

PELVIC ABSCESS AFTER LAPAROSCOPIC MYOMECTOMY WITH VAGINAL EXTRACTION

Shiow-Lin Lee¹, Lee-Wen Huang^{1,2}, Jier-Zen Chang¹, Jiann-Loung Hwang¹, Hun-Shan Pan^{1,2*}

¹Department of Obstetrics and Gynecology, Shin Kong Wu Ho-Su Memorial Hospital and ²School of Medicine, Fu-Zen Catholic University, Taipei, Taiwan.

Since the first laparoscopic myomectomy performed by Semm in 1979 [1], there have been numerous advances in laparoscopic techniques that have rendered the operation easier and more feasible, resulting in fewer complications [2]. One of these advances was the introduction of hyaluronic acid as an adhesive barrier after laparoscopic myomectomy to reduce postoperative adhesions. Despite numerous studies attesting to the safety of this adhesion barrier [3–6], the use of a hyaluronan gel is not without potential complications [7]. We report a case of pelvic abscess following laparoscopic myomectomy with vaginal extraction that involved the use of an adhesive barrier.

A 49-year-old woman, gravida 2, para 2, was relatively healthy before the myomectomy procedure. She had a history of two previous cesarean deliveries. She had suffered menorrhagia for 4 months and had then visited her gynecologist. Transvaginal ultrasound revealed a multiple leiomyoma measuring approximately 2–3 cm in size. Her hemoglobin level was also slightly decreased (9.9 g/dL). Under the impression of multiple leiomyoma with anemia, she was admitted for surgery. Myomectomy was performed via laparoscopy. All of the myoma masses (including both intramural and subserosal types) were enucleated. A posterior colpotomy was carried out to allow the extraction of the myoma. In total, 10 myomas were removed transvaginally without disruption of the endometrial cavity. The myometrial layer was repaired with three endosuture stitches. A total of three uterine wounds were made and each wound was approximately 2 cm in diameter. The wound was thoroughly checked for hemostasis. After being diluted into 300 mL of normal saline to create a gel-like solution, the adhesion barrier was injected through a 5 mm trocar and applied

to the uterine wound. One penrose drain was placed at the cul-de-sac. During the operation, no pelvic adhesion was found. The whole operation took approximately 3 hours and 20 minutes. Postoperative prophylactic antibiotic therapy using a first-generation cephalosporin was prescribed for 1 day. The postoperative course was uneventful and the drain was clean on removal 3 days after the operation. The patient was then discharged without any complications.

Two weeks after the operation, the patient presented at the emergency room with severe abdominal fullness along with palpitation and dizziness. In the emergency room, her vital signs were as follows: body temperature was 36.4°C, heart rate was 137 per minute, respiratory rate was 24 per minute, and blood pressure was 91/51 mmHg. Physical examination showed abdominal distension with diffuse peritonitis. The laboratory results showed leukocytosis (11,200/uL) with prominent bandemia (band form: 52.5%) and elevated C-reactive protein levels (28.3 mg/dL). An abdominal ultrasound showed ascites over the Morrison's pouch while a chest X-ray showed hazy infiltration of both lungs. Pelvic and abdominal computed tomography revealed massive turbid ascites with multiple areas of extraluminal free air in the pelvic cavity (Figure). Intra-abdominal abscess complicated by bowel perforation was highly suspected from the clinical and imaging results. A general surgeon and a gynecologist were consulted and an emergency explorative laparotomy was performed. During the operation, severe adhesions between the ileum and a previous uterine scar were found. An odorous turbid fluid had accumulated in the pelvic cavity and purulent material had coated the bowel and uterus. The bowel was examined carefully, but no perforation was found. Before closing the abdominal wound, a pus culture was set up and four rubber drains were placed within the bilateral paracolic space. The patient was then transferred to the intensive care unit immediately because of septic shock with acute respiratory distress syndrome. She was treated with cefmetazole, metronidazole and ampicillin. The pus culture results showed the presence of *Enterococcus*. She gradually improved and was extubated 3 days after



*Correspondence to: Dr Hun-Shan Pan, Department of Obstetrics and Gynecology, Shin Kong Wu Ho-Su Memorial Hospital, No. 95, Wen Chang Road, Shin Lin District, Taipei 111, Taiwan.
E-mail: belindalee11@yahoo.com.tw
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Figure. Pelvic and abdominal computed tomography shows massive turbid ascites with multiple extraluminal free air in the abdomen and pelvic cavity.

operation. Her clinical course was uneventful and she was discharged after 1 week.

Laparoscopic myomectomy with vaginal extraction has been performed since the late 1970's [1]. Several studies have shown that laparoscopic myomectomy may be comparable with traditional abdominal myomectomy [8]. It is associated with less postoperative pain, a shorter hospital stay, less blood loss, fewer postoperative complications, and a lower frequency of adhesions [4,9]. In addition to an improvement in laparoscopic surgical techniques, the technique's use is associated with an increased number of women with fibroids who wish to preserve their uterus regardless of fertility status [10]. To meet such demands, a low rate of complications associated with laparoscopic myomectomy is a major concern of the performing surgeon.

The formation of postoperative adhesions may occur in up to one half of patients who undergo this type of surgery, and this, in turn, may lead to chronic pelvic pain and bowel obstruction [4]. Despite the availability of numerous anti-adhesion barriers, no particular adhesion preventive strategy has been found to be the most effective [11]. Moreover, the methods of delivery and application of the adhesion barrier into the operation field during laparoscopy are debatable. The preparation and application of the hyaluronic gelatinous gel was as described in the manufacturer's instructions, but the possibility remains that the hyaluronic gel could have been the source of infection in our patient. A similar case was reported by Klinger et al who concluded that bioabsorbable membranes might produce extensive inflammatory reactions [7].

The removal of material via a posterior colpotomy may produce a favorable cosmetic effect and lead to rapid recovery. However, there is the potential for

ascending infection due to the anatomic proximity of the vagina to the anus. Intraperitoneal infection and abscess have also been observed in several studies using posterior colpotomy as the route for the removal of material [12,13]. To decrease morbidity, prophylactic antibiotic treatment and parenteral infusion postoperatively are mandatory. Moreover, it is important to use aseptic techniques. In this case, blood clots due to inadequate hemostasis combined with gelatinous hyaluronic acid might have become a good growth media for bacteria. Additionally, colpotomy increases the risk of ascending infection; therefore, it is mandatory to perform an aseptic technique preoperatively with vaginal surgery. Medical practitioners should be aware of the signs of pelvic abscess and bowel perforation. As observed in our patient, the presence of free air in the peritoneum (even after 2 weeks), ileus, peritoneal signs and unresorbed blood clots led to a suspicion of bowel perforation. The scattered distribution of the blood clots in the peritoneal cavity mimics the appearance of fecal material in imaging studies using computed tomography. Therefore, we suggest the use of a penrose drain after laparoscopic myomectomy to drain blood from the peritoneal cavity after surgery and to also help detect the presence of postoperative bleeding. Uterotonic agent is necessary after myomectomy.

In conclusion, hyaluronic acid gel, in rare cases, may cause postoperative peritoneal inflammation if used as an anti-adhesion treatment after laparoscopic myomectomy with vaginal extraction.

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