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Management of a Broken Needle at the Time of Laparoscopic Burch

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ABSTRACT

Loss of surgical instrumentation in endoscopic procedures poses problems not faced in traditional surgery. We describe the breakage and subsequent recovery of a 2-mm segment of needle from an Autosuture Endostitch device (U.S. Surgical) during a laparoscopic Burch urethropexy.

Key Words: Burch, Needle, Laparoscopy, Complications.

INTRODUCTION

Over the last 15 years, laparoscopic techniques have evolved from predominantly diagnostic to extensive operative laparoscopic approaches. Surgical techniques traditionally performed in an open fashion are being done laparoscopically with increasing frequency. With these developments, more equipment is being created to facilitate the laparoscopic approach.

Vancaillie and Schuessler described the laparoscopic approach for the Burch procedure in 1991.[1] Since their original report, numerous techniques and modifications have been described.[2-4] One such modification is the application of the Autosuture Endostich. Originally developed as an endoscopic suturing device, the ability of the endostitch to facilitate suturing in tight spaces has led to its use in vaginal vault suspension techniques[5] and consequent adaptation for the laparoscopic Burch procedure.[6] We report a case of a broken needle using the endostitch during laparoscopic Burch.

CASE REPORT

A 47-year-old Hispanic female presented with a history of stress urinary incontinence and cervical intraepithelial neoplasia III. She had undergone urodynamic testing that was consistent with stress urinary incontinence and colposcopy with biopsies confirming the presence of CIN III. The patient had tried pelvic floor muscle exercises in the past and requested definitive therapy of her CIN III and incontinence. After discussion of risks and benefits of each route, a laparoscopic-assisted vaginal hysterectomy with laparoscopic Burch was decided upon. The patient had no other contributory medical or prior surgical history.

The patient was admitted for surgery and underwent a laparoscopic assisted vaginal hysterectomy with bilateral salpingo-oophorectomy without difficulty. The Autosuture Endostitch (US Surgical) was used to place two #0 Surgilon figure-of-eight sutures through the endopelvic fascia and Cooper's ligament on the right. In a similar fashion, the endostitch was used to place a figure-of-eight suture through the endopelvic fascia on the left side lateral to the urethrovesical angle. Once placed

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through the fascia, the stitch was placed through Cooper's ligament on the left. After the suture instrument was toggled to move the needle from one side to the other of the instrument arms, it was noted that only half the needle had been passed, and the remainder of the needle was not visible. Initial attempts to find the remnant were not successful, and the suture was removed. The suture was replaced using a standard laparoscopic needle driver and #0 Ethibond. Once the suture placement was complete, a flat plate of the abdomen was performed to determine if the needle fragment was still in the operative field. The two-millimeter portion of needle was at the pectineal line along Cooper's Ligament. Once isolated in its location, the needle fragment was able to be identified and removed in less than 15 minutes. A repeat x-ray was performed to confirm the removal of the needle fragment. The remainder of the procedure was completed in the standard fashion without further difficulty. The patient was discharged home on postoperative day one and has had a full recovery without symptoms of incontinence.

DISCUSSION

This case illustrates the challenge of dealing with an incorrect count in laparoscopic surgery. Smith et al in 1993 reported on the loss of a "pop-off" needle while performing a laparoscopic hernia repair.[7] After thoroughly searching the abdomen, they obtained an x-ray that revealed the lost needle was actually within the laparoscopic cannula and no longer within the operative field. As the valve mechanism of the cannula may frequently catch specimens or instruments, it is important to demonstrate that the lost fragment is actually still within the operative field. In this case, we performed an x-ray after performing an initial search without any success. The additional advantage of performing the x-ray is to localize the lost instrument. Since the needle fragment was lost in the space of Retzius, the abdominal x-ray was able to give us localization of the area of the needle. If the needle fragment had not been rapidly isolated following localization, then placement of a surgical staple along Cooper's Ligament with repeat x-ray could have further facilitated isolation. Alternatively, a grasper with a locking mechanism could have been placed and secured along the ligament and again the x-ray repeated. Ostrzenski described a technique of creating a radiopaque grid on the skin of the abdominal cavity to facilitate finding a piece of laparoscopic instrument.[8] This technique seems very reasonable for lost intra-abdominal instruments but may not be as beneficial when the instrument is lost within a structure such as a ligament.

CONCLUSION

The loss of equipment in laparoscopic surgery can result in much exasperation. Localizing the missing object radiographically can facilitate the time and energy required to remove all portions of the instrument. If initial radiograph fails to localize the object, then addition of other radiopaque materials such as staples or locking graspers may further aid in isolation.

References:

1. Vancaillie TG, Schuessler W. Laparoscopic bladderneck suspension. *J Laparoendosc Surg*. 1991;1(3):169-173.

2. Liu CY. Laparoscopic retropubic colposuspension: A review of 58 cases. *J Reprod Med*. 1993;38:526-530.

3. Burton G. A randomized comparison of laparoscopic and open colposuspension. *Neurourol Urodyn*. 1994;13:497-498.

4. Paraiso MF, Falcone T, Walters M. Laparoscopic surgery for genuine stress incontinence. *Int Urogynecol J Pelvic Floor Dysfunct*. 1999;10(4):237-247.

5. Schlesinger RE. Vaginal sacrospinous ligament fixation with the Autosuture Endostitch device. *Am J Obstet Gynecol*. 1997;176:1358-1362.

6. Gill F, Enzelsberger H. A new surgical aid—the "endo-stitch disposable suture device"—for pelviscopic pre-peritoneal Burch incontinence operation. *Gynakol Geburtshilfliche Rundsch*. 1996;36(2):75-78.

7. Smith BA, Brown RA, Lobe TE. The lost needle: a laparoscopic dilemma. *J Laparoendosc Surg*. 1993;3(4):425-426.

8. Ostrazenski A. An intraoperative method of localizing a missing piece of a broken laparoscopic instrument. *Am J Obstet Gynecol*. 1997;176(3):726-727.