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ABSTRACT

Background: Episiotomy, a perineal incision during labor to facilitate vaginal delivery, is now selectively used in instrumental births like vacuum-assisted procedures to lessen severe perineal trauma, though it risks rare extensions into the rectal wall. Such full-thickness rectal tears, classified as fourth-degree injuries, occur more commonly with midline incisions and can lead to fecal incontinence, pain, or sepsis if not addressed swiftly.

Case presentation: A 32-year-old woman with an unremarkable prenatal history underwent vacuum-assisted vaginal delivery complicated by a mediolateral episiotomy extending to a full-thickness anterior rectal tear 10 cm from the anal verge. She presented hemodynamically stable with perineal pain, bleeding, and stool spillage; digital exam confirmed the injury without soiling. Under anesthesia, a triple-layer closure was used with absorbable sutures for mucosa, muscularis, and serosa, avoiding colostomy. Broad-spectrum antibiotics continued for 2 weeks, with nil per os for 48 hours followed by enteral feeding. Postoperative monitoring showed no infection or incontinence; discharge occurred on day 10. Follow-up MRIs at 6 weeks and 6 months revealed intact rectal integrity and normal sphincter function, with pelvic exercises aiding recovery.

Conclusion: This case demonstrates that timely recognition and layered repair of rectal tears after episiotomy can achieve excellent functional outcomes without the need for diversion colostomy.

Keywords: Episiotomy, rectal tear, fourth-degree perineal injury, vacuum-assisted delivery, triple-layer repair, case report.

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Background

An episiotomy is a surgical incision made in the perineal area during the second stage of labor to increase the vaginal opening. It is selectively performed during instrumental deliveries such as vacuum-assisted births to decrease severe perineal trauma, including rare rectal tears [1,2]. Rectal tears during childbirth are a rare complication of episiotomy. These injuries tend to be full-thickness tears of the anterior rectal wall and result in chronic complications such as fecal incontinence, chronic pain, and sexual dysfunction [1,3]. They are fourth-degree perineal tears, which extend through the anal sphincter complex into the rectal mucosa during vaginal deliveries [3]. The incidence of these injuries is higher with midline episiotomies, ranging from 0.03% to 0.2% [4]. In contrast, obstetric anal sphincter injuries (OASISs) comprising third- and fourth-degree perineal tears have an estimated prevalence of 3% of all vaginal deliveries in general [5]. This rate is more common among primiparous women (estimated 6%) compared to multiparous women (estimated 2%) [5].

The existing care standards focus on the immediate post-delivery assessment, which involves the digital rectal examination of all patients to check both the presence of tears and the absence of anal sphincter involvement [6]. This is followed by immediate application of anesthetic primary repair by seasoned operators by use of layered technique: end-to-end suture the rectal mucosa with absorbable materials [6], and independent approximation of internal and external anal sphincter with end-to-end or overlapping technique, perioperative use of antibiotics to prevent infection, bowel maintenance by laxatives, initial nil per os with gradual feeding and pelvic floor rehabilitation to facilitate recovery and limit incontinence [6,7]. Postoperative care focuses on monitoring for infection, gradually reintroducing feeding, and follow-up imaging, such as magnetic resonance imaging (MRI), to ensure proper healing and sphincter integrity [7].

The case of a rectal tear was presented, complicating an episiotomy in a patient with stable hemodynamics after vacuum delivery. The case highlighted the effectiveness

of triple-layer repair in achieving both hemostasis and functional recovery without the need for colostomy.

Case Presentation

A 32-year-old female with no significant medical history presented with a complex vacuum-assisted vaginal delivery. The delivery was initially uneventful but was complicated by mediolateral episiotomy, which resulted in an injury to the rectum and required immediate review and management. The patient had no history of prior surgery, no chronic disease, or obstetric history other than this delivery. The physical exam showed the patient was hemodynamically stable, without signs of shock. Digital rectal exam revealed a mediolateral episiotomy with a posterior vaginal tear, which the gynecologist partially sutured. The patient complained of tenderness, blood, and stool per rectum, suggesting a possible rectal laceration. Abdominal or pelvic examination revealed no other abnormalities.

Diagnosis and preoperative management

The rectal injury was clinically suspected by the gynecologist and initially confirmed on the delivery table immediately following the vacuum-assisted delivery by the general surgery in-call team. A full assessment of the extent of the injury and a definitive diagnosis of a full-thickness defect were made intraoperatively under anesthesia examination under anesthesia (EUA). The diagnosis was confirmed by a digital rectal examination, which supported the initial diagnosis of rectal tear. No further laboratory tests or imaging modalities were conducted preoperatively, as the clinical findings were sufficient to direct immediate surgical treatment. Differential diagnosis included a partial-thickness tear or perineal laceration of the rectum, but the presence of stool spillage strongly favors a full-thickness injury.

Surgical intervention

The patient was immediately resuscitated with intravenous fluids, and broad-spectrum antibiotics (piperacillin-tazobactam) were started to prevent sepsis. During EUA, a complete thickness defect between the anterior rectal wall and the perianal skin, approximately 10 cm from the anal verge, was noted. The tear, which was caused by the episiotomy, had well-aligned edges without significant soiling. A triple-layer closure was performed by the General Surgery consultant on call, in collaboration with the obstetrics team. All three layers of the repair (mucosa, muscularis, and serosa) were closed using absorbable Vicryl 2/0 sutures. Rectal examination after repair showed satisfactory alignment and hemostasis. A diversion colostomy was not required, but was considered for future complications. The patient received antibiotics for 2 weeks and was maintained nil per os for 48 hours to allow healing, followed by slow reintroduction of enteral feeding.

Postoperative course and hospital stay

Postoperative monitoring in the acute care unit revealed stable vital signs, with no significant decline in hemoglobin levels. There were no other adverse events, such as wound infection or incontinence. The patient was compliant with the postoperative regimen, including antibiotics and dietary restrictions.

Follow-up and outcome

At discharge on day 10, the patient's rectal function was intact with no evidence of incontinence or leakage. A 6-week follow-up MRI examination revealed no evidence of persistent rectal wall injury or sphincter dysfunction. At 6 months, repeat MRI revealed complete healing (Figure 1A and B).

The patient reported no fecal incontinence or rectal dysfunction on follow-up and was encouraged to continue with pelvic floor exercises to help maintain the long-term recovery. Based on the clinical and imaging results, the

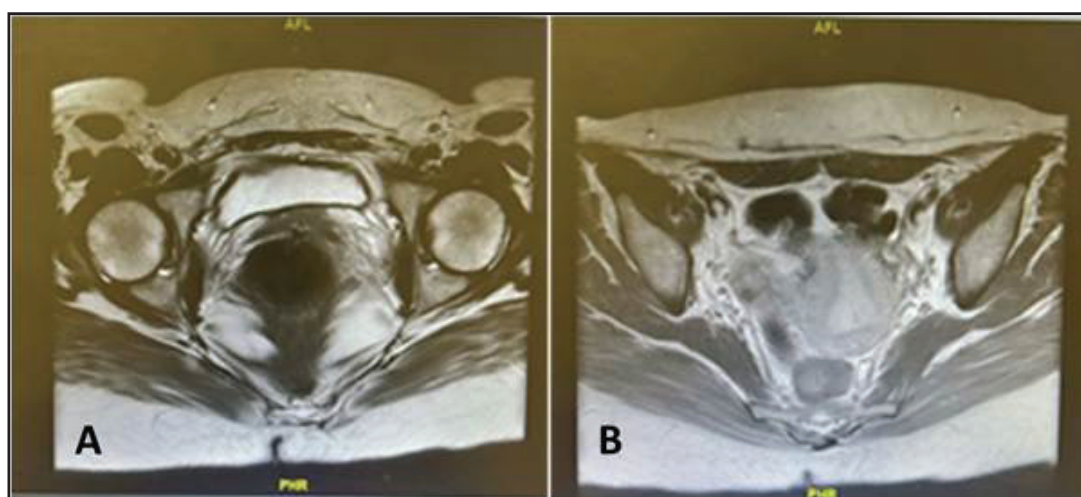


Figure 1. (A and B) MRI showing complete healing of rectal wall six months after repair.

prognosis was good with no long-term complications anticipated.

Discussion

The presented case of rectal injury as a complication of episiotomy during vacuum-assisted vaginal delivery reflected a rare but serious complication in obstetrics and highlighted the importance of prompt diagnosis and treatment to avoid long-term complications. The findings of this study align with the results of Bergendahl et al. [8], who investigated the role of lateral episiotomy in reducing OASISs during vacuum extraction in nulliparous women. Specifically, the risk of OASIS was halved from 13% to 6% in appropriately selected cases. Similarly, a study by Baruch et al. [9], comparing 413 cases of OASIS between vacuum-assisted delivery and spontaneous delivery, concluded that instrumental interventions substantially increase the likelihood of deeper tears, including rectal involvement, because of the increased mechanical stress on perineal tissues.

This case informed the clinical practice by reinforcing current guidelines on the management of fourth-degree perineal tears, particularly in the context of instrumental deliveries. For example, the Royal College of Obstetricians and Gynecologists Green-top Guideline No. 29 supported the concept of layered repair practices using absorbable sutures and broad-spectrum antibiotics to prevent infection, similar to the triple-layer closure used in the presented case but without routine colostomy in low-risk situations [5,10].

The study by Kumar et al. [7] echoes this, reporting that primary end-to-end or overlap repairs yielded comparable short-term outcomes, but stressed the value of experienced surgeons to reduce reoperation rates, which in this case was avoided through meticulous intraoperative assessment. Moreover, the Australian Clinical Care Standard for third- and fourth-degree perineal tears highlighted the role of postoperative monitoring and pelvic floor exercises in mitigating long-term morbidity, directly supporting the interventions used in the presented case that led to full functional restoration by 6 months [11].

In vacuum-assisted deliveries, Bergendahl et al. [8] found that selective lateral episiotomy reduced obstetric anal sphincter injury risk by up to 50% in nulliparous women, suggesting that the presented case's mediolateral approach, despite the complication, aligns with evidence favoring this over midline incisions to limit rectal extensions. Overall, this report emphasized the need for restrictive episiotomy policies in guidelines, as excessive use has been linked to higher tear rates in instrumental births.

The presented case also aligns with some similar cases where prompt repair often yields favorable outcomes. For example, Roper et al. [12] described isolated rectal button-hole tears in obstetric settings, noting that most patients recovered fully after layered repairs without diversion,

akin to the presented patient's experience, where well-aligned edges and minimal soiling allowed conservative management [12].

Another case series by Djudad et al. [13] on old total perineal ruptures detailed symptoms like incontinence and the benefits of early surgical intervention, reinforcing that the current case approach of avoiding colostomy in stable patients with limited contamination can prevent unnecessary morbidity, as evidenced by the patient's intact sphincter function on follow-up MRI.

In terms of outcomes, Addis et al. [14] on maternal birth trauma post-vaginal delivery reported that rectal injuries contribute to long-term fecal incontinence in affected women, yet early antibiotic prophylaxis and pelvic rehabilitation, as applied in this case, significantly lowered such risks. These comparisons suggested that while rectal tears remain rare, their management in instrumental deliveries like vacuum-assisted ones benefits from standardized protocols to optimize recovery.

By detailing a favorable outcome in a low-risk patient without sphincter involvement, this case suggested that further research might compare outcomes of triple-layer repair with or without diversion in carefully selected cases, building on Spinelli et al. [15], who called for more data on repair methods' impact on sphincter integrity.

However, limitations were evident in the single-case nature of this report, which relied on clinical notes without prospective data collection, potentially introducing recall bias regarding subtle intraoperative details or patient-reported symptoms early on. Additionally, while broad-spectrum antibiotics were extended for two weeks, this duration might exceed standard recommendations for uncontaminated tears. This raises concerns about unnecessary antibiotic exposure and resistance, though no adverse effects were observed in this case.

Conclusion

Rectal injuries following episiotomy remain rare but serious. Early identification, layered repair, and structured postoperative care can prevent long-term morbidity. Restrictive use of episiotomy and standardized repair protocols is essential to minimize risk.

What is new

This case highlights a rare high rectal tear (10 cm from the anal verge) successfully managed with primary triple-layer repair without diverting colostomy. It demonstrates that, in carefully selected obstetric rectal injuries, conservative primary repair can achieve full healing, as confirmed by serial MRI imaging. This adds practical evidence supporting organ-preserving management in similar cases.

Acknowledgment

None.

List of Abbreviations:

EUA	Examination under anesthesia
MRI	Magnetic resonance imaging
OASIS	Obstetric anal sphincter injuries

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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Consent for publication

Permission was obtained from the parents of the patient to publish the case.

Ethical approval

Ethical approval is not required at our institution to publish an anonymous case report.

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Summary of the case

1	Patient (gender, age)	Female, 32-year-old
2	Final Diagnosis	Full-thickness rectal tear (fourth-degree perineal injury) complicating a mediolateral episiotomy during vacuum-assisted vaginal delivery
3	Symptoms	Tenderness, bleeding per rectum, stool spillage per rectum
4	Medications	Piperacillin-tazobactam
5	Clinical Procedure	1. Examination under anesthesia (EUA) 2. Triple-layer surgical repair (mucosa, muscularis, serosa) with Vicryl 2/0 sutures
6	Specialty	Obstetrics & Gynecology/Colorectal Surgery