, and a second mesh prosthesis was placed if a contralateral hernia was identified.

All patients were followed at 1, 3, and 6 weeks, 6 months, and 1 year postoperatively and annually thereafter.

### Technique

The technique and our early experience with it have been described previously [2]. The basic principle of the technique is the creation of a vacuum preperitoneal space through which the myopectineal orifice can be visualized. Exact anatomical delineation is critical to the success of the repair and the avoidance of complications. Before any dissection is carried out, the pubic tubercle, the iliopubic tract, and Cooper's ligaments must be clearly identified. Next, dissection is performed on the side ipsilateral to the clinically suspected hernia. The space medial to the epigastric vessels should be clearly visible. If a direct hernia is present, it can be readily identified. Gentle traction and countertraction are used to reduce the direct hernia sac. Access can then be gained to the transversus abdominis muscle lateral to the epigastric vessels to the level of the anterosuperior iliac spine. If an indirect hernia is found, the sac is dissected away from the cord structures in a perpendicular fashion. It is then either totally invaginated and reduced, or it is transected and the proximal end is closed. After the hernias are reduced, a 5 × 6 in polypropylene mesh is placed over the myopectineal orifice of Fruchaud. The mesh can be stapled medially to Cooper's ligament and laterally to the anterior abdominal wall.

A systematic exploration of the contralateral side is performed in each case, and a second mesh prosthesis is placed if necessary. Due to the earlier dissection of the midline structures, in cases where a contralateral direct hernia is present, it is easily identified. The dissection is carried out laterally under the transversus abdominis muscle to the level of the anterosuperior iliac spine. At this point, if an indirect hernia sac is present, it will be situated between two open spaces—Retzius' space medially and Bogros' space laterally.

Skeletonization of the cord structures is not required to detect the presence of a hernia sac, but an understanding of the anatomy of indirect hernias is essential. At this level, indirect hernia sacs are always anterior to the cord structures. Consequently, the presence of an indirect hernia sac has two effects. First, tenting of the peritoneum toward the internal ring will be seen. Second, visualization of the vas deferens prior to the dissection of a hernia sac means that an indirect hernia is not present. If a hernia is detected, the sac is reduced and a second mesh prosthesis is placed.

## Results

Bilateral repair was done on 234 patients (32.3%), of whom 172 were identified preoperatively and 62 had a contralateral hernia diagnosed only at the time of the procedure. Thus, a contralateral hernia was found unexpectedly 11.2% of the time. The types of hernia repaired were 525 indirect, 412 direct, 30 pantaloon, and 21 femoral. This group of patients also included 28 with giant scrotal hernias. Some 88 patients (12.1%) with recurrent hernia were also managed by TEP.

There were 30 complications in our series (4.1%), including 11 instances of urinary retention, 12 groin collections, one trocar site infection, one transient lateral femoral nerve neuralgia, two cardiac arrhythmias, one bladder injury, one bowel injury, and one episode of laryngospasm. There were 16 hernia recurrences (2.2%). Follow-up was from 1 to 96 months (median, 43), and 138 patients were lost to follow-up. There were no deaths and no complications related to the exploration of the asymptomatic side.

Operative time ranged from 14 to 185 min (median, 38.6). The operative time for the contralateral exploration ranged from 2 to 5 min (median, 2.8). Anesthesia was primarily general endotracheal (90%), although epidural was used in 53 patients (7.3%) and local in 19 (2.6%). Length of stay varied, but 689 patients were discharged home on the day of surgery. Hospitalization was required for other simultaneous procedures in 10 cases (one transurethral resection of the prostate [TURP], one cystoscopy, and eight endoscopic lymph node dissections), and 12 patients were admitted overnight because their surgery ended late in the day. The remaining 13 patients were admitted for management of complications.

## Discussion

Surgeons some time ago realized the potential benefits of laparoscopic hernia repair. In addition to the benefits of decreased pain and faster recovery, this procedure has the major advantage of allowing the surgeon to explore the side contralateral to a clinically diagnosed hernia for an unsuspected additional hernia.

Due to the relatively high incidence (~40%) of children with a clinical unilateral inguinal hernia who exhibit a patent processus vaginalis on the contralateral side, pediatric surgeons have used laparoscopy to identify patients who might profit from an open contralateral exploration [1, 3].

Prior to the laparoscopic era, the incidence of incipient inguinal hernias was unknown. Following the application of the laparoscopic technique to the repair of inguinal hernias, it became possible to look on the other side to see if another hernia was present.

Laparoscopic transabdominal preperitoneal (TAPP) hernia repair allows easy identification of the hernia sac without any need to dissect the spermatic cord. Unfortunately, intraperitoneal techniques can be complicated by visceral adhesions to the mesh and the peritoneal dissection site [7]. In contrast, the TEP method eliminates the need to penetrate the abdominal cavity [5]. For this reason, most surgeons have now adopted the TEP approach for the laparoscopic repair of inguinal hernias.

Unlike the TAPP approach, the TEP repair requires additional dissection to make the diagnosis of a contralateral hernia. The systematic exploration of the contralateral side using the TEP technique remains a subject of controversy. On one hand, it may increase the operative time and the risk of injuries to important cord structures [6]; but on the other, it can detect unsuspected hernias and eliminate the need for a second operation. In order to avoid dissection of the contralateral groin, Hetz and Holcomb [4] performed a laparoscopic transabdominal exploration prior to performing a TEP inguinal hernia repair. They reported an incidence of incipient contralateral hernias as high as 20%. In our study, we explored both groins systematically using the TEP approach and discovered incipient contralateral hernias in 11.2% of our patients.

We have found that skeletonization of the cord in order to detect an asymptomatic hernia is not necessary. In addition, avoidance of excessive dissection limits the potential for injuries to the vas deferens and the spermatic vessels. However, tenting of the peritoneum toward the internal ring and inability to visualize the vas warrants further dissection of the cord. Exploration of the contralateral side has not significantly increased our operative time, since the whole procedure requires only 2–5 min. None of the complications in our series was related to the dissection of the contralateral side. On follow-up, patients whose incipient hernia was repaired were very pleased with the outcome. To date, there have been no recurrences of the repaired incipient hernias.

## Conclusion

Bilateral hernias are quite common (32.3% in our study), and many of them go undiagnosed by physical examination (11.2%). Systematic contralateral exploration using the TEP approach is safe and does not greatly increase operating time. If an unsuspected inguinal hernia can be diagnosed at the time of initial surgery, the patient can avoid reoperation, exposure to a second anesthesia, and another period of work loss; at the same time, costs to the health care system can be contained.

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