# Vesicovaginal Fistula Due to a Betadine Bottle Cap: A Case Report

**Authors**

1. El Alem Ahmedou
*Department of Urology, Cheikh Zayed Hospital, Nouakchott, Mauritania.*

2. Tfeil Yahya
*Faculty of Medicine, University of Nouakchott, Mauritania; Cheikh Zayed Hospital, Nouakchott, Mauritania.*

3. Boya Mouhamed Mahmoud
*Department of Urology, Cheikh Zayed Hospital, Nouakchott, Mauritania.*

4. Diagana Mouhamedou
*Faculty of Medicine, University of Nouakchott, Mauritania; Cheikh Zayed Hospital, Nouakchott, Mauritania.*

**Abstract**

***Background***: *Vesicovaginal fistulas (VVFs) are abnormal communications between the bladder and vagina, often resulting in continuous urinary incontinence. While most cases are linked to obstetric or surgical complications, rare causes such as retained foreign bodies have been documented. We present an exceptional case of a vesicovaginal fistula caused by a Betadine bottle cap left behind during a cesarean section.*

***Case Presentation***: *A 32-year-old woman presented with continuous urinary leakage one month after her third cesarean delivery. Clinical examination revealed a foreign body in the anterior vaginal wall, identified as a Betadine bottle cap. Surgical removal and fistula repair were performed, leading to complete recovery without recurrence.*

***Conclusion***: *This case underscores the importance of strict intraoperative protocols to prevent retained foreign bodies and subsequent complications. It also highlights the need for heightened awareness among surgical teams to avoid such preventable errors.*

**Keywords**: *vesicovaginal fistula, foreign body, cesarean section, surgical complication, Betadine bottle cap.*

## Introduction

Vesicovaginal fistulas (VVFs) represent a significant medical and social burden, particularly in low-resource settings where obstetric care may be suboptimal. These fistulas, characterized by an abnormal connection between the bladder and vagina, lead to continuous urinary incontinence, often resulting in severe psychological and social consequences for affected women [1]. While the majority of VVFs are attributed to prolonged obstructed labor or gynecological surgeries, rare etiologies such as retained foreign bodies have been reported [2].

In low- and middle-income countries, the incidence of VVFs remains high, with estimates ranging from 1 to 2 cases per 1,000 deliveries [3]. Cesarean sections, although life-saving, are not without risks, and improper surgical techniques or inadequate postoperative care can lead to complications such as VVFs. Retained foreign bodies, though rare, are a preventable cause of such complications and are often associated with significant morbidity [4].

This report presents a unique case of a vesicovaginal fistula caused by a Betadine bottle cap inadvertently left in the vaginal cavity during a cesarean section. The case highlights the importance of meticulous surgical practices and the potential consequences of retained surgical items.

## Case Presentation

A 32-year-old woman, gravida 3 para 3, presented to our urology department with a chief complaint of continuous urinary leakage per vaginam. The symptoms began one month after her third cesarean delivery, which was performed at a local hospital. She reported no significant medical or surgical history apart from her previous cesarean sections.

The patient described the urinary leakage as continuous and uncontrollable, significantly impacting her daily activities and social life. She had consulted several healthcare providers without obtaining a definitive diagnosis or relief from her symptoms. On physical examination, the patient was afebrile and in good general condition. Abdominal examination revealed no masses or tenderness. Gynecological examination identified a foreign body embedded in the anterior vaginal wall, approximately 4 cm from the urethral meatus. The object was palpable and appeared to be a plastic cap, later identified as a Betadine bottle cap. The vaginal mucosa surrounding the foreign body was inflamed and fibrotic, with evidence of urinary leakage.

Laboratory investigations revealed anemia (hemoglobin: 7 g/dL), which was corrected with blood transfusion. Renal function tests were within normal limits. Abdominopelvic ultrasound showed no hydronephrosis or other abnormalities. A cystoscopy was performed, confirming the presence of a vesicovaginal fistula at the site of the foreign body.

## Surgical Management

The patient was taken to the operating room for surgical removal of the foreign body and repair of the fistula. Under spinal anesthesia, a vaginal approach was used to access the anterior vaginal wall. The Betadine bottle cap was carefully extracted, revealing a second, smaller cap beneath it. The fistula tract was identified and dissected.

The repair was performed in two layers:

1. **Bladder Layer**: Closed with interrupted absorbable sutures (3-0 Vicryl).
2. **Vaginal Layer**: Closed with interrupted sutures to ensure watertight closure and restore anatomical integrity.

The patient had an uneventful postoperative course. A Foley catheter was left in place for 14 days to allow complete healing. Follow-up at 6 weeks confirmed complete resolution of symptoms, with no evidence of recurrence.

## Discussion

### Etiology and Pathophysiology

Vesicovaginal fistulas are most commonly caused by obstetric trauma, particularly in regions with limited access to emergency obstetric care. However, iatrogenic causes, including retained foreign bodies, are increasingly recognized as significant contributors to VVF formation [5]. In this case, the Betadine bottle cap likely migrated from the uterine cavity into the vaginal wall, causing chronic inflammation and eventual fistula formation.

The pathophysiological mechanisms underlying foreign body-induced VVFs include:

- **Chronic Inflammation**: Prolonged irritation leads to tissue necrosis and fibrosis.
- **Mechanical Erosion**: Continuous pressure from the foreign body erodes adjacent tissues.
- **Infection**: Secondary infections exacerbate tissue damage and delay healing.

### Prevention and Surgical Protocols

Preventing retained foreign bodies requires a multidisciplinary approach, including:

- **Surgical Checklists**: Ensuring all instruments and materials are accounted for before and after surgery.

- **Team Communication**: Promoting clear communication among surgical team members.
- **Radiological Confirmation**: Using intraoperative imaging to detect retained items in complex cases [8].

## Conclusion

This case report illustrates a rare but preventable cause of vesicovaginal fistula. It emphasizes the critical importance of adhering to strict surgical protocols to avoid retained foreign bodies and their associated complications. Healthcare providers must remain vigilant to prevent such errors and ensure patient safety.

### Conflict of Interest Statement

The authors declare no conflict of interest in relation to this article.

## References

1. Wall LL. Obstetric vesicovaginal fistula as an international public-health problem. Lancet. 2006;368(9542):1201-1209.
2. Hilton P. Urogenital fistulae: principles of management and surgical techniques. Rev Gynaecol Perinatol. 2007;9(2):41-49.
3. Ahmed S, et al. (2023). "Epidemiology of vesicovaginal fistulas in sub-Saharan Africa: A systematic review." African Journal of Urology, 29(1), 45-52.
4. Elkins TE, Ghosh TS, Kotler L. Foreign bodies in the female urinary tract. J Urol. 1986;136(6):1288-1291.
5. Smith J, et al. Foreign body-induced vesicovaginal fistula: A case series and literature review. Int J Gynecol Obstet. 2022;157(3):456-462.
6. Kumar S, et al. Surgical management of vesicovaginal fistulas: A comprehensive review. Urol Ann. 2021;13(2):123-130.
7. World Health Organization. Preventing surgical site infections and retained surgical items: A global perspective. WHO Guidelines. 2020.
8. Haynes AB, et al. A surgical safety checklist to reduce morbidity and mortality in a global population. N Engl J Med. 2009;360(5):491-499.
9. Johnson R, et al. (2022). "Medicolegal implications of retained surgical items: A 10-year review." Journal of Patient Safety, 18(4), 321-327.

### Figures (if available)

- **Figure 1**: Surgical extraction of the Betadine bottle cap from the vaginal cavity.
- **Figure 2**: Postoperative view of two caps.

Figure 1

Figure 2