

Iatrogenic rectal injury. A case report

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Case Report

General Surgery



Background: Iatrogenic rectal injury is an uncommon but potentially serious complication of gynecologic surgery. Prompt intraoperative recognition and immediate repair are essential to minimize morbidity and avoid the need for fecal diversion.

Case Presentation: A 66-year-old woman with symptomatic uterine leiomyomatosis, chronic abnormal uterine bleeding resulting in anemia, and a history of two previous cesarean sections underwent an elective total abdominal hysterectomy. Dense pelvic adhesions were encountered during the procedure, and a 1.5-cm full-thickness linear rectal perforation was immediately recognized following completion of the hysterectomy. The General Surgery team performed immediate primary repair using a hand-sewn two-layer closure after copious irrigation of the operative field. Repair integrity was confirmed by digital assessment of luminal patency and a negative intraoperative air leak test. Postoperatively, the patient received intravenous ceftriaxone and metronidazole, remained on bowel rest for five days, and progressively resumed oral intake without complications. She was discharged after six days of hospitalization. At three-week follow-up, she remained asymptomatic, with complete wound healing and no clinical evidence of anastomotic leak or other postoperative complications.

Conclusion: This case highlights the importance of early intraoperative recognition and immediate primary repair of iatrogenic rectal injuries sustained during gynecologic surgery. In appropriately selected patients, timely two-layer primary repair may provide favorable outcomes while avoiding additional procedures such as fecal diversion.

KEYWORDS: Anastomosis, Hysterectomy, Primary repair, Rectal perforation, Rectal injury

Rectal perforation is a rare but serious complication of pelvic surgery, particularly gynecologic procedures such as hysterectomy. Urological, gynecological, and general surgical procedures are among the most common causes of iatrogenic rectal injury. Immediate intraoperative recognition is critical because delayed diagnosis is associated with significantly worse clinical outcomes, including wound infection, pelvic abscess, fistula formation, sepsis, and increased morbidity and mortality [1,2].

Although prompt recognition allows immediate primary repair and may prevent these complications, successful management requires timely diagnosis, appropriate surgical technique, and careful intraoperative assessment. The present report describes the successful primary repair of an intraoperative rectal perforation identified during elective hysterectomy, highlighting the importance of immediate recognition and adherence to fundamental surgical principles [1].

Case report

A 66-year-old woman with a history of symptomatic uterine leiomyomatosis, chronic

abnormal uterine bleeding resulting in anemia, and two previous cesarean sections was admitted for an elective total abdominal hysterectomy after completing the appropriate preoperative evaluation. During the procedure, dense pelvic adhesions were encountered, likely related to her previous cesarean deliveries, resulting in distortion of the normal pelvic anatomy and increasing the technical complexity of the operation.

Following completion of the hysterectomy, a full-thickness linear rectal perforation measuring approximately 1.5 cm was immediately recognized. The General Surgery team was consulted intraoperatively for definitive management. Exploration confirmed a 1.5-cm linear defect involving the anterior rectal wall with minimal localized pelvic contamination. Figure 1. Copious irrigation with warm saline solution was performed, followed by immediate primary repair using a hand-sewn two-layer closure with absorbable sutures. The inner layer approximated the mucosa and submucosa, while the outer layer reinforced the repair with interrupted seromuscular sutures. The integrity of the repair was confirmed by digital assessment of luminal patency and a negative intraoperative air leak test.

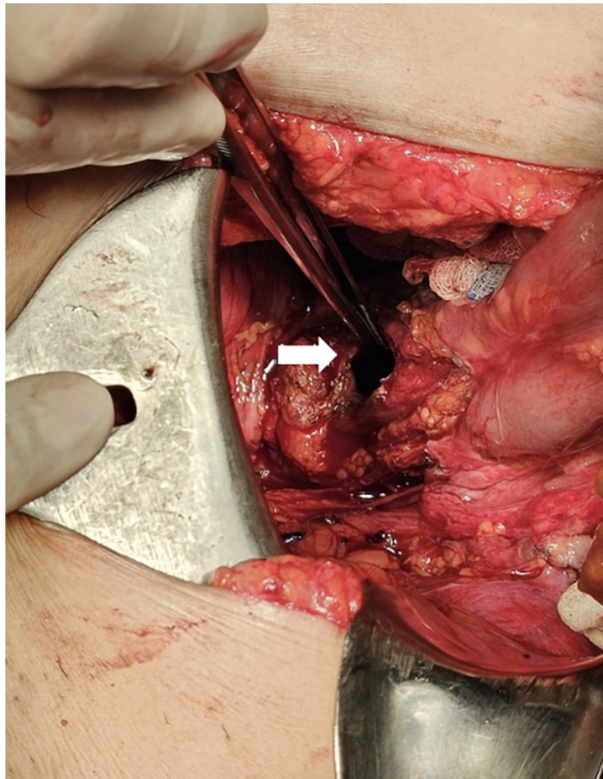


Figure 1. Intraoperative image demonstrating a linear full-thickness rectal perforation (arrow) identified during elective hysterectomy before primary two-layer repair.

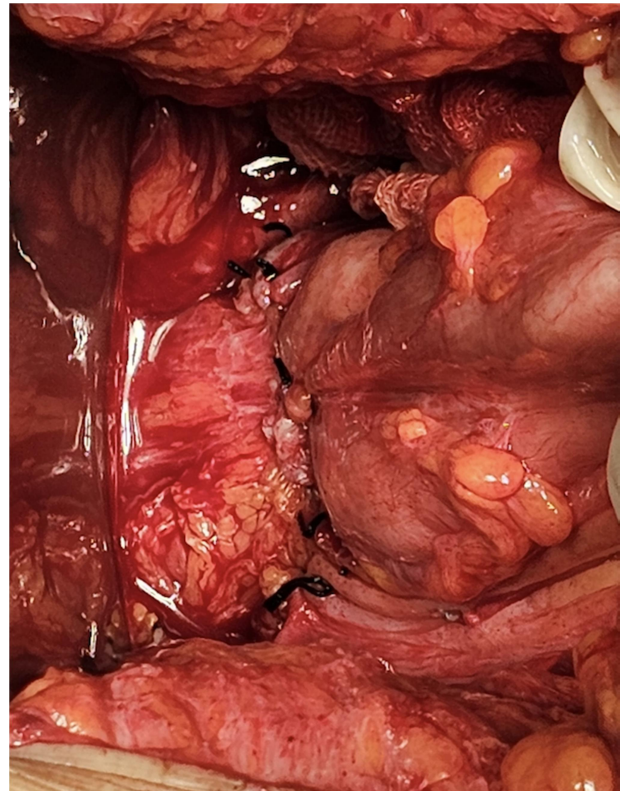


Figure 2. Intraoperative view after primary two-layer repair of the rectal perforation. Repair integrity was confirmed by digital lumen assessment and a negative air leak test.

Figure 2. A 1/2-inch Penrose drain was placed adjacent to the repair before abdominal closure.

Postoperatively, the patient received intravenous ceftriaxone and metronidazole, remained on bowel rest for five days, and was closely monitored for signs of anastomotic leakage or intra-abdominal infection. On postoperative day five, a clear liquid diet was initiated and progressively advanced to a regular diet without incident. Throughout her six-day hospital stay, she remained hemodynamically stable and exhibited no clinical evidence of anastomotic leak, peritoneal irritation, pelvic sepsis, or surgical site infection. The drain was removed uneventfully. She was discharged home in good clinical condition.

At the three-week outpatient follow-up, the patient remained asymptomatic. Physical examination demonstrated complete healing of the surgical incision without evidence of infection or wound-related complications. She also showed no clinical signs of rectal dysfunction or complications related to the primary repair.

Discussion

Early intraoperative recognition of an iatrogenic rectal injury is the cornerstone of successful management because it allows definitive primary repair before significant contamination or tissue edema develops. When a rectal defect is identified

intraoperatively and the injury is small, immediate primary repair is considered the preferred management strategy, as delayed diagnosis is associated with substantially higher morbidity, postoperative complications, and reoperation [1,2].

Rectal injury during gynecologic surgery is uncommon but potentially serious. Evidence from large case series suggests that when adequate tissue viability is preserved, primary repair can be performed safely without routine fecal diversion. Two-layer closure with absorbable sutures, confirmation of repair integrity using an air leak test, and postoperative broad-spectrum antibiotics are commonly recommended. Delayed recognition is associated with a substantially higher risk of postoperative complications and reoperation. Primary repair can be safely performed without routine colostomy when there are no septic complications. [3]

Anastomotic leakage remains one of the most serious complications following colorectal surgery because of its association with increased morbidity, mortality, and healthcare costs. Successful intestinal repair depends on preservation of tissue perfusion, meticulous surgical technique, gentle tissue handling, and a tension-free closure. Several risk factors have been associated with anastomotic failure, including malnutrition, hypoalbuminemia, intra-abdominal infection, blood transfusion, and tension at the

anastomotic site. Although numerous factors contribute to anastomotic failure, successful primary repair depends not only on patient-related characteristics but also on careful intraoperative assessment of tissue viability, contamination, and technical execution [4-6].

Current evidence indicates that hand-sewn single- and double-layer repairs achieve comparable rates of anastomotic leak, and the choice of repair technique should be individualized according to tissue quality, surgeon experience, and intraoperative findings. Likewise, both hand-sewn and stapled colorectal anastomoses have comparable safety profiles when fundamental surgical principles are respected. Reinforcement with a second layer of seromuscular sutures has been described as a technical strategy to provide additional support to the repair, although no clear superiority over single-layer closure has been demonstrated [6,7]. Accordingly, the decision to perform a two-layer repair in the present case was based on intraoperative judgment rather than evidence of superiority.

These favorable intraoperative findings closely matched the characteristics described in the literature for successful primary repair. In the present case, several favorable factors supported primary repair, including immediate recognition of the injury, viable rectal tissue, absence of significant contamination, and prompt surgical management. Repair was performed in two layers, followed by digital assessment of luminal patency and a negative intraoperative air leak test, confirming the integrity of the repair before completion of the procedure. The patient also received broad-spectrum antibiotic therapy and demonstrated an uncomplicated postoperative recovery, with progressive diet advancement and no clinical evidence of anastomotic leak or pelvic sepsis during hospitalization or follow-up [1,5].

The quality of the primary repair appears to be a key determinant of successful healing, whereas routine fecal diversion is unnecessary in carefully selected patients with immediately recognized injuries. Although evidence from rectal trauma cannot be directly extrapolated to iatrogenic injuries, contemporary trauma series similarly support selective management with primary repair when tissue viability is preserved, reserving proximal diversion for patients with destructive injuries or significant contamination rather than as a

Although our patient experienced an excellent short-term outcome, longer follow-up would be necessary to exclude late complications such as rectal stricture or fistula formation.

Conclusion

Iatrogenic rectal injury during hysterectomy is an uncommon but potentially serious complication, particularly in patients with distorted pelvic anatomy caused by dense adhesions. This case highlights that immediate intraoperative recognition, prompt multidisciplinary management, and timely primary two-layer repair can result in a favorable postoperative outcome without the need for fecal diversion. Careful patient selection, meticulous surgical technique, and appropriate postoperative management remain essential to achieving successful outcomes.

Conflicts of interests

The authors declare no conflicts of interests.

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