

A Case of Disabling Urinary Frequency and Pelvic Pain Due to Postoperative Uterine Adhesions

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ABSTRACT

Introduction: Dense lower abdominal adhesions are known to cause urinary frequency by restricting expansion of the bladder. However, since preoperative diagnosis of adhesions has been difficult and there are multiple other causes of urinary frequency, such patients may go undiagnosed. With the improving resolution of ultrasound, ever smaller pathologic structures may be visualized, particularly if they are considered in the differential diagnosis.

Case Presentation: To confirm the possibility that clinically significant lower abdominal adhesions may be visualized by ultrasound, we report on a patient who had developed disabling urinary frequency and pelvic pain after a cesarean section. Over a 5-year period, the patient underwent multiple diagnostic and therapeutic interventions at 2 large medical centers in multiple departments without success. Following this, a pelvic sonogram revealed a band of adhesions between the uterus and abdominal wall. Laparoscopic lysis of extensive pelvic adhesions was undertaken. Postoperatively, the patient was able to resume an active lifestyle, with good improvement in urinary frequency and pelvic pain.

Conclusion: Ultrasound diagnosis of uterine adhesions to the abdominal wall led to successful laparoscopic lysis of adhesions with significant improvement in a patient's urinary tract symptoms and pelvic pain.

INTRODUCTION

Dense lower abdominal adhesions are known to cause urinary frequency by restricting the expansion of the bladder.¹ However, since pelvic adhesions are difficult to diagnose without surgery and there are multiple other more common causes of urinary frequency, affected patients may go undiagnosed. With the improving resolution of ultrasound, pelvic adhesions may be visualized, particularly if they are considered in the differential diagnosis.² In order to confirm the possibility that clinically significant lower abdominal adhesions may be visualized by ultrasound, we report

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on a patient who had developed disabling urinary frequency and pelvic pain after a cesarean section.

CASE PRESENTATION

A 30-year-old woman presented for evaluation of chronic disabling urinary frequency and central pelvic pressure pain. She had 3 pregnancies: 1 live birth and 2 spontaneous abortions. The time of onset of symptoms was after an emergency cesarean section 5 years prior. The sensation of pelvic pain and pressure was in the area of the bladder and there also was dyspareunia. There was no dysuria or hematuria. Voiding frequency during the day was every 15 to 30 minutes depending on the fluid intake. The patient had undergone multiple diagnostic evaluations in various departments over the past 5 years, including negative urine analyses,

urine cultures, gonorrhea, chlamydia, mycoplasma, wet preps, and a normal computed axial tomography urogram. Treatments had included antibiotics, dietary changes, and antispasmodics without success. There was 1 documented urinary tract infection (UTI) with *E coli* 1 year prior. Past medical history was unremarkable; the patient had not undergone any other abdominal surgeries.

Physical examination showed mild tenderness in the mid lower abdomen. A pelvic ultrasound was ordered. The transabdominal sonogram revealed a 1 x 1 cm fixed band of tissue extending from the anterior uterine fundal wall to the anterior abdominal wall superior to the bladder (Figure 1). This band appeared to fix the uterus in place even when attempts were made to displace the uterus laterally, superiorly, and inferiorly by abdominal and vaginal ultrasound probe exams; the uterus could not be made to slide away from its attachment to the abdominal wall.

The patient underwent laparoscopic lysis of extensive lower abdominal and pelvic adhesions. The superior limit of the adhe-

Figure 1. Transabdominal Ultrasound

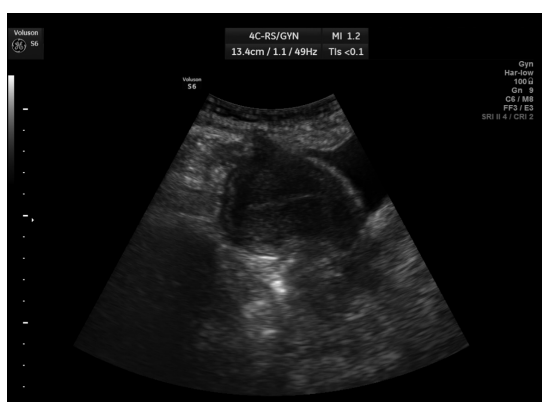


Image shows thick adhesion, which transfixed the uterus to anterior abdominal wall above the level of the bladder (1.5-4.6 MHz bandwidth).

Figure 2. Intraoperative Image of the Most Superior Dense Adhesion That Was Visualized on Ultrasound

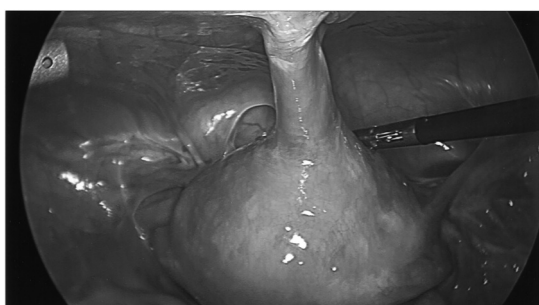
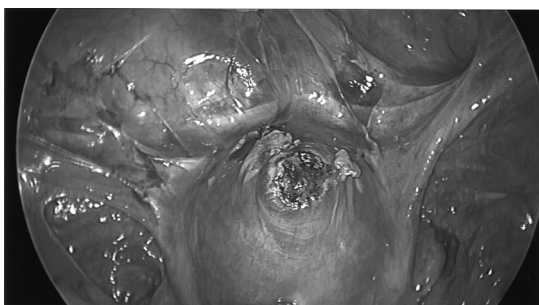


Figure 3. Uterus Returned to the True Pelvis and Bladder Serosa Revealed After Lysis of Adhesions



sions involved a 1 cm thick band of tissue extending from the uterine fundus to the anterior abdominal wall (Figure 2). Below this there were other layers of adhesions between the uterus, bladder serosa, lower abdominal wall, and pelvis. The posterior pelvis was spared of adhesions and the tubes, ovaries, appendix, and liver

edge appeared normal. All of the adhesions could be lysed, freeing up the uterus from its attachments to the anterior abdominal wall and bladder area (Figure 3). Following this, the uterus noticeably retracted from its partially intra-abdominal position into the true pelvis. Postoperatively the patient's urinary complaints improved to a tolerable level. Voiding frequency was hourly without nocturia and pelvic pain noticeably improved. The patient was able to resume an active lifestyle. A postoperative pelvic ultrasound showed no evidence of adhesions.

DISCUSSION

Our patient suffered from chronic disabling urinary frequency since her emergency cesarean section. The unique aspect of our case is that preoperative ultrasound evaluation allowed for visualization of a dense adhesive band (Figure 1) that was clinically relevant as a marker of more extensive adhesions. This led to laparoscopic lysis of this band (Figure 2), as well as other lower abdominal and pelvic adhesions (Figure 3). This improved the patient's urinary frequency and pelvic pain, allowing resumption of an active lifestyle. Chen et al reported on 10 patients with intractable urinary frequency who underwent laparoscopic adhesiolysis.¹ The frequency improved in 9 of 10 cases. As in our case, 9 of 10 of their patients had varying degrees of lower abdominal pain, and 7 of 9 of these patients had improvement or resolution.

The study by Chen et al¹ was reported in 1997 and ultrasound was not used for preoperative diagnosis. This is not surprising, since at that time there was much lower ultrasound resolution capability. In recent years there have been many improvements in diagnostic ultrasound capabilities leading to greater definition of small structures. These improvements include better beam forming and image processing speed as well as improved computer algorithms for harmonics and spatial compound imaging.³ Transducer sensitivity has improved as well as the final display resolution. We used a transabdominal probe in the current case (1.5-4.6 MHz bandwidth) and were able to clearly visualize the thickest adhesive band (Figure 1).

A recent study by Moro and coauthors showed that there was evidence of pelvic adhesions in more than one-third of women after cesarean section.² There was a statistically significant association between adhesions and pelvic pain, but there was not a high incidence of urinary complaints. From this study it appears that postoperative adhesions are less likely to cause urinary complaints than pelvic pain.

Uterine adherence to the abdominal wall also has been suspected by indirect ultrasound techniques. El-Shawarby et al reported on 13 women presenting with infertility and/or pelvic pain who had uterine adhesions to the anterior abdominal wall after cesarean section.⁴ Preoperative ultrasound suggested adhesions in 3 of the women, in whom the uterus was noted to be

fixed to the anterior abdominal wall at the level of the cesarean section scar, while being pushed by the vaginal ultrasound probe.

Indirect methods of detection of abdominal wall adhesions by ultrasound have also been described in the general surgical literature. Sigel et al first described the viscera slide technique.⁵ A normal viscera slide was observed by real-time imaging with respiratory movement or manual compression. A restricted viscera slide of less than 1 cm of the abdominal viscera relative to the abdominal wall suggested adhesions. Kothari et al described a similar technique in a prospective blinded study, which showed a significant correlation between ultrasound and intraoperative findings with regards to trocar sites suspected of having omental or bowel adhesions.⁶ In our patient, the uterus could not be made to slide away from its attachment to the abdominal wall by either abdominal or vaginal compression.

Chronic urinary frequency has many causes. Neurogenic causes include stroke, Parkinson's disease, multiple sclerosis, spinal cord injury, or other central nervous system (CNS) pathology. Non-neurogenic causes include urinary tract infection, urethral diverticulum, painful bladder syndrome, vaginal atrophy, pelvic organ prolapse, abnormal voiding habits, decreased bladder capacity, increased fluid intake, diuretic use, diabetes, and idiopathic.⁷

The American Urologic Association Guidelines for evaluation of non-neurogenic overactive bladder, which includes urinary frequency, recommends a careful history, physical exam, and urinalysis. Other evaluation may be warranted including a urine culture, post-void residual, bladder diary, and symptom questionnaire. Urodynamics, cystoscopy, and diagnostic renal or bladder ultrasound also can be considered.⁸

CONCLUSION

In patients who fail conservative therapies for chronic urinary frequency, pelvic adhesions may be suspected when there is a history of cesarean section or other gynecologic surgeries.⁹ Our case as

well as other cases in the literature suggest that in such cases it may be worthwhile to perform a pelvic ultrasound. In this way an attempt can be made to directly visualize adhesions. If adhesions are encountered, laparoscopic lysis of adhesions may be offered for treatment. One also may find indirect evidence of adhesions through demonstrating a fixed uterus with vaginal or abdominal displacement. Since our case is the first reported case with favorable treatment results where adhesions have been directly visualized preoperatively, further cases will need to be reported to determine how often clinically relevant dense bands of adhesions can be visualized by ultrasound.

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