CASE REPORT

Innovative non-surgical management of pelvic and anterior vaginal wall abscess following vaginal surgery

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SUMMARY

Surgical site infections remain a common cause of morbidity following gynaecological surgery. The widespread implementation of antibiotic prophylaxis prior to surgery, as well as cognizance of modifiable risk factors for postoperative infection, has led to a significant reduction in postoperative infection rates. However, in low resource settings where sepsis and infections are common, surgical site infections following vaginal hysterectomy are sometimes encountered. It is a challenge to treat these infections with minimal intervention avoiding repeat surgery. We report here a unique situation following vaginal hysterectomy and then laparotomy; where a pelvic abscess communicated with the vesicovaginal space and drained through an opening into the anterior vaginal wall. An innovative technique was used to drain this anterior vaginal wall abscess connecting to pelvic cavity using a 40 cm long disposable urinary catheter (made of polyvinyl chloride), which was inserted into the vaginal opening under ultrasound guidance.

BACKGROUND

Surgical site infections remain a common cause of morbidity following gynaecological surgery. Prior to the advent of routine antimicrobial prophylaxis, pelvic infection rates after vaginal hysterectomy were as high as 33%, with pelvic cellulitis seen most frequently.¹ The widespread implementation of antibiotic prophylaxis prior to surgery, as well as cognizance of modifiable risk factors for postoperative infection, has led to a significant reduction in postoperative infection rates. However, in low resource settings where sepsis and infections are common, surgical site infections following vaginal hysterectomy are sometimes encountered. It is a challenge to treat these infections with minimal intervention avoiding repeat surgery.

We report here a unique situation following vaginal hysterectomy and then laparotomy; where a pelvic abscess communicated with the anterior vaginal wall space and drained through an opening into the anterior vaginal wall. She was referred as a case of pelvic abscess from a peripheral centre where the vaginal hysterectomy and then laparotomy was performed. Since then, there was purulent drainage from vagina; organisms (*Klebsiella pneumoniae*) were isolated from culture of an aseptically obtained sample of this fluid, which appeared to come more so from the anterior vaginal wall. Despite the unusual presentation and

large volume abscess, we tried this innovative method to lessen the burden of recurrent surgeries to the patients.

CASE PRESENTATION

A 62-year-old P4+0 was referred to the Department of Obstetrics and Gynaecology, King George's Medical University, Lucknow on 19 January 2015 with the symptom of purulent and foul smelling vaginal discharge for 1 month. She had undergone vaginal hysterectomy for uterine prolapse in November 2014. Thereafter, she developed abdominal distension with obstipation in the immediate postoperative period. She underwent laparotomy on the fifth postoperative day for suspected intestinal obstruction.

Records of these two surgeries were not available but she was told that some intra-abdominal adhesions led to the postoperative complications. One month following the laparotomy, she reported of foul smelling, purulent vaginal discharge and then was referred to our institute.

She initially visited the Department of Urology where cystoscopy and retrograde pyelogram were performed and both the investigations were normal.

On examination in our department, her vitals were stable and she was afebrile. Her abdomen was soft and there was no guarding, rigidity, tenderness or organomegaly. Vaginal speculum examination revealed a small opening in the anterior vaginal wall, placed 2 cm proximal to the urethra. The purulent foul smelling discharge was seen coming out of this opening. Vaginal examination revealed a soft boggy mass measuring 5×5 cm, felt against the anterior vaginal wall. Pressure on this collection increased the flow of discharge through the opening.

INVESTIGATIONS

Complete blood counts showed raised neutrophil count. Transvaginal pelvic sonography showed a fluid collection measuring 120 mL. CT scan of abdomen and pelvis showed loculated fluid collection at the vaginal vault with extension into the right adnexal region and adjacent soft tissue. The collection was abutting and displacing the urinary bladder.

DIFFERENTIAL DIAGNOSIS

Prior cystoscopy and retrograde pyelogram had excluded ureterovaginal or vesicovaginal fistula.

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TREATMENT

Broad spectrum intravenous antibiotics (levofloxacin, gentamycin and metronidazole) were started empirically for first 48 hours. The purulent discharge was sent for culture that showed heavy growth of *K. pneumoniae*. Based on sensitivity test, antibiotics were changed to piperacillin and tazobactam in combination with amikacin and continued for 7 days.

Innovative unique non-surgical treatment

An innovative technique was used to drain this anterior vaginal wall abscess connecting to pelvic cavity. Under aseptic conditions, a 40 cm long disposable urinary catheter (made of polyvinyl chloride) was inserted into the vaginal opening under ultrasound guidance (figure 1). The abscess was drained through this catheter until pus stopped coming on its own. Five to 10 mL of Povidone-iodine was then instilled into the cavity (figure 2). This procedure was repeated twice daily for 1 week. Although there was slight apprehension for the first procedure, the patient tolerated the repeated drainage and douching procedures well.

Serial ultrasonography showed decreasing volume of the collection. After 48 hours, the anterior vaginal wall collection reduced to 28.7 mm×19.2 mm and pelvic collection measured 12 mm×58 mm.

Both ovaries were now clearly visible and measured 3.6×3.5 cm on right side and 2.9×1.2 cm on left side. The patient remained afebrile during her stay. This conservative management was continued until there was absolutely no discharge on aspiration with a syringe and the opening closed spontaneously. Ultrasonography after 10 days showed no pelvic collection and the patient was discharged in stable condition.

Figure 1 Plastic catheter inserted into the vesicovaginal space under sonographic guidance.

OUTCOME AND FOLLOW-UP

The patient recovered completely and was discharged in satisfactory condition. Transvaginal ultrasonography showed no collection in the pelvis or anterior vaginal wall space. She visited for follow-up once after 1 month and was asymptomatic.

DISCUSSION

Surgical site infection following vaginal hysterectomy is classified as a clean-contaminated wound. Since vaginal bacteria are common to harbour here, majority of postoperative infections are polymicrobial.² Patients undergoing an abdominal or vaginal hysterectomy should receive single dose antibiotic prophylaxis. American College of Obstetrics and Gynaecology supports the use of prophylactic antibiotics to substantially reduce postoperative infectious morbidity and mortality and decrease length of hospitalisation in women undergoing hysterectomy.³

Bacterial vaginosis particularly has been a known risk factor for surgical-site infection after hysterectomy.^{4,5} Preoperative and postoperative treatments of bacterial vaginosis with metronidazole for 4 days beginning presurgery have proven to reduce vaginal cuff infection with abnormal vaginal flora.

Any infective focus left in the pelvis becomes a nidus of further spread of the disease and an abscess is frequently reported in the rectovaginal space.

According to the Centres of Disease Control and Prevention (CDC),⁶ to define any case as having an organ or space surgical site infections (SSIs) including adnexal infections and pelvic abscesses, it should involve any part of the anatomy (organs and spaces) other than the incision that was opened or manipulated during an operation and at least has any one of three: purulent drainage from a drain that is placed through a stab wound into the organ/space, organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/space, an abscess or other evidence of infection involving the organ/space that is found on

Figure 2 Vesicovaginal abscess drained through manual suction.

direct examination, during reoperation, or by histopathological or radiological examination. Our case was fitting into third category of CDC definition of SSI.

Review of the literature suggests that any pelvic abscess more than 8 cm should be drained. In addition to the administration of empiric parenteral antibiotics; cultures and sensitivities should be obtained.⁷ Early drainage of a pelvic abscess is safe, improves outcomes, reduces hospitalisation and is appropriate for the clinician to consider as primary therapy.

Drainage of an abscess can be performed through laparoscopy or laparotomy. Yet, the most preferred one to be considered if patient is haemodynamically stable is percutaneous or transvaginal drainage. Ultrasonography⁸ or CT⁹-guided drainage in combination with antibiotics has perhaps emerged as a preferred alternative approach in such patients with excellent results, even with large abscesses. The same concept was used in our case.

Most of the pelvic collections tend to localise in the posterior cul de sac. Such pelvic abscesses are best drained through a colpotomy, which involves an incision in the cul de sac.¹⁰ It is considered a safe procedure with slight risk of diffuse peritonitis. Rivlin *et al*, in their series of 348 cases of colpotomy drainage, found 23 (6.5%) cases of diffuse peritoneal sepsis. The overall mortality rate reported in their series was 2% (seven deaths), and diffuse peritoneal sepsis was the most common cause of death.¹¹

Oride *et al*,¹² in their retrospective review of gynaecological pelvic abscess (tubo-ovarian, tubal and cul de sac abscess) in 20 cases, observed that 19 of the 20 (95%) patients eventually required surgical intervention, which included total hysterectomy plus adnexectomy in 6 patients, adnexectomy alone in 5 patients, drainage under laparotomy in 7 patients and drainage alone in 2 patients of right tubo-ovarian abscess and bilateral tubo-ovarian abscess. As treatment with antibiotics alone was ineffective in almost all cases, surgical treatment was required. They concluded that drainage might be the first-choice treatment for pelvic abscess to avoid invasive surgery. Anaerobic bacteria were frequently detected as the causative bacteria. Darling *et al*¹³ in their retrospective study of 155 patients with acute pelvic abscess, who were treated by colpotomy drainage, concluded that more aggressive surgical management is to be preferred and the vaginal approach gives good results. The complications and morbidity in this series were very low with mortality rates of <1%.

The literature was reviewed through PubMed and Google Scholar and no case report suggesting similar pelvic collection localised anteriorly in anterior vaginal space was found. Furthermore, pelvic abscess drainage using manual vacuum suction and douching has not been reported in the literature. The reported literature reflects that majority of cases require laparotomy, hysterectomy, bilateral salpingo-oophorectomy or CT-guided drainage. Thus, our aspiration and douching technique with successful result is an innovation that may be tried for localised collections before subjecting the patients to a repeat major surgery.

In resource restraint countries, the first line of management of pelvic abscess even anterior vaginal space or cul de sac abscess remains surgical; primarily because of frequent unavailability of advance imaging techniques like CT-guided aspiration or drainage. This repeat surgery often leads to several untoward

consequences and also to increased morbidity. The approach to draining the pelvic abscess with this innovative method is technically simple, extremely cost-effective and also less-invasive and therefore a huge lesson for practice in resource constrained areas. Practising such technique can help avoid repeat major surgery and also reduces the involved finances, anaesthesia and surgical risks.

Learning points

- ▶ Surgical site infections can present as pelvic abscess draining through the anterior vaginal wall space.
- ▶ Drainage along with antibiotics plays a pivotal role in management.
- ▶ Before embarking on invasive procedures such as laparotomy or laparoscopy, consideration can be given to this conservative treatment by aspiration and douching.

Contributors NS developed the new innovative method for rare presentation of a common complication. NN assisted in the method and helped in formulating case report. NK helped in the literature search and preparation of the manuscript.

Competing interests None declared.

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