Management of piocolpos during pregnancy: Case Report

Laura Johana García Muñoz [a], Ashly Catalina Gómez Cuervo [b], Natalia Imbachí Joaquí [c], Jaimes Olave Ana María [d], Jenny Patricia Gómez Bohórquez [e], Miguel Ángel Montañez Aldana [f]

a. Medical student. School of Medicine, Universidad Pedagógica y Tecnológica de Colombia. ORCID: https://orcid.org/0009-0008-1347-2927

b. Medical student. School of Medicine, Universidad Pedagógica y Tecnológica de Colombia. ORCID: https://orcid.org/0009-0002-5825-2983

c. Medical student. School of Medicine, Universidad Pedagógica y Tecnológica de Colombia. ORCID: https://orcid.org/0009-0001-2042-5562

d. Medical student. School of Medicine, Universidad Pedagógica y Tecnológica de Colombia. ORCID: https://orcid.org/0009-0009-8475-1736

e. Specialist doctor in gynecology. Gynecology Service, E.S.E. San Rafael University Hospital of Tunja. School of Medicine, Universidad Pedagógica y Tecnológica de Colombia. ORCID: https://orcid.org/0009-0007-5438-5814

f. Specialist doctor in gynecology. Gynecology Service, E.S.E. San Rafael University Hospital of Tunja. School of Medicine, Universidad Pedagógica y Tecnológica de Colombia. ORCID: https://orcid.org/0000-0003-3618-1790

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Abstract

Pyocolpos, defined as the accumulation of pus in the vagina, is a rare gynecological complication typically associated with Müllerian developmental anomalies, which are polygenic and multifactorial malformations affecting the female population. These include bicornuate, septate, and arcuate uteri. This article presents the case of a 23-year-old pregnant woman diagnosed with pyocolpos in the context of a congenital uterine malformation. The patient had a bicornuate uterus bicollis, a transverse vaginal septum, and left renal agenesis. During pregnancy, she experienced suprapubic pain and purulent vaginal discharge. Imaging studies, including magnetic resonance imaging (MRI), revealed a double endocervical canal and a left paracervical collection, confirming the diagnosis. Antibiotic therapy and supportive measures were initiated, resulting in favorable clinical progress. The pregnancy was electively completed at 37 weeks via cesarean section, without maternal or neonatal complications.

Key words: Pyocolpos; bicollis; bicornuate uterus; transverse vaginal septum pregnancy.

Introduction

Congenital uterine anomalies are estimated to affect approximately 6.7% of the female population. These malformations, of polygenic and multifactorial origin (1), include conditions such as bicornuate bicollis uterus, which results from partial fusion of the Müllerian ducts secondary to failure of reabsorption of the longitudinal septum, leading to a bicornuate uterine morphology. The term ***bicollis*** refers to the presence of two cervices or endocervical canals (2,3).

These anomalies have been associated with multiple obstetric and perinatal complications, including abnormalities in placental adherence, intrauterine growth restriction (IUGR), pregnancy-associated hypertension, recurrent pregnancy loss, cervical insufficiency, fetal breech presentation, premature rupture of membranes, preterm birth, cesarean delivery, and antepartum and postpartum hemorrhage. Gynecological complications may also occur, such as abnormal uterine bleeding or discharge, hematocolpos, retrograde menstruation, pelvic pain, and genital tract infections (3,4). One such infection is pyocolpos, defined as the accumulation of pus within the vagina (5), clinically characterized by pelvic pain, purulent vaginal discharge, and the formation of a pelvic or paravaginal mass in the presence of an obstructed hemivagina (6).

The aim of this article is to present the clinical case of a pregnant patient with a Müllerian anomaly (bicollis uterus), suspected transverse vaginal septum, pyocolpos (left paracervical collection), and left renal agenesis, as well as to analyze the diagnostic and therapeutic approach to these conditions.

Case Presentation

A 23-year-old female patient, G1P0, at 21.1 weeks of gestation, with a history of left renal agenesis, from Chiquinquirá (Boyacá), was referred to the emergency department of Hospital Universitario San Rafael de Tunja due to a two-week history of suprapubic stabbing pain, non-radiating, associated with yellowish, foul-smelling vaginal discharge, without fever or urinary irritative symptoms.

She was initially treated with cephalexin and clindamycin, without clinical improvement. She subsequently sought care again in her hometown, where a transvaginal pelvic ultrasound was performed, reporting findings suggestive of a supracervical collection prolapsing through the cervical canal, which prompted referral.

On admission, physical examination revealed: blood pressure 127/64 mmHg, mean arterial pressure 85 mmHg; heart rate 97 beats per minute; respiratory rate 17 breaths per minute; oxygen saturation 94% on room air (FiO_2 21%); body temperature 36.2 °C; height 168 cm; weight 63 kg; and body mass index 22.32 kg/m^2. The patient was hemodynamically stable and alert. Abdominal examination showed a gravid uterus and tenderness on palpation of the hypogastrium.

Speculum examination revealed abundant purulent-bloody material in the vaginal canal, with bulging of the posterior fornix. On vaginal examination, the cervix was deviated to the left, with minimal bleeding and foul-smelling discharge.

A Müllerian malformation with pyocolpos at 21.1 weeks of gestation was suspected, with a viable fetus. The patient was hospitalized and antibiotic therapy was initiated with ceftriaxone 500 mg IM, azithromycin 1 g orally, metronidazole 500 mg orally every 12 hours, along with analgesia using acetaminophen 1 g orally every 12 hours.

Laboratory tests showed leukocytosis with mild neutrophilia; C-reactive protein was positive; vaginal smear was consistent with bacterial vaginosis; and culture reported ***Escherichia coli*** with a usual sensitivity pattern. Serologic tests for syphilis, HIV, and hepatitis B were negative (Table 1).

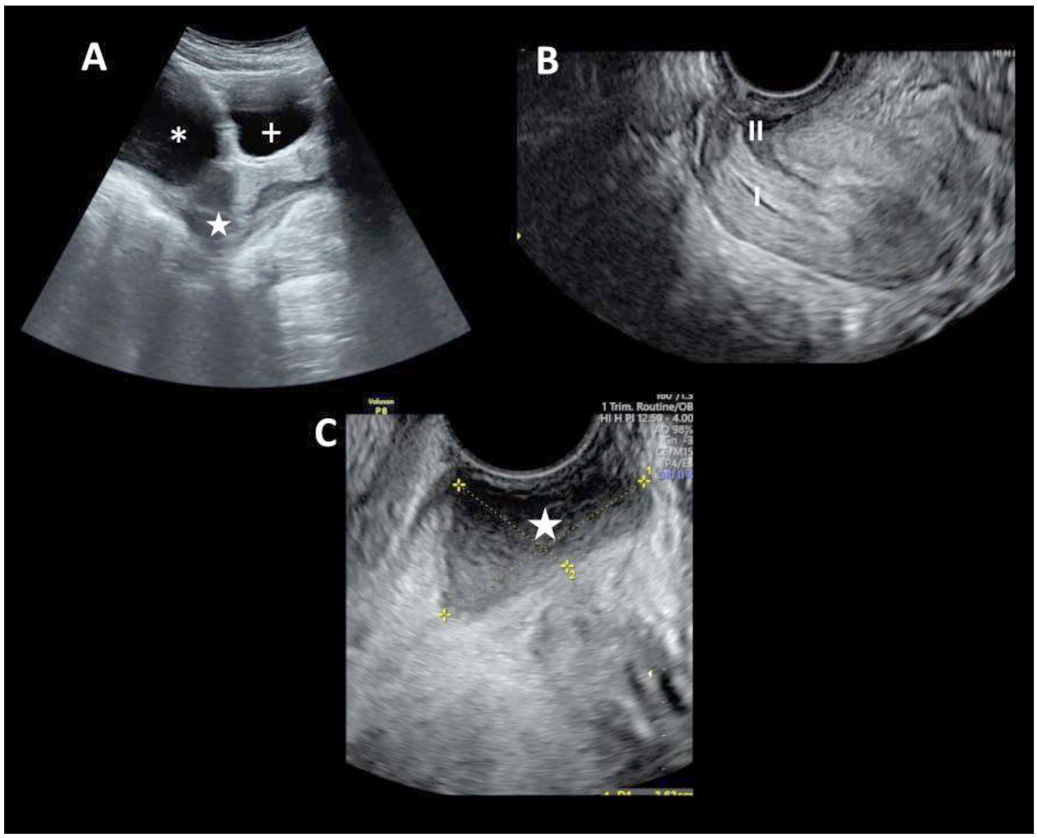
Table 1. Laboratory findings during the first and second hospital stay.

Paraclinical	Paraclinical First	Second hospital stay
Complete blood count	Leukocytes: 10,810 (71.7%) neutrophils: 7,730 (71.7%); lymphocytes 2.05 (18.9%) monocytes 0.83 (7.6%), eosinophils 0.15 (1.4%), Hemoglobin 12.1; hematocrit 35.8, platelets 362,000	Leukocytes 13,530; neutrophils 9,770; Lymphocytes 2,81; Hemoglobin 12.4; Hematocrit 34.9; Platelets 394.000
Hepatitis B surface antigen	Negative	
Rapid HIV	Negative	
Rapid Syphilis Test	Negative	
Toxoplasmosis	Negative	
Vaginal smear	Epithelial cells: 5–10 per field; absence of clue cells; leukocytes: 50 per field; bacteria ++++; no trichomonads or blastoconidia observed; absence of pseudomycelia; red blood cells: 8–10 per field; abundant leukocyte reaction; gram-positive bacilli (Corynebacterium) +; gram-positive cocci ++; gram-negative bacilli ++. Findings compatible with bacterial vaginosis.	Epithelial cells: 10–15 per field; absence of clue cells; leukocytes: 2–4 per field; bacteria ++; blastoconidia +; presence of pseudomycelia; no trichomonads observed; moderate polymorphonuclear cells; lactobacilli ++. Findings compatible with vaginitis due to Candida spp.
Quantitative C-reactive protein	5.00	<0.4
Vaginal secretion culture	*Escherichia coli of usual pattern*	
Urinalysis		Yellow color, slightly cloudy appearance, urinary density 1015; pH 5.5; Blood, bilirubins, ketones, proteins, nitrites, glucose: negative; Leukocytes 2-3 XC, few bacteria; low cells 2-4 XC
Urine culture		Negative

Obstetric ultrasound (Figure 1) showed a single live fetus, with biometry consistent with 22.4 weeks of gestation and an estimated fetal weight of 526 g (83rd percentile). The cervix was described as heterogeneous, with a functional cervical length of 43 mm. At the level of the posterior body region, an irregular hyperechoic image measuring 28 × 20 mm was identified, with no evidence of Doppler flow.

Figure 1. Transvaginal ultrasound

(A) Longitudinal view showing amniotic fluid (*), urinary bladder (+), and an adjacent pelvic collection (★), located in the paracervical region. (B) Visualization of two endocervical canals (I and II), a finding suggestive of cervical duplication. (C) Magnified image showing a pelvic collection (★) with heterogeneous content, located in relation to the cervix.



After 3 days of inpatient antibiotic treatment and favorable clinical progression, discharge was decided with oral metronidazole to complete a 7-day course. An outpatient ultrasound follow-up was performed one week later, showing a 22.3-week pregnancy, a long cervix, and persistence of the collection, with an image suggestive of two endocervical canals.

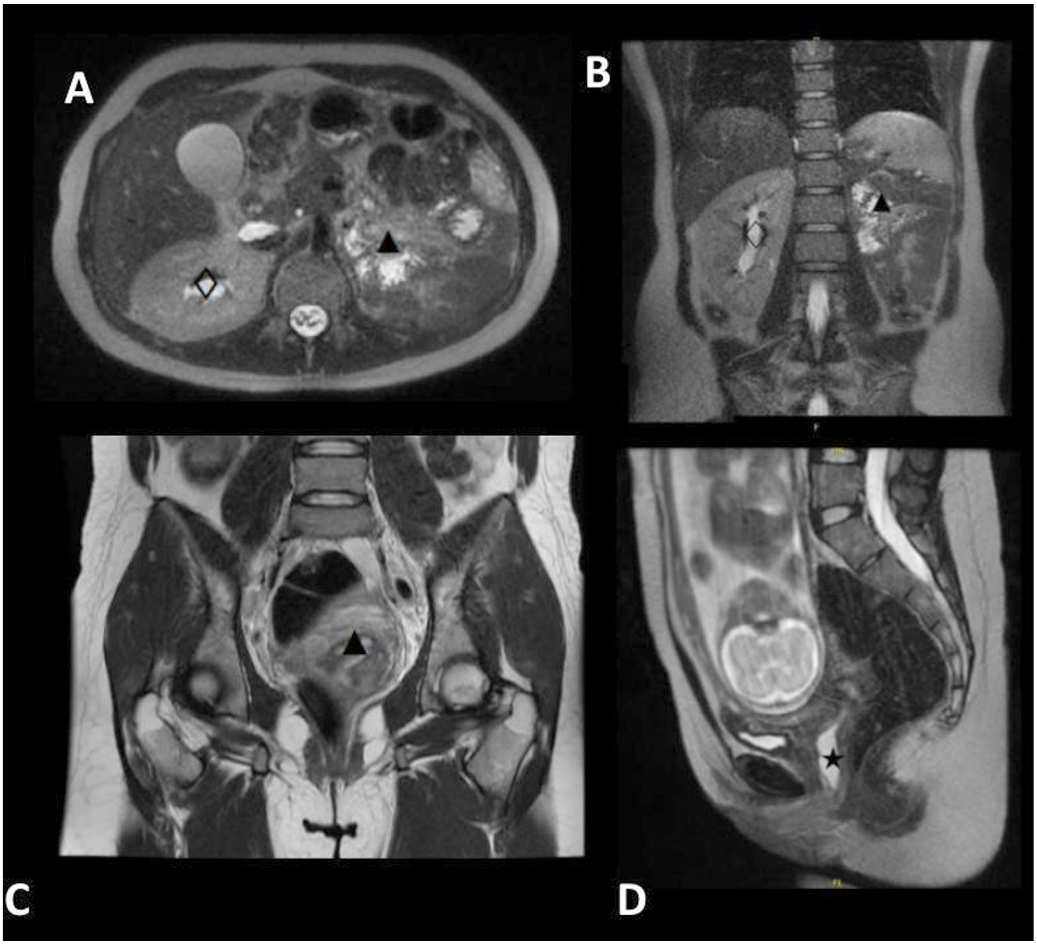
Given the history of left renal agenesis and the ultrasound findings, a Müllerian malformation with a transverse vaginal septum was confirmed. Due to persistent pain, inpatient management was resumed and an abdominopelvic magnetic resonance imaging (MRI) was requested.

MRI revealed a gravid uterus with a single pregnancy, fetus in cephalic presentation oriented inferiorly, and a posterior corporal placenta. At the level of the cervical segment, a double endocervical cavity was observed, without clear definition of the vaginal canal, along with a left anterolateral

paracervical lesion measuring 15 × 28 × 35 mm, with an estimated volume of 9 mL (Figure 2). This lesion was hyperintense on T2-weighted sequences and hyperintense on FLAIR (Fluid-Attenuated Inversion Recovery), suggesting content not consistent with physiological free fluid but rather pathological fluid. It also showed a restrictive pattern on diffusion-weighted imaging, associated with high cellularity and thick material, confirmed on the ADC (Apparent Diffusion Coefficient) map—findings typical of abscesses or purulent collections.

Figure 2. Abdominopelvic magnetic resonance imaging

(A) Axial view showing an empty left renal fossa (▲), consistent with congenital renal agenesis, and a right kidney (◊) with preserved morphology and enhancement. (B) Coronal view confirming the absence of the left kidney in its usual fossa (▲), and a right kidney (◊) with preserved size and characteristics. (C) Coronal pelvic view demonstrating a double endocervical cavity (▲), consistent with cervical duplication.(D) Sagittal pelvic view showing a pelvic collection (★) in relation to the cervix.



Given the persistence of the collection, without significant changes in size, and based on the antibiogram reporting ***Escherichia coli*** with a usual susceptibility pattern, targeted antibiotic therapy with ceftriaxone 1 g IV every 8 hours was initiated. Symptomatic management was complemented with hyoscine 20 mg IV every 8 hours for visceral pain control, and thromboprophylaxis with enoxaparin 40 mg SC every 24 hours was started, given the obstetric condition and relative immobility.

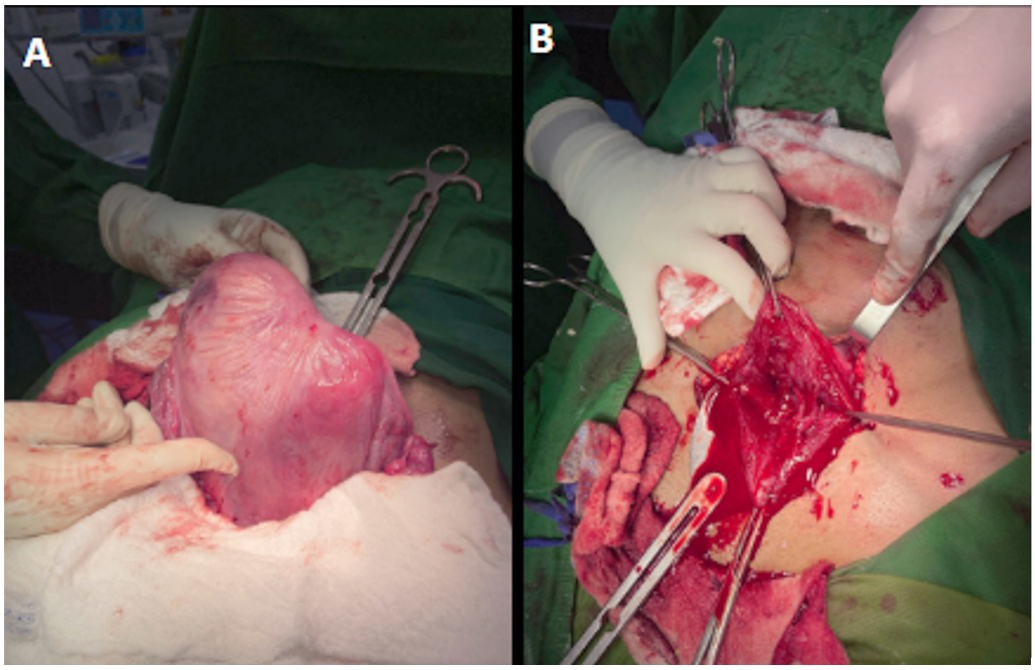
After 72 hours of treatment, transvaginal ultrasound showed a reduction in the size of the paracervical collection to 7 × 4 mm. On the fifth day of hospitalization, and in light of favorable clinical progression, the patient was discharged with continuation of intravenous antibiotic therapy under a home hospitalization program to complete a 7-day course, with satisfactory outpatient follow-up.

At outpatient follow-up at 31.2 weeks of gestation, the patient was hemodynamically stable, with evidence of fetal well-being. Elective delivery was scheduled upon reaching 37 weeks of gestation.

A transperitoneal lower-segment cesarean section was performed, resulting in the delivery of a live female newborn weighing 3,450 g, measuring 51 cm in length, with an estimated gestational age of 38 weeks by the Ballard method, and Apgar scores of 8, 9, and 10. The fetus was located in the right uterine horn, and the presence of a bicornuate uterus was macroscopically confirmed (Figures 3A and 3B).

Figure 3. Intraoperative findings

(A) Directed extraction of the placenta and fetal membranes, followed by inspection and cleansing of the uterine cavity. (B) Intraoperative visualization of a thick, avascular, non-bleeding uterine septum dividing the cavity into right and left compartments.



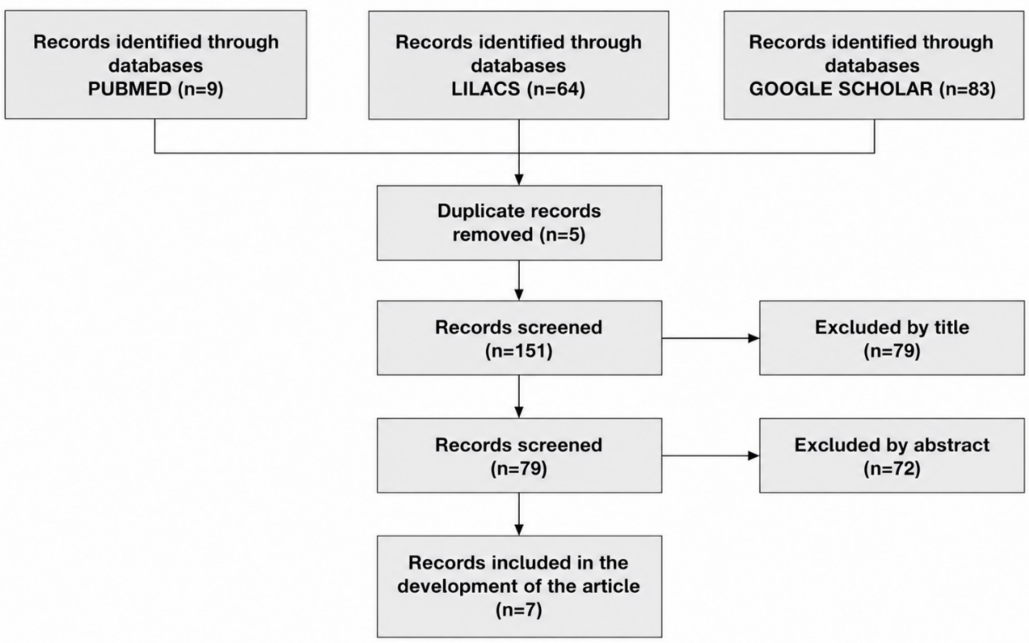
The patient remained under observation for 48 hours during the immediate postpartum period, with an adequate postoperative course and no complications.

Discussion

For the development of this article, a systematic search was conducted in the PubMed, LILACS, and Google Scholar databases, including articles in English and Spanish. The keywords used were: "pyocolpos AND pregnancy" and "pyocolpus AND pregnancy." The search included articles published from 1960 up to the date of the last search (July 2025). Initially, 156 results were identified, of which 5 duplicates were excluded, and subsequently, inclusion and exclusion criteria were applied.

The articles included in the review corresponded to pregnant women with coexisting pyocolpos. Studies analyzing the treatment of vaginitis, vaginosis without pyocolpos, and pyocolpos without concurrent pregnancy were excluded. A flowchart (Figure 1) was designed to summarize the article selection process.

Figure 1. Flowchart



The literature review on pyocolpos coexisting with pregnancy identified seven reported cases, the first in 1960 and the most recent in 2020. Notably, none of these cases were documented in Latin America.

Pyocolpos, defined as the accumulation of pus in the vagina, is a rare gynecological complication, particularly during pregnancy, and is associated with Müllerian anomalies (MAs).

Müllerian anomalies affect approximately 5% of the female population. However, among women with reproductive problems, prevalence ranges from 3.4% to 18.2%, reaching 8% in those with a history of infertility and up to 18.2% in those with recurrent pregnancy loss (7,8).

According to previous analyses (9), based on the review of multiple series on Müllerian defects, the distribution of MAs is as follows: bicornuate uterus (46%; 9% complete and 37% partial), the most common anomaly; septate uterus (22%; 9% complete and 13% partial); arcuate uterus (15%); uterus didelphys (11%); unicornuate uterus (4.5%); and Müllerian agenesis (4%). Given the association between a bicornuate uterus and cervical insufficiency, ultrasound evaluation of cervical length during pregnancy is recommended (10).

According to the Müllerian anomaly classification system of the American Society for Reproductive Medicine (2021), the present case corresponds to a bicornuate bicollis uterus (11). Based on the joint classification of the European Society of Human Reproduction and Embryology and the European

Society for Gynaecological Endoscopy, it is categorized as U3C2V3 (12).

The diagnosis of Müllerian anomalies is primarily based on imaging studies, with magnetic resonance imaging (MRI) being the modality of choice due to its high accuracy. MRI allows differentiation between congenital, inflammatory, and neoplastic gynecological conditions, as well as detailed characterization of the endometrial and cervical canals. Transvaginal ultrasound is also a widely accessible diagnostic tool (13). In this case, both modalities contributed to the final diagnosis: initially through ultrasound and subsequently confirmed by MRI.

Patients with Müllerian anomalies have an increased risk of other congenital anomalies, including renal, skeletal, cardiac, abdominal wall defects, and inguinal hernias. Renal anomalies, in particular, are usually unilateral and are present in 20–30% of patients with Müllerian defects. Unilateral renal agenesis has been associated with obstructed hemiuterus, transverse vaginal septa, and ipsilateral obstructed hemivagina. Patients with an obstructed hemivagina may present a microcommunication with the patent hemivagina, favoring the accumulation of secretions and leading to the formation of pyocolpos (14,15), as occurred in this patient.

Although most patients with a bicornuate uterus have uncomplicated pregnancies and outcomes similar to those of the general population, some may experience recurrent pregnancy loss. In such cases, uterine unification may be considered after excluding other causes (16). In the present case, the diagnosis was established during the first pregnancy, which reached term without complications.

The management of pyocolpos during pregnancy is not standardized due to its low incidence. The reported cases, along with their respective therapeutic approaches, were organized and are presented in Table 2. Of the seven cases identified, two were managed with needle aspiration drainage—one of which required repeat aspiration—and five with incision and drainage, including one case with Foley catheter placement at the incision site. In our case, targeted medical treatment with intravenous ceftriaxone was administered, resulting in favorable clinical progression and reduction of the collection; therefore, surgical drainage was not required at the end of the treatment course (Table 2).

Table 2. Reported cases of pyocolpos during pregnancy and their therapeutic management

Case	1	2	3	4	5	6	7	8
Year of publication	1960	1992	2008	2013	2015	2018	2020	Presente caso
Age	28	18	23	33	27	16	33	23
Gestational age at diagnosis	24	9	10	11	27	18	17	21
Clinic	Abdominal pain, dyspareunia, amenorrhea	Purulent vaginal discharge, pelvic pain, and mass	Purulent vaginal discharge, pelvic pain, vaginal bleeding, and mass	Purulent vaginal discharge, pelvic pain, and mass	Purulent vaginal discharge, pelvic pain, and mass	Purulent vaginal discharge, pelvic pain, and mass	Purulent vaginal discharge, pelvic pain, and mass	Suprapubic pain, purulent vaginal discharge, and mass.
Pathogens	*Gram-negative bacilli*	*Streptococcus and Klebsiella spp*	*Unidentified*	*Pediococcus*	*Unidentified*	*Staphylococcus hemolyticus*	*Fusobacterium and Actinomyces*	*Escherichia coli*
Concomitant malformations	Acquired vaginal stenosis	Streptococcus and Klebsiella spp	Unidentified	Pediococcus	Unidentified	Staphylococcus hemolyticus	Fusobacterium and Actinomyces	Escherichia coli
Treatment	**Surgical:** manual drainage with digital dissection of the vaginal abscess through opening of the scar tissue**. Medical:** antibiotic (300,000 U of aqueous penicillin every 6 hours, 150 mg of tetracycline intramuscularly every 4 hours).	**Surgical:** incision and drainage at 21 weeks of gestational age. Medical: 2g of ampicillin every 6 hours for 10 days;	**Surgical:** excision of the vaginal wall and drainage under anesthesia of 100 cc of pus.	**Surgical:** Resection of the vaginal wall and continuous drainage through Foley catheter insertion. **Medical:** antibiotic 1.5 g IV every 8 hours.	**Surgical:** Incision and drainage of 1000 cc	**Surgical:** Repeated needle aspirations (200 cc)	**Surgical:** Needle aspiration at 17 weeks of gestation, partial excision of the vaginal wall and drainage of 1000 cc at 23 weeks of gestation.	**Doctor:** ceftriaxone 500 mg IM, azithromycin 1g PO, metronidazole 500 mg PO every 12 hours for 3 days
Type of birth	Instrumental vaginal delivery due to fetal dystocia.	Elective cesarean	Vaginal delivery	Elective cesarean	Vaginal delivery	Cesarean section due to dystocia.	Cesarean section due to dystocia.	Elective cesarean
Pregnancy result	Preterm birth at 24 weeks and intrauterine fetal death.	Finished	Finished	Finished	Finished	Preterm birth due to premature rupture of membranes at 36 weeks of gestation	Finished	Finished
Reference	Kirkley et al. 1960 (17)	Karpathios et al. 1992 (18)	Rana et al 2008 (19)	Park et al. 2013 (20)	Sahu et al. 2015 (21)	Albulescu et al.2018 (22)	Tangshewinsirikul et al. 2020 (6)	Present case

Conclusions

The management of pyocolpos during pregnancy poses clinical challenges due to its low incidence and the lack of specific management guidelines for this condition. All previously reported cases have required surgical drainage. This case highlights the importance of an appropriate diagnostic approach to guide the selection of the most suitable therapeutic strategy for each patient, as well as the utility of antibiogram-guided antibiotic therapy and careful selection of candidates for surgical intervention. With appropriate monitoring during medical treatment, maternal and perinatal outcomes appear to be favorable.

Ethical responsibilities: The authors declare that informed consent was obtained from the patient for publication of this case, ensuring her right to privacy.

Conflicts of interest: None.

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Electronic correspondence: miguel.montanez03@uptc.edu.co

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