

Simultaneous Repair of Bilateral Inguinal Hernias Under Local Anesthesia

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Objective

The authors confirm the advantages of simultaneous repair of bilateral inguinal hernias, indicate that it is feasible to perform the procedure under local anesthesia, and suggest that when an open tension-free technique is used, the results are superior to those of laparoscopic repair of bilateral inguinal hernias.

Summary Background Data

Between 1971 and 1995, simultaneous repair of bilateral inguinal hernias were performed in 2953 men. Initially, between 1971 and 1984, patients with indirect hernias underwent the traditional tissue approximation repair. Those with direct hernias had the same procedure, with the repair additionally buttressed by a sheet of Marlex mesh (Davol, Inc., Cranston, RI). Between 1984 and 1995, both direct and indirect hernias were repaired using the open tension-free hernioplasty procedure.

Method

The 2953 patients underwent simultaneous repair of bilateral inguinal hernias under local anesthesia in a private practice setting in general hospitals.

RESULTS

In those cases in which the "tension-free" technique was used, patients experienced minimal to mild postoperative pain and had a short recovery period, with a recurrence rate of 0.1%

Conclusions

Uncomplicated bilateral inguinal hernias in adults are best treated simultaneously. It is feasible to perform the operation under local anesthesia, and when an open tension-free repair is used, postoperative pain and recovery periods are equally comparable with those of laparoscopic repair, although the complication and the recurrence rates are significantly less.

For more than a century, since the introduction of modern hernia repair by Bassini, the treatment of bilateral inguinal hernia has been controversial. Concern regarding the simultaneous repair in adults is based on the following three issues: increased suture-line tension, preclusion of an effective relaxing incision, and a higher recurrence rate.¹⁻⁴ At Shouldice Hospital (Thornhill, Ontario, Canada), the procedure is not performed because the required quantity of anesthetic agent would exceed the nontoxic level due to their technique of local anesthesia. Since the advent of laparoscopic hernia repair, bilateral inguinal hernias have been considered by advocates one of the most suitable indications for the procedure. Although, the tension-free aspect of the laparoscopic repair makes such a concept sound, the approach is flawed by its complexity, high recurrence rate, complications, and cost.

The purpose of this article is to confirm the advantages of simultaneous bilateral repair as reported by other authors⁵⁻⁷ and to emphasize that 1) it is feasible to repair bilateral inguinal hernias simultaneously under local anesthesia and 2) when an open tension-free technique is used, the postoperative pain and recovery period of the procedure are equally comparable with those of laparoscopic repair, and such attendant risks arising from invasion of the peritoneal or preperitoneal spaces, general anesthesia and carbon dioxide insufflation are avoided.

MATERIALS AND METHODS

Between 1971 and 1995, 2953 adult patients underwent simultaneous repair of bilateral inguinal hernias under local anesthesia by the authors. Patients were grouped into two categories. Group A consisted of 1953 patients who had surgery between 1971 and 1984. Those with indirect hernias ($n = 1037$) had the traditional tissue approximation repair (Fig. 1). Those with direct hernias ($n = 916$) underwent the same procedure; however, the repair was reinforced by a sheet of Marlex mesh (Davol, Inc., Cranston, RI) placed over the repair (Fig. 2). Group B consisted of 1000 patients who underwent surgery between 1984 and 1995. The open tension-free hernioplasty (prosthetic repair without tissue approximation) was used for both direct ($n = 470$) and indirect ($n = 530$) hernias (Fig. 3). In 1988, the tension-free procedure was slightly modified; these modifications served to further reduce the postoperative pain, recovery time, and recurrence rate.⁸

A computerized system was used for follow-up. Infor-

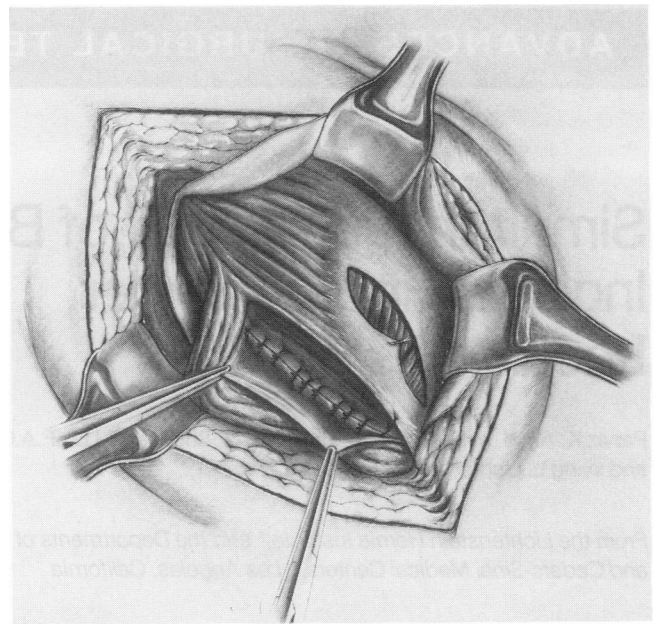


Figure 1. Traditional tissue approximation repair. The procedure is no longer recommended.

mation recorded in the data sheets included preoperative, operative, and postoperative details, incorporating classification, technique, and complications. Information regarding postoperative analgesic requirements and return to work was not available for the patients in group A; however, it was collected for those in group B.

Ninety-one percent of the patients in group A had physician examination follow-up between 2 to 14 years (mean 8 years), and 87% of patients in group B had follow-up by physician examination from 1 to 11 years (mean 5 years).

Ninety-nine percent of the patients had outpatient surgery; 98.3% of the patients were operated on under local anesthesia. Morbidly obese patients and patients with nonreducible hernias underwent surgery with an epidural or general anesthesia. The total anesthetic requirement in group A patients is not known. However, the required quantity of anesthetic for group B was 70 mL to 100 mL of a 50:50 mixture of 1% lidocaine (Xylocaine, Astra Pharmaceutical Prod., Inc., Westborough, MA) and 0.5% bupivacaine (Marcaine, Sanofi Winthrop Pharmaceuticals, New York, NY). The mixture was infiltrated in five simple steps.⁹

RESULTS

The 2953 simultaneous bilateral inguinal hernia repairs were performed under local anesthesia by the authors between 1971 and 1995. The age range of patients was 25 to 76 years. The incidence of indirect hernia was

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6% greater than that of direct hernia. Seventy-eight percent of patients were of normal weight or up to 20 pounds overweight. Twenty percent of patients were 20 to 50 pounds overweight, and 2% were more than 50 pounds overweight. Eighteen percent of patients had a recurrent hernia on one side when first examined. Regarding employment, 60.2% of patients had sedentary jobs, and 38.8% performed hard manual labor duties.

For the 99% of the patients who underwent outpatient surgery, the hospital stay after the operation was 2 to 4 hours. One percent of patients were admitted to the hospital because of unrelated medical or personal reasons. Data were not available regarding analgesic requirements or the recovery period for group A patients. Patients in group B required 4 to 20 tablets of hydrocodone bitartrate 5 mg/acetaminophen 500 mg (Vicodin, Knoll Pharmaceuticals, Whippany, NJ) for a period of 1 to 5 days. Return to work for patients in this group was 1 week after the operation for those with sedentary work, and 2 weeks for those with heavy manual labor jobs. Recurrence rate was 0.7% in group A and 0.1% in group B. Complications in group A included neuralgia (2%), testicular atrophy (1%), hydrocele (0.6%), and infection (0.2%).

In group B, incidence of all of the aforementioned complications was less than 1%. No urinary retention was observed in patients who underwent surgery with local anesthesia.

During the time interval of group B (1984 to 1995), an additional 2500 patients underwent tension-free repair of unilateral inguinal hernia by the same authors. There

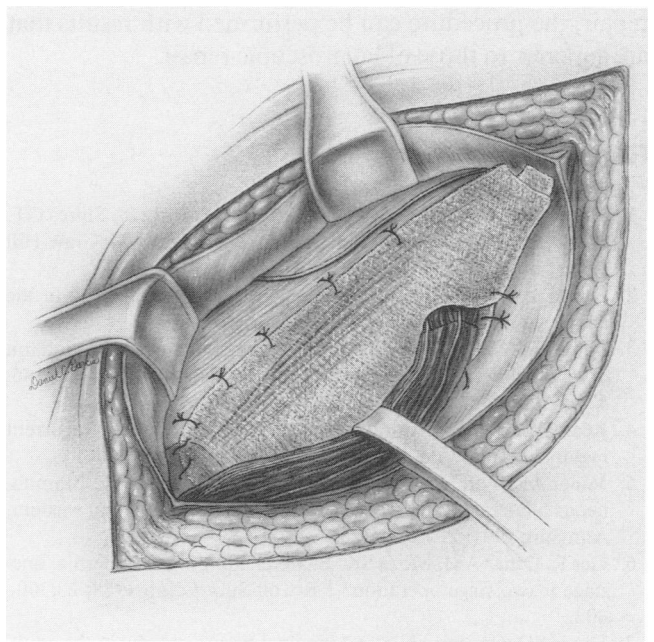


Figure 3. Open tension-free hernioplasty.

was no difference in the recurrence rate after unilateral hernia compared with that of bilateral repair. Only one recurrence was seen in those patients who underwent surgery on or after the 1988 modifications of the tension-free hernioplasty.

DISCUSSION

The advantages of simultaneous repair of bilateral inguinal hernias include: 1) less psychological stress; 2) less time off from work; and 3) less expense.

Results observed in patients in group B indicate that the postoperative pain and recovery period of the bilateral open tension-free hernioplasty are equally comparable with those of laparoscopic repair. Additionally, the long-term recurrence rate of 0.1% for tension-free repair is significantly lower than the 1% to 4% short-term recurrence rate of the laparoscopic technique.¹⁰⁻¹² More importantly, the tension-free procedure is not associated with the reported complications of laparoscopic hernia repair, such as massive bleeding, intestinal perforation, bladder perforation, small bowel obstruction, trocar site herniation, seroma formation, nerve injuries (as high as 15%), and even death.¹²⁻²⁴ These complications, which are continuously reported in the literature, are extremely rare, or even unheard of, with the open hernia repair.

This study confirms the findings of other authors, suggesting that uncomplicated bilateral inguinal hernias are best treated simultaneously. Furthermore, it indicates that when an open tension-free procedure is used for the

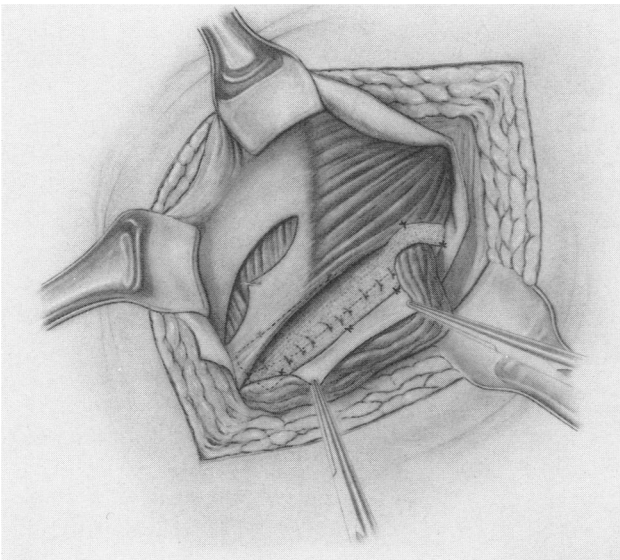


Figure 2. Traditional tissue approximation repair buttressed with Marlex mesh (Davol, Inc., Cranston, RI). The procedure is no longer recommended.

repair, the procedure can be performed with results that are superior to those of laparoscopic repair.

References

- Morton JH. Abdominal wall hernias. In: Schwartz SI, Shires GT, Spencer FC, eds. *Principles of Surgery*. New York: McGraw-Hill Book Co; 1989:1540.
- Palumbo LT, Sharpe WS. Primary inguinal hernioplasty in the adult. *Surg Clin North Am* 1971; 51:1293-1307.
- Cahlin E, Weiss L. Results of postoperative clinical examination of inguinal hernia after three years. *Acta Chirur Scand* 1980; 146: 421-426.
- Read RC. Bilaterality and the prosthetic repair of large recurrent inguinal hernias. *Am J Surg* 1979; 138:788-793.
- Miller AR, Van Heerden JA, Naessens JM, O'Brien PC. Simultaneous bilateral hernia repair: a case against conventional wisdom. *Ann Surg* 1991; 213:272-276.
- Ger R, Omar AM, Moza SK. Bilateral adult inguinal hernia: one-stage or two stage operation? *J R Coll Surg Edinb* 1978; 23:300-302.
- Duvie SO. Onestage bilateral inguinal herniorrhaphy in the adult. *Can J Surg* 1984; 27:192-193.
- Amid PK, Shulman AG, Lichtenstein IL. A critical scrutiny of the open "tension-free" hernioplasty. *Am J Surg* 1993; 165:369-371.
- Amid PK, Shulman AG, Lichtenstein IL. Local anesthesia for inguinal hernia repair step-by-step procedure. *Ann Surg* 1994; 220: 735-737.
- Arregui ME, Navarrete J, Davis CJ, et al. Laparoscopic inguinal herniorrhaphy—techniques and controversies. *Surg Clin North Am* 1993; 73:513-527.
- Kavic MS. Laparoscopic hernia repair. *Surg Endosc* 1993; 7:163-167.
- Fitzgibbons RJ, Camps J, Cornet DA, et al. Laparoscopic inguinal herniorrhaphy. Results of a multicenter trial. *Ann Surg* 1995; 221: 3-13.
- Amid PK, Shulman AG, Lichtenstein IL, Hakakha M. The goals of modern hernia surgery: how to achieve the open or laparoscopic repair. *Probl Gen Surg* 1995; 12(2):165-171.
- Rall S, Depaula AL, Miguel P, et al. Transabdominal laparoscopic hernioplasty using preperitoneal mesh. In: Arregui ME, Nagan RF, eds. *Inguinal Hernia Advances or Controversies?* Oxford, NY: Radcliffe Medical Press; 1994:261-264.
- Tsang S, Normand R, Karin R. Small bowel obstruction: a morbid complication after laparoscopic herniorrhaphy. *Am Surg* 1994; 60: 332-334.
- Sandbichler P, Gstir H, Baumgartner C, et al. Laparoskopische leistenhernienoperation durch transperitoneale implantation eines kunststoffnetzes. *Der Chirurg* 1994; 65:64-67.
- Paget GW. Laparoscopic inguinal herniorrhaphy: a personal audit of 222 hernia repairs. *Med J Aust* 1994; 161:249-253.
- Panton ONM, et al. Laparoscopic hernia repair. *Am J Surg* 1994; 167:535-537.
- Horton MD, Florence MG. Simplified preperitoneal Marlex hernia repair. *Am J Surg* 1993; 165:595-599.
- Cornell RB, Kerlakian GM. Early complications and outcomes of the current technique of transperitoneal laparoscopic herniorrhaphy and a comparison to the traditional open approach. *Am J Surg* 1994; 168:275-279.
- Amid PK, Shulman AG, Lichtenstein IL. A critical comparison of laparoscopic hernia repair with Lichtenstein tension-free hernioplasty. *Med J Aust* 1994; 161:239-240.
- Wheeler KH. Laparoscopic inguinal herniorrhaphy with mesh: an 18-month experience. *J Laparoend Surg* 1993; 3:345-350.
- Arregui M. Proceedings of "Hernia 2000" Symposium. March 1993; Sydney, Australia: Institute for Minimally Invasive Surgery; 1993.
- Hugh TB. Laparoscopic hernia repair. *Med J Aust* 1993; 159:151-152.