Cervical Abscess with Vaginal Fistula After Extraperitoneal Cesarean Section

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Extraperitoneal cesarean section was once used for the prevention of infection and postoperative adhesion. However, we report an unusual complication after this procedure. A 29-year-old woman had pus discharge from the anterior vaginal wall after extraperitoneal cesarean section. Broad-spectrum antibiotics failed to relieve her symptoms and vaginal culture yielded *Morganella morganii*. Magnetic resonance imaging, sagittal view, showed a cervical abscess measuring 5 × 5 cm with a tract extending to the anterior vagina. After performing dilation and abscess drainage via the cervical ostium, the symptoms gradually subsided with adequate antibiotic treatment. Cervical abscess may develop after extraperitoneal cesarean section and present initially as vaginal fistula. Detailed imaging study provides comprehensive anatomic information for effective management. [J Formos Med Assoc 2007;106(12):1048–1051]

Key Words: cervical abscess, extraperitoneal cesarean section, *Morganella morganii*

Although the appropriate use of cesarean section is associated with a decrease in perinatal mortality and morbidity rates, it is also associated with an increased incidence of maternal postpartum morbidity, particularly infection. Reported infections include endometritis, pelvic abscess, infected hematoma, peritonitis, pneumonia, urinary tract infection and superficial wound infection.¹ Prophylactic antibiotics can significantly reduce the risk of endometritis and wound infection.² However, unusual types of infection with diversified presentations can still occur.³⁴ Among cases of infection reported in the literature, cervical abscess presenting as vaginal fistula has not been previously reported.

Extraperitoneal cesarean section was popularized in the pre-antibiotic era in an attempt to circumvent the high mortality rate caused by infection and decrease the incidence of postoperative adhesion.⁵ However, with the widespread availability of antibiotics, the procedure has gradually been abandoned because of technical difficulty, the risk of urinary tract injury and fewer and fewer obstetricians who are skilled in this technique. Furthermore, inexperience with this technique may lead to morbidity. We report an unusual complication of extraperitoneal cesarean section; detailed imaging studies provided comprehensive anatomic information and assisted in effective management.

Case Report

A 29-year-old, gravida 1, para 1, woman was admitted to our ward due to persistent mild fever and purulent vaginal discharge. Body temperature was 37.8°C and leukocytosis (15,470/µL) was noted. On pelvic examination, sticky pus leaked constantly from the anterior vaginal wall (Figure 1A) and she complained of local tenderness. The
vaginal portion of the cervix was normal. According to her statement, she had undergone a Strassman procedure for her bicornuate uterus when she was a teenager. And 1 week previously, she had undergone elective extraperitoneal cesarean section in another hospital to prevent uterine rupture after her previous uterine surgery. She denied active labor and premature rupture of membranes before this cesarean section. Transabdominal sonography revealed dilation of the low segment uterus (Figure 1B). Pelvic sonography showed a cystic lesion that was suspected to be an ovarian cyst and which was located behind the low segment of uterus.

After admission, broad-spectrum antibiotics (gentamicin, clindamycin, metronidazole) were immediately administered for 3 days, but they failed to relieve the symptoms. During this period, culture of the discharge yielded *Morganella morganii* with sensitivity to cefmetazole in the disc susceptibility test, and resistance to ampicillin and cefazolin. To evaluate the location and dimensions

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**Figure 1.** (A) Purulent pus leaking constantly from the anterior vaginal wall (arrow). (B) Transabdominal sonography shows dilation of the low segment of uterus (arrowheads). (C) Magnetic resonance imaging, median sagittal view of T1-weighted image with Gd-DTPA enhancement, shows a cervical abscess measuring 5 × 5 cm (arrowheads). Fluid accumulation in the space behind the anterior vagina (arrow) is seen in paramedian sagittal view. (D) Coronal section of T1-weighted image with Gd-DTPA enhancement shows a tract evolving from the cervical abscess, turning left and communicating with the space behind the anterior vagina (arrow), forming a vaginal fistula.
of the abscess behind the anterior vaginal wall, pelvic magnetic resonance imaging (MRI) was arranged for the next day. However, a sagittal view of T1-weighted image with Gd-DTPA enhancement revealed a cervical abscess measuring 5 × 5 cm with a tract extending to the anterior vaginal wall (Figure 1C). The cervical abscess was located in the internal portion of the cervix. The tract seemed to extend from the left-side uterus defect and continue to the anterior vagina space (Figure 1D). Figure 2 shows the exact location of the abscess and the anatomic relationship.

After confirmation of the diagnosis, dilation and drainage of the cervical abscess via the cervical ostium was arranged and performed uneventfully on the fifth day. With the intravenous injection of cefmetazole sodium 1 g every 8 hours, her fever subsided immediately and white blood cell count decreased to 5970/µL on the third day. There was no further discharge from the vagina after the procedure. The patient was then discharged 6 days after the operation and was well during the period of follow-up.

**Discussion**

Reports of simple vaginal abscess are rare and most were associated with vaginal surgery and vaginal delivery. Infected Gartner’s duct cyst was another possible cause of vaginal abscess. However, they were always located on the dorsal-basal side of the vagina. In this case, the pus leakage from the anterior vaginal wall and no history of previous vaginal surgery suggested that the vaginal abscess was secondary infection rather than primary. Local incision and drainage may not be effective to control the clinical symptoms. The culture of vaginal discharge yielded *M. morganii*, which has been reported to be the causative agent in community- and hospital-acquired pneumonia, empyema, pyomyositis, endophthalmitis, neonatal sepsis, surgical wound infection and central nervous system infection. And that was evidence that the infection was procedure-related. Therefore, it is essential to promptly identify the main source of infection.

Sonography is a convenient and inexpensive image study. However, it is difficult to discriminate and trace the possible tract behind the vaginal wall since the tract might be flattened under the pressure of pelvic sonography. A cervical abscess with wall formation is also easily mistaken for an ovarian cyst or a tubo-ovarian abscess if the contour of the uterus is not inspected carefully. Computed tomography (CT) studies in puerperal infections have proven to be helpful in identifying pelvic masses and fluid collections, as well as septic pelvic thrombophlebitis. However, CT cannot provide a detailed sagittal view that clearly delineates the anatomic location of the abscess. Also, it cannot show the correlation between the cervical abscess and fluid accumulation behind the anterior vagina. In contrast, sagittal view MRI can delineate the margin of the abscess precisely. In this patient, MRI showed that the cervical abscess was the main source of infection and that a tract evolved from the left-side defect of the uterus to the space behind the anterior vagina in the coronal view. The shortest route to approach the cervical abscess was via the cervical ostium.

Extraperitoneal cesarean section was once used to prevent peritonitis in patients with premature rupture of membranes and to prevent adhesion. However, it may create an infectious tract.
that extends to the vaginal wall, as in our case. Efforts should be made to reduce hematoma formation and the defect of the uterine wound, and the procedure should be performed by skilled obstetricians.

In summary, cervical abscess may develop after extraperitoneal cesarean section and present initially as vaginal fistula. Detailed MRI study can provide comprehensive anatomic information, and in this case suggested that the cervical ostium was the shortest route to drain the abscess. With effective drainage and adequate antibiotic treatment, this patient recovered smoothly.

References