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An unexpected bond after delivery: when organs connect (too) deeply
Fístula vesicouterina após parto vaginal – relato de um caso clínico

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Abstract

Vesicouterine fistula (VUF) is a rare communication between bladder and uterus, usually linked to cesarean section. We describe a 26-year-old, gravida 2 para 1, admitted at 36 weeks with acute appendicitis. Four days after laparotomic appendectomy, spontaneous labor occurred, requiring vacuum extraction to shorten the second stage of labor. In the postpartum period, persistent urinary leakage was observed. Methylene blue dye instillation, ultrasound and uroCT confirmed a 10 cm fistula between bladder and uterine isthmus. Conservative management with drainage and antibiotics failed, requiring laparotomic repair, with favorable outcome. This case illustrates diagnostic and therapeutic challenges of a rare obstetric complication.

Keywords: Urinary fistula; Vesicouterine fistula; Postpartum incontinence; Urinary incontinence; Obstetric complications.

Resumo

A fístula vesicouterina (FVU) é uma comunicação rara entre bexiga e útero, geralmente associada à cesariana. Relatamos o caso de uma mulher de 26 anos, grávida 2 para 1, internada às 36 semanas por apendicite aguda. Quatro dias após apendicectomia laparotómica, entrou em trabalho de parto espontâneo, culminando em parto assistido por ventosa, para diminuição dos esforços maternos. No pós-parto imediato apresentou perdas urinárias persistentes. Instilação de azul de metileno, ecografia e uro-TC confirmaram fístula de 10 cm entre bexiga e istmo uterino. O tratamento conservador falhou, sendo realizada reparação laparotómica com evolução favorável. O caso evidencia os desafios diagnósticos e terapêuticos desta rara complicação obstétrica.

Palavras-chave: Fístula urinária; Fístula vesicouterina; Incontinência pós-parto; Incontinência urinária; Complicações obstétricas.

INTRODUCTION

Vesicouterine fistula (VUF) accounts for 1-4% of all genitourinary fistulas and is most frequently associated with cesarean section[1,2]. The incidence has increased in parallel with rising cesarean rates worldwide[3]. Typical clinical manifestations include vaginal urinary leakage, cyclic hematuria (Youssef's syndrome), amenorrhea, recurrent pregnancy loss and infertility[4,5].

Diagnosis is based on the identification of the vesicouterine tract, usually with cystoscopy, imaging studies or methylene blue dye tests[6]. Although small fistulae may close spontaneously with prolonged bladder drainage, most require surgical repair[7,8]. Recent series describe successful outcomes with both open and minimally invasive approaches, including laparoscopy and robot-assisted surgery[9,10,11,12,13]. Reporting clinical cases contributes to a better understanding of presentation, diagnosis and management strategies for this rare condition.

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CLINICAL CASE

A 26-year-old woman, gravida 2 para 1, with a history of cesarean section three years earlier by maternal choice, was admitted at 36 weeks of gestation with abdominal pain, anorexia, nausea and vomiting. Obstetric pathology was excluded and an abdominopelvic ultrasound confirmed acute appendicitis. Intravenous antibiotics were initiated (amoxicillin plus clavulanic acid 875/125 mg IV every 12 hours), followed by laparotomic appendectomy. Intraoperatively a suppurative, non-perforated appendix with localized peritonitis was identified. Antibiotics were continued postoperatively.

On the fourth postoperative day, spontaneous labour occurred, which progressed under continuous cardiotocographic monitoring, with a persistently normal fetal trace. The active phase lasted approximately eight hours. After one hour of the second stage of labour, instrumental vaginal delivery with a Kiwi® vacuum extractor was performed, to reduce maternal expulsive efforts. The newborn male weighed 3046 g and had Apgar scores of 10 and 10 at one and five minutes. The placenta was located anteriorly and delivered spontaneously; the third stage of labor was actively managed and uneventful.

In the early postpartum period, the patient presented with continuous urinary leakage. Bladder instillation of methylene blue dye via catheter revealed dye extravasation through the external cervical *os*. Transvaginal ultrasound showed communication between the posterior bladder wall and the anterior uterine wall. UroCT confirmed a 10 cm defect in the anterior uterine isthmus with contrast leakage into the uterine and pelvic cavities (Figure 1).

The patient was evaluated by urology and a conservative approach was initially attempted with bladder catheterization and antibiotics (ceftriaxone 1 g IV every 12 hours) however abundant leakage persisted.

Laparotomic repair was performed through a Pfannenstiel incision. The vesicouterine space was obliterated by adhesions with a hematoma of 5 × 3 cm involving both walls (Figure 2). After dissection, a 10 cm laceration of the bladder dome and a uterine rupture at the site of the previous hysterorrhaphy were identified (Figure 3). Hysterorrhaphy was performed with a continuous single-layer suture (polyglactin 1-0), and bladder closure with a two-layer continuous suture (polyglactin 2-0). Integrity was tested with saline instillation and methylene blue dye without leakage.

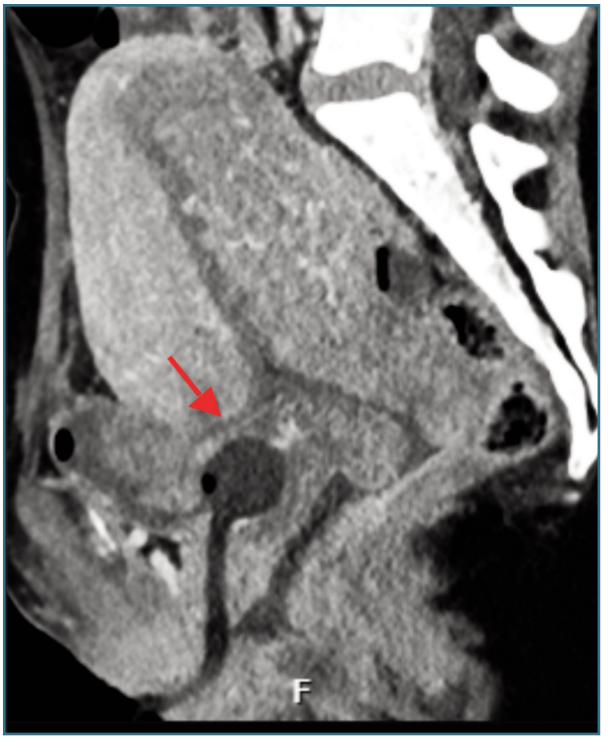

FIGURE 1. UroCT performed on the 5th postpartum day: sagittal cut shows a hypointense area in the anterior isthmic region of the uterus; the bladder wall in contact with this region shows a discontinuous and hypointense signal, revealing the continuity defect between the uterus and bladder (arrow).

Postoperatively the patient completed a one-week course of intravenous antibiotics (ceftriaxone 1 g IV every 12 hours) and was discharged with an indwelling catheter, removed on day 30. Follow-up ultrasound confirmed healing, and at three months she remained asymptomatic.

DISCUSSION

VUF is a rare condition, most often secondary to cesarean section, but also reported after vaginal birth after cesarean or instrumental delivery[1,2,9]. Its pathophysiology involves devitalization of tissue at the uterine scar, exacerbated by infection, adhesions or mechanical stress during labour[3,4]. Clinical presentation is variable, and suspicion should be high in postpartum

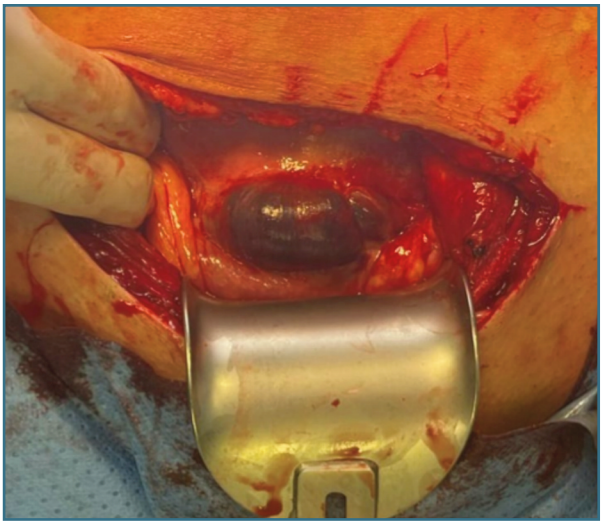

FIGURE 2. Intraoperative photograph: after opening the abdominal wall in layers and confirming the integrity of the anterior bladder wall (via saline instillation through a bladder catheter, without any observed leakage), a hematoma approximately 5 cm in width was identified, containing the posterior bladder wall and the anterior uterine wall.

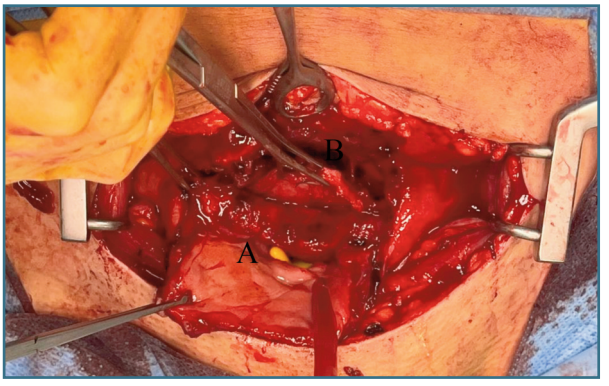

FIGURE 3. Intraoperative photograph: after dissection of the vesicouterine space and removal of the hematoma, a 10 cm laceration was identified in the bladder dome (A, with the distal tip of the bladder catheter visible), and a uterine rupture at the site of the previous anterior hysterorrhaphy in the isthmic region (B), of the same extent.

women with unexplained urinary incontinence[5,6]. Methylene blue dye instillation and imaging (ultrasound, CT or uroCT) remain reliable diagnostic tools, while cystoscopy or hysteroscopy may provide complementary information[7,8].

This case describes a VUF between the posterior supratrigonal bladder and the anterior uterine isthmus, the most frequent location reported in the literature[1,2]. The patient, with a prior cesarean, presented with acute appendicitis and localized peritonitis. Post-cesarean adhesions can obliterate the vesicouterine space, increasing bladder tension during labor. The delayed onset of VUF likely reflected bladder wall necrosis and progressive tissue devitalization.

Appendicitis complicates 1 in 500-2000 pregnancies, being the leading cause of urgent non-obstetric surgery[14]. In this case, due to prematurity and fetal well-being, there was no indication for delivery. Moreover, in complicated appendicitis with peritonitis, cesarean delivery should be avoided because of the risk of purulent spread and uterine dehiscence[15]. As often occurs, premature labor was triggered, but progressed uneventfully.

The VUF developed at the uterine scar, where tissue fragility, intra-abdominal inflammation, and labor forces likely acted synergistically. The defect was unusually large, despite normal uterine contractility and an uncomplicated labour[3,6]. Clinical suspicion and targeted imaging enabled prompt diagnosis and delineation of the fistulous tract.

Management depends on factors such as fistula size, location, and timing of diagnosis. Conservative treatment is occasionally effective in small fistulae, but most require surgical repair[9,10,11]. Open, laparoscopic and robotic approaches have been described with high success rates. Recent multicenter and narrative reviews report closure rates above 90%[10,11,12,13]. Minimally invasive techniques offer reduced morbidity and faster recovery, although open surgery is often necessary in large or complex cases[11,12,13].

This case underscores the importance of considering VUF in postpartum urinary incontinence, illustrates the association between prior cesarean, abdominal infection and instrumental delivery, and highlights successful surgical repair.

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AUTHORS' CONTRIBUTION STATEMENT

Sara Forjaz: main author; clinical approach; article writing.
Raquel Rodrigues: main author; clinical approach; article writing.
Rafaela Pires: clinical approach, article rewier.
Maria José Monteiro: article rewier.

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ETHICAL CONSIDERATIONS

The patient signed the free and informed consent form for publication of the respective clinical case, respecting the inherent rules of confidentiality and data protection and according to the recommendations of the "Declaration of Helsinki" 1964; (Tokyo 1975; Venice 1983; Hong Kong 1989; Somerset West 1996 and Edinburgh 2000).

PREVIOUS AWARDS AND PRESENTATIONS

This manuscript has not been previously published or presented.

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Sara Forjaz and Raquel Rodrigues contributed equally to the work and should be considered co-first authors.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest.

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