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Surgical Management of Severe Secondary Peritonitis Following Caesarean Section: A Case Report



004209

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I. Introduction (1)

- Peritonitis is a life-threatening inflammatory condition of the peritoneal lining caused by infectious or chemical irritation. Outcomes depend heavily on rapid diagnosis, early antimicrobial therapy, and timely source control, as emphasised in contemporary guidance for intra-abdominal infections [1].
- Secondary peritonitis, the most common form, results from disruption of the gastrointestinal or genitourinary tract, leading to polymicrobial contamination of the peritoneal cavity [2, 3].

I. Introduction (2)

- Post-caesarean intra-abdominal infection is an uncommon but serious complication, with a reported incidence of approximately 2.9% (408/14,200 Caesarean deliveries) [5].
- Classic pathogens include streptococci, Bacteroides species, and Enterobacterial, reflecting the polymicrobial nature of pelvic and intra-abdominal infections [4, 5].
- Risk factors include prolonged rupture of membranes and chorioamnionitis, both of which increase the likelihood of ascending infection [4].
- Although rare, post-Caesarean peritonitis can progress rapidly to sepsis, abscess formation, and multiorgan dysfunction if not promptly recognised [6].

I. Introduction (3)

- International guidelines from the Surgical Infection Society (SIS), World Society of Emergency Surgery (WSES), and other expert groups consistently emphasise early broad-spectrum antimicrobial therapy, haemodynamic stabilisation, and urgent surgical source control as the cornerstones of management [2, 7, 8].

II. Case Presentation (1)

- A 27-year-old G1P1 woman underwent a Caesarean section at a provincial hospital on **07 January 2026**, delivering a healthy 3000 g newborn.
- In the early postoperative period, she developed **wound infection**, which was initially managed locally. Her condition progressively deteriorated, and on **22 January 2026 at 10h:00**, she was **transferred to the National Maternal and Child Health Centre (NMCHC)** for further evaluation.

II. Case Presentation (2)

- On arrival, she presented with **severe abdominal pain**, fever, and **altered mental status**. Physical examination revealed tachycardia and **diffuse abdominal tenderness with guarding**, raising concern for generalized peritonitis.
- Initial laboratory investigations on **22 January 2026** demonstrated **severe leucocytosis** (WBC $29.8 \times 10^9/\text{L}$) and **marked neutrophilia** (Neutrophils $26.9 \times 10^9/\text{L}$), along with **thrombocytosis** (Platelets $674 \times 10^9/\text{L}$) and electrolyte abnormalities including **hyponatraemia** and **hypokalaemia** (Table 1).

II. Case Presentation (3)

- Contrast-enhanced CT of the abdomen and pelvis revealed **abscess collections** in the right iliac fossa and pouch of Douglas, as well as **small bowel obstruction** caused by an adhesive band.
- She underwent urgent exploratory laparotomy.
- Intraoperative findings included a large pelvic abscess, dense adhesions causing small bowel obstruction, a **necrotic Caesarean uterine stump**, and a **necrotic appendiceal stump** (Figure 1, 2, 3 and 4).

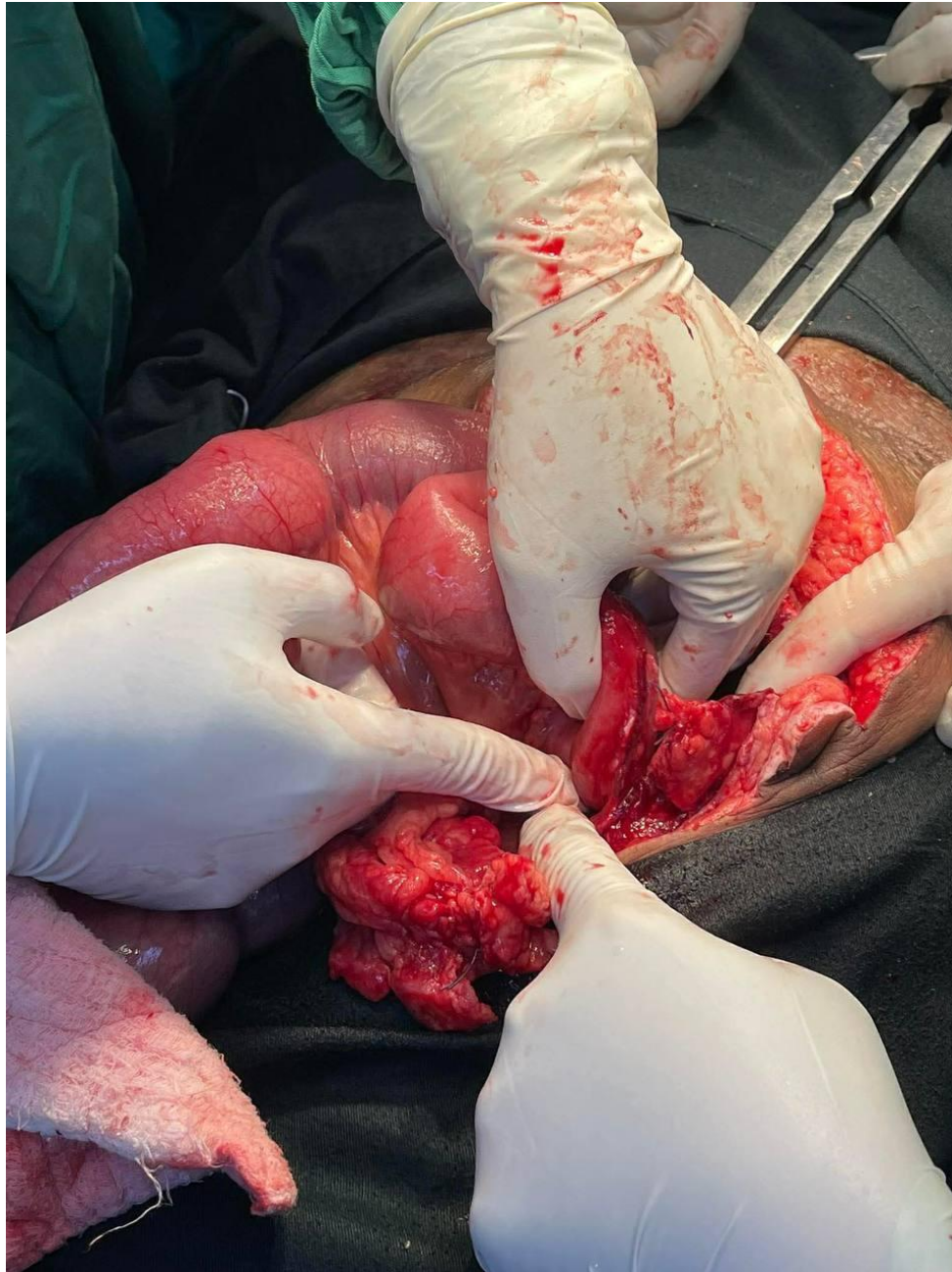


Figure 1: Small bowel obstructed by adhesive band.



Figure 2: Purulent collection in the abdominal cavity.



Figure 3: Small bowel obstructed by adherence with epiploon (omentum). Figure 4: Necrotic Caesarean uterine stump.

II. Case Presentation (4)

- Surgical procedures included **subtotal hysterectomy, adhesiolysis, appendiceal stump repair, abscess drainage, peritoneal lavage**, and placement of two pelvic drains (Figure 5) (Figure 6).
- She was admitted to the ICU for resuscitation, electrolyte correction, and broad-spectrum antibiotics:

Meropenem 1 g IVL every 8 hours

Metronidazole 500 mg IVL every 8 hours

for a total of **10 days**.

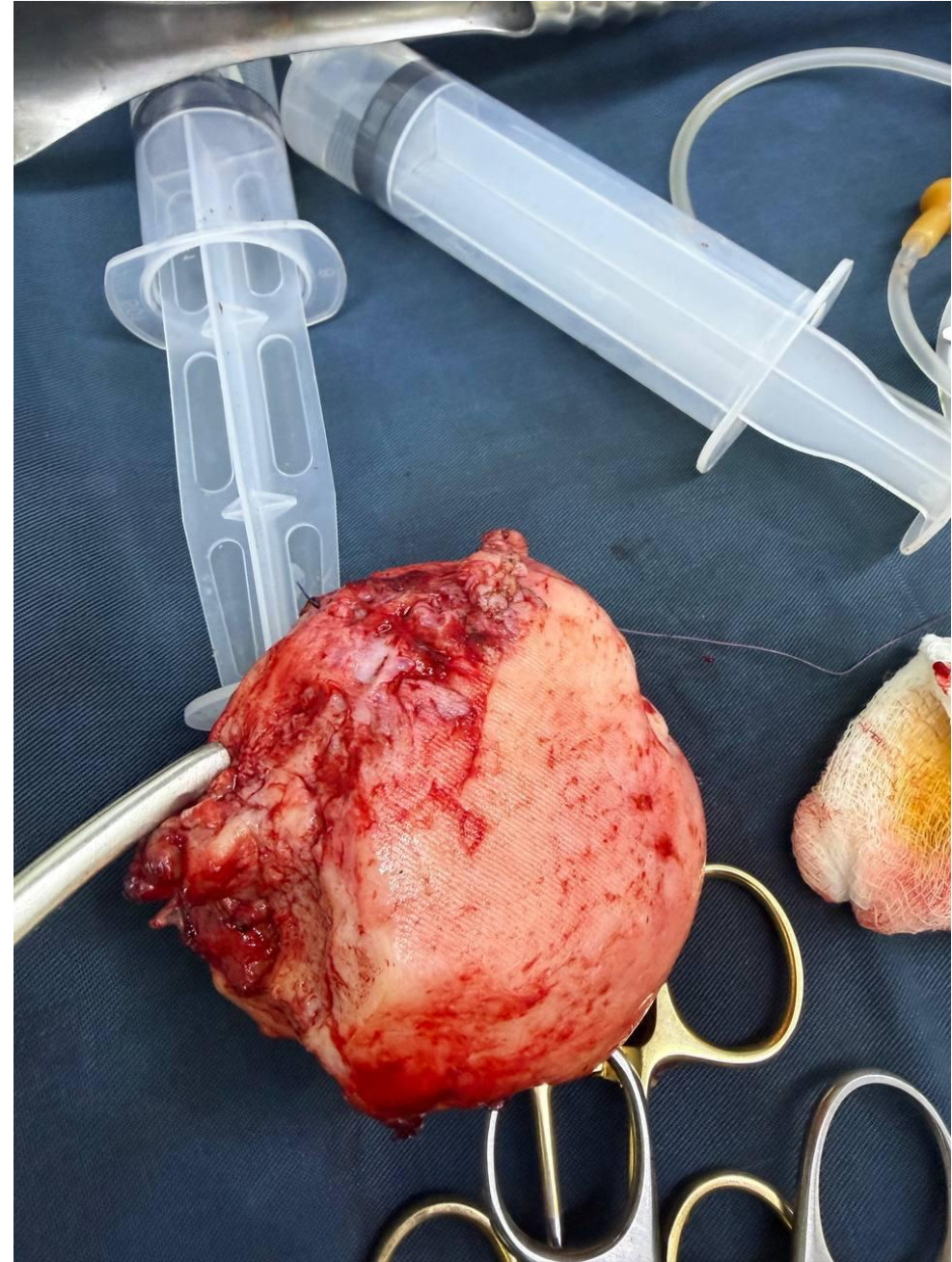


Figure 5: Necrotic appendiceal stump (arrow indicated). Figure 6: Uterus removal (subtotal hysterectomy).

II. Case Presentation (5)

- Her recovery progressed steadily:
 - **Postoperative Day (POD) 1:** Return of **normal bowel transit**, with passage of flatus and tolerance of oral intake.
 - **POD 3: Abdominal drains were removed** after minimal output and no evidence of ongoing intra-abdominal collection.
 - Surgical wounds remained clean with good healing.

II. Case Presentation (6)

- Serial laboratory monitoring demonstrated a consistent decline in inflammatory markers:
 - **POD 3:** WBC $17.4 \times 10^9/\text{L}$, Neutrophils $14.46 \times 10^9/\text{L}$, CRP **64.2 mg/L**.
 - **POD 8:** WBC $12.2 \times 10^9/\text{L}$, Neutrophils $8.9 \times 10^9/\text{L}$, CRP **18 mg/L**, indicating marked improvement.
- She remained clinically stable, tolerated diet well, and had no recurrent abdominal symptoms. She was discharged on **postoperative day 10** in good condition.

Table 1. Trend of Key Clinical Laboratory Parameters During Hospitalization

Parameter	Admission	POD 3	POD 8
WBC ($\times 10^9/\text{L}$)	29.8	17.4	12.2
Neutrophils ($\times 10^9/\text{L}$)	26.9	14.46	8.9
CRP (mg/L)	—	64.2	18.0
Hemoglobin (g/dL)	11.6	8.1	9.3
Platelets ($\times 10^9/\text{L}$)	674	511	815
Sodium (mmol/L)	132	135	135
Potassium (mmol/L)	3.2	3.0	3.6
Albumin (g/L)	—	31	35.7

Abbreviations: WBC, white blood cell count; CRP, C-reactive protein.

III. Discussion (1)

- Secondary peritonitis is a major surgical emergency requiring rapid diagnosis and timely intervention. The inflammatory cascade triggered by bacterial contamination can rapidly progress to sepsis, organ dysfunction, and death if untreated (Montravers et al., 2016).
- Secondary peritonitis following Caesarean section is rare but recognised. It typically results from contamination of the peritoneal cavity by polymicrobial flora, including streptococci, Bacteroides, and Enterobacterial (Gilstrap & Cunningham, 1979; Abdelraheim et al., 2019).

III. Discussion (2)

- These organisms reflect the mixed aerobic–anaerobic environment of pelvic infections. The presence of necrotic uterine and appendiceal stumps in this case suggests tissue ischaemia or postoperative breakdown, both of which can serve as potent sources of infection.
- The patient presented with classic features of severe intra-abdominal infection: abdominal pain, altered mental status, leucocytosis, and CT evidence of abscesses and obstruction. Such findings are consistent with the systemic inflammatory response described in recent reviews of intra-abdominal infections (Piano et al., 2024).

III. Discussion (3)

- Empiric therapy for secondary peritonitis must provide broad coverage for Gram-negative organisms and anaerobes. For healthcare-associated infections or MDRO risk, carbapenems offer superior coverage, with susceptibility rates exceeding 98% in some analyses (Grotelüschen et al., 2020).
- This aligns with SIS and WSES recommendations for severe or postoperative peritonitis (Mazuski et al., 2017; Coccolini et al., 2023; Huston et al., 2024).
- The use of Meropenem + Metronidazole in this case was therefore appropriate.

III. Discussion (4)

- Timely and effective source control is the single most important determinant of survival (Montravers et al., 2016; Coccolini et al., 2023).
- In this case, urgent laparotomy allowed drainage of abscesses, remove of necrotic tissue, and correction of mechanical obstruction—key components of effective source control.

III. Discussion (5)

- Post-Caesarean peritonitis is uncommon but associated with high morbidity (Abdelraheim et al., 2019).
- Rare causes such as vernix caseosa peritonitis have been reported, underscoring the need for broad diagnostic consideration (Mahmoud A et al., 1997).
- However, the combination of necrotic uterine stumps and appendiceal stumps in this case is unusual and highlights the importance of meticulous surgical technique and postoperative vigilance.

IV. Conclusion

- Post-Caesarean secondary peritonitis is a rare but life-threatening condition.
- Early recognition, broad-spectrum antimicrobial therapy, and decisive surgical source control are essential to achieving favourable outcomes.
- This case demonstrates the successful application of evidence-based management principles in a complex postoperative infection.

V. Recommendation (1)

1. Clinicians should maintain a high index of suspicion for secondary peritonitis in patients with delayed clinical deterioration after Caesarean section, even when initial postoperative symptoms are mild.
2. Persistent abdominal pain, fever, altered mental status, or marked leucocytosis should prompt urgent evaluation with contrast-enhanced CT to identify intra-abdominal complications and guide management.
3. Rare but serious complications, including uterine stump necrosis, appendiceal base necrosis, and adhesive small bowel obstruction, should be considered in patients with severe post-Caesarean pelvic sepsis.

V. Recommendation (2)

4. Early and definitive surgical source control—including abscess drainage, debridement of necrotic tissue, adhesiolysis, and hysterectomy when indicated—should be performed promptly alongside broad-spectrum antimicrobial therapy.
5. A multidisciplinary approach involving surgeons, intensivists, obstetricians and close clinical and laboratory monitoring is recommended to optimize outcomes in severe post-Caesarean secondary peritonitis.

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