Case Report

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Conservative Management of Tubo-Ovarian Abscess as a Complication of Reconstructive Surgery for Congenital Cervicovaginal Agenesis: A Case Report

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Running Title Tubo-Ovarian Abscess as a Complication of Reconstructive Surgery

ABSTRACT

Cervical agenesis, a rare birth defect affecting the female reproductive system, is often accompanied by vaginal agenesis in only 39% of cases. In the past, the standard treatment for this condition was hysterectomy. However, as medical technology and techniques continue to advance, more conservative surgeries and assisted reproductive methods are now being considered as the primary treatment options. Nevertheless, complications such as restenosis, pelvic abscess, and recurrent pelvic endometriosis should always be considered.

We report a case of cervicovaginal agenesis complication after reconstructive surgery in a 16-year-old adolescent girl.

A conservative surgical approach to cervical malformations may cause complications that can be prevented or managed by regular follow-ups.

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Introduction

The prevalence of congenital uterine anomalies varies from 1% to 10% [1]. Congenital cervical agenesis or dysgenesis is rare, with a prevalence ranging from 1 in 80,000 to 1 in 100,000 [2].

Conservative surgery can lead to serious complications such as endometritis, pelvic inflammatory disease, persistent pelvic pain, bowel or bladder injury, repeat surgery, and death [3]. Consequently, many experts advocate hysterectomy as the treatment of choice for these patients due to the risk of reoperation or the serious complications described above, as well as the potential for death from reconstructive surgery [4].

Demolitive treatment is generally reserved for patients with repeated failures of conservative therapy or postoperative complications (such as infections or cervical restenosis) [5].

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This case report discusses the conservative management of complications following reconstructive surgery in congenital agenesis of the cervix and vagina, along with a review of articles related to conservative surgical restoration of the reproductive tract in women with congenital cervical agenesis.

Case Presentation

A 16-year-old adolescent girl presented with persistent fever (up to 40 °C) with abdominopelvic pain, anorexia, and nausea. Laboratory data showed a white blood cell (WBC) count of 15.7 × 10^3/µL, 86% neutrophil count, a hemoglobin level of 10.5 g/dL, a platelet count of 285 × 10^3/µL, and a C-reactive protein (CRP) level of approximately 15.2 mg/dL. The fever persisted despite the antibiotic treatment, which lasted for two weeks. Blood cultures performed on the day of referral were negative. She was a known case of cervicovaginal agenesis. She had undergone laparoscopic uterovaginal anastomosis with the placement of a polytetrafluoroethylene stent for the reconstruction of cervical agenesis and concomitant modified McIndoe vaginoplasty at the age of 11 years. A 1 cm rectal injury occurred during vaginoplasty and was repaired primarily. Her menstruation was regular after surgery. She was under scheduled medical follow-up.

Trans-abdominal ultrasound showed a pelvic thick-walled multilocular complicated cyst containing echogenic debris, measuring 70 × 6.8 × 56 cm in the left adnexa. Magnetic resonance imaging revealed a unilateral complex multilocular thick-walled fluid-filled ovarian mass with an irregular, thick, uniformly enhancing wall and septa on the left side of the pelvis, causing pressure on the adjacent uterus associated with surrounding pelvic fat haziness. The above-mentioned lesion on MRI demonstrated heterogeneous intermediate and high signal intensity on T2-weighted images, low signal intensity on T1-weighted images, high signal intensity on diffusion-weighted imaging (DWI), and low signal intensity on apparent diffusion coefficient (ADC), indicating restricted diffusion. These observations indicated the presence of a tubo-ovarian abscess (Figure 1).

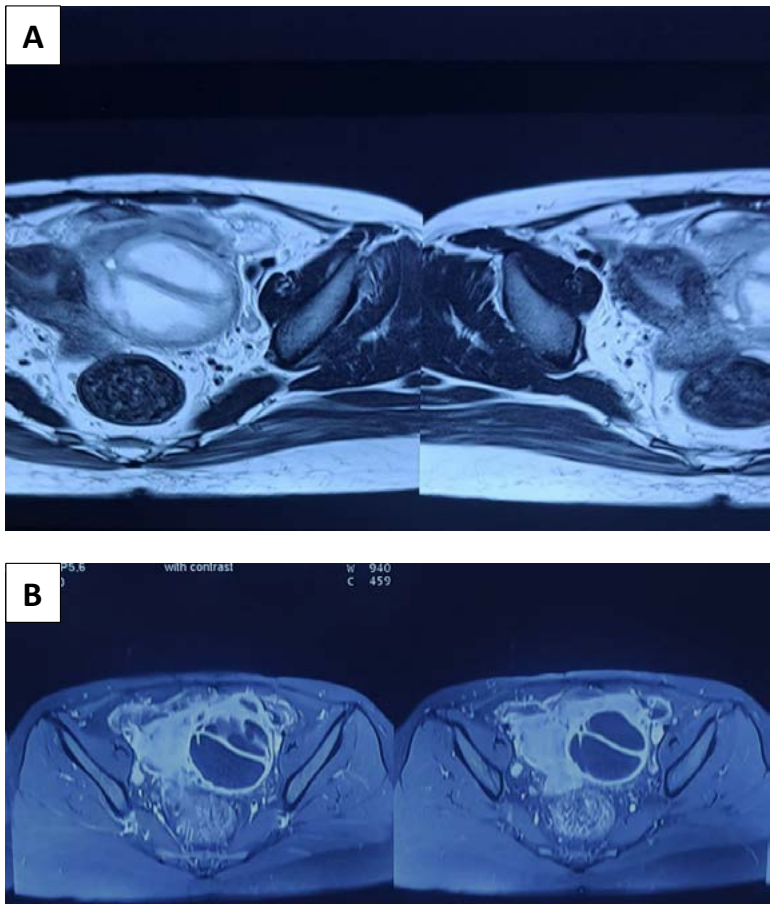

Fig. 1. A complex multilocular thick-walled cystic ovarian mass with heterogenous high T2 signal **(A)** and irregular thick uniform enhancing wall and septa in post contrast T1 images **(B)** at left adnexa is noted with restricted diffusion in DWI sequence (not shown), causing pressure on the adjacent uterus associated with surrounding pelvic fat haziness suggestive for Tubo-Ovarian Abscess (TOA).

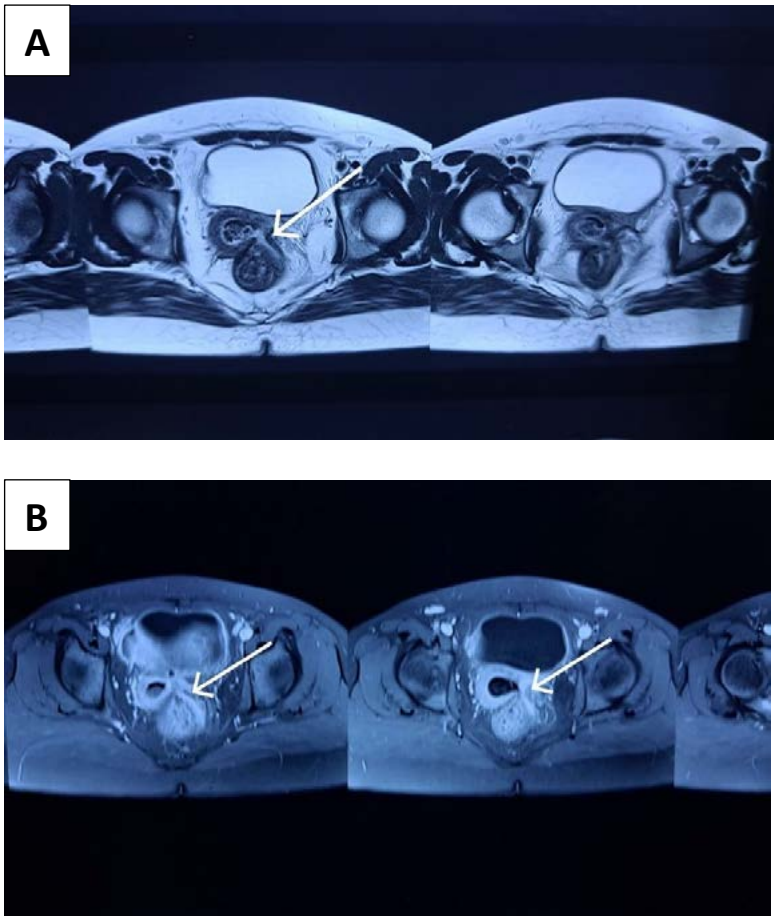

Fig. 2. A high T2 signal intensity track **(A)** is seen between the left anterior wall of the lower rectum and the left posterior wall of the vagina with surrounding fat haziness and increase enhancement in post-contrast T1 images **(B)**, in favor of the rectovaginal fistula.

Additionally, a high T2 signal intensity track with enhancement was seen between the left anterior wall of the lower rectum and the left posterior wall of the vagina with surrounding fat haziness, in favor of a rectovaginal fistula (Figure 2).

Due to persistent fever, abscess drainage was performed under ultrasound guidance. Puncturing of the swollen left ovary revealed internal pus, and pus was collected for bacterial culture, and the abscess was excised without any substantial compromise to the ovary. The culture was positive for Escherichia coli. Clindamycin 900 mg IV every 12 hours and gentamicin loading dose IV (2 mg/kg) followed by 1.5 mg/kg every 8 hours was administered.

The rectovaginal fistula was managed conservatively according to the colorectal surgeon's recommendation. She was discharged after 6 days; the CRP level on the day of discharge was 4.12 mg/dL. Oral clindamycin at 900 mg BID was continued for 14 days. Finally, imaging performed one month after the procedure showed no recurrence of ovarian abscess.

Written informed consent was obtained from the patient and her mother for the publication of the report.

Discussion

Managing cervical abnormalities, whether with or without a normal vagina, can be both challenging and rewarding. It demands creativity in devising management approaches.

Patient participation in the decision-making process is critical, as interventions ultimately affect her life and are associated with irreversible loss or negative impact on reproductive function [3].

Hysterectomy was traditionally primarily the treatment of cervical agenesis to avoid serious complications following reconstructive surgery. [4]

Various techniques have been reported in the literature describing procedures creation of a

neocervix and a neovagina if needed, and restoration of the continuity of the genital tract. The choice of neovagina and neocervix method and technique of neocervix and neovagina anastomosis is important. [2] Dornelas, reported eleven patients with vaginal agenesis underwent Utero-neovagina anastomosis using a Silicon mold covered by oxidized cellulose. One major postoperative complication occurred, which culminated in death. [6] In a survey done by Rock et al. cervical reconstruction was performed in 11 patients, 6 eventually experienced hysterectomy after obstruction of the neocervical canal. Two cases with cervical agenesis underwent uterovaginal anastomosis. Both required hysterectomy because of pelvic infection due to re-obstruction [4].

A variety of treatment options are available for pelvic inflammatory disease (PID), including conservative management with IV antibiotics, laparoscopic aspiration, image-guided aspiration or drainage, laparoscopic salpingostomy with saline irrigation, and salpingectomy [7]. Rupture of the abscess can be fatal as high as 5%–10% of cases even with advanced treatment and surgical intervention [8]. Immediate and aggressive treatment can lead to a favorable outcome.

When OA is suspected, quick treatment is required to prevent adverse outcomes [9]. The treatment recommended for managing infectious complications after reconstructive surgery is hysterectomy [10]. Further, in another case series, 14 patients underwent laparoscopic-assisted uterovaginal anastomosis, nine of whom also underwent concomitant vaginoplasty. Among them, only one patient required a hysterectomy due to restenosis and infection [11].

Kimble R et al. reported two patients with the combined congenital anomalies of complete vaginal agenesis and partial cervical agenesis presented difficulties encountered with the limitations of MRI in the accuracy of diagnosis and clinical correlation of imaging was not easy, as well as the development of life-threatening sepsis requiring hysterectomy and limited counseling by not being able to make an accurate diagnosis. Both patients were at first imaged as having enlarged endometrial cavities and cervical canals with what was thought to be an obstructive upper vaginal septum and an absent lower vagina. Both required initial neovagina creation, however, the cervixes were never clinically or surgically visualized [5].

Three cases in the literature discussed sepsis-related deaths and obstruction secondary to cervical agenesis. Initially, these patients were thought to have a high transverse vaginal septum and were treated by creating a neovagina and establishing communication with the uterine cavity [12-13]. Despite initially having normal periods, all patients later presented to hospitals with severe infections and obstruction requiring hysterectomy due to infectious morbidity. In one case, the patient continued to decline, developing multi-system organ failure, and ultimately died after a hysterectomy [12]. In all five cases, including the above cases, there was a delay in the accurate definite diagnosis of the abnormality resulting in non-definitive initial treatment. Unfortunately, it was this delay that allowed the development of complications that led to significant morbidity and mortality.

Tareq Maraqa et al. reported conservative management of bilateral recurrent pyosalpinx in a 12-year-old girl secondary to retrograde menstruation caused by obstructed hemivagina due to Mullerian duct anomaly. In addition to irrigation and drainage of the abdomen and pelvis, IV and oral antibiotics were sufficient to achieve complete resolution without the need for a salpingostomy or salpingectomy [14].

Tsuyoshi Murata et al. presented a case of ovarian abscess in a virginal adolescent girl without any mullerian anomaly who was treated by laparoscopically abscess drainage. In OA early diagnosis and treatment can remarkably decrease the risk of sepsis, torsion, and adverse effects [15].

Conclusion

The conservative surgical treatment of cervical malformations is a promising option that can be provided with the primary purpose of preserving the uterus for future fertility. Complications following these procedures can also be managed conservatively. However, after the initial surgery, patients should be ready for a lengthy period of follow-up care.

Consent to publish declaration

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient's parent has consented to report images and other clinical information in the journal. The patient's parent understands that the names and initials will not be published and due efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

Data availability statement

All data generated or analyzed during this study are included in this published article.

Authors' contributions

I.K. and S.K. participated in the original drafting and revising of the manuscript. Z.R., K.A., and both F.A provided the data used in the manuscript. K.A. also supervised and revised the manuscript.

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Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this article.

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Conflict of Interests

The authors have no conflict of interest to declare.

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