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CASE REPORT

An Isolated Rectal Buttonhole Tear During Vaginal Delivery: A Rare Case Report

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Abstract: Obstetric perineal tears are a common complication of vaginal delivery. When a tear involves the rectal mucosa without injury to the anal sphincter complex, it is referred to as a rectal buttonhole tear rather than a fourth-degree perineal tear. This condition is rare, with an estimated incidence ranging from 0.014% to 0.06%. Reported risk factors include instrumental delivery, prolonged second stage of labor, fetal macrosomia, and malposition. Rectal buttonhole tears may be easily missed because the perineum can remain intact or show only minor injury. Therefore, accurate diagnosis relies on a thorough and systematic examination, including both vaginal and digital rectal assessment following delivery. Failure to identify and promptly repair the defect may result in complications such as rectovaginal fistula. We report the case of a 28-year-old gravida 2, para 0 woman who sustained a rectal buttonhole tear during spontaneous vaginal delivery at 38 weeks of gestation. The injury was recognized intraoperatively and repaired successfully, and the patient had an uncomplicated recovery. This case highlights the importance of maintaining a high index of suspicion for rectal buttonhole tears. Routine combined vaginal and rectal examination prior to suturing is essential to ensure accurate diagnosis and to prevent missed injuries and subsequent morbidity.

Keywords: rectal buttonhole tear, rectal examination, anal sphincter, fourth-degree tear, dinoprostone

Introduction

Rectal buttonhole tear is a rare but clinically significant obstetric injury defined as an isolated disruption of the rectal mucosa with preservation of the anal sphincter complex.[1,2] Unlike classical obstetric anal sphincter injuries (OASIS), this condition may occur with minimal or no perineal trauma, making it particularly prone to missed diagnosis.[2,3] The reported incidence is low, ranging from 0.014% to 0.06%, but the true rate may be underestimated due to under-recognition.[3,4] Failure to identify and appropriately repair this injury can result in serious complications, including rectovaginal fistula, infection, and long-term morbidity.[4,5] Routine post-delivery vaginal and rectal examination has therefore been strongly recommended to improve detection rates.[2,5] Despite its clinical importance, awareness among clinicians remains limited, and the mechanism of injury is not fully understood. Here, we present a case of rectal buttonhole tear following spontaneous vaginal delivery, with emphasis on diagnostic challenges, surgical management, and clinical implications.

Case Presentation

A 28-year-old woman (gravida 2, para 0) at 38 + 4 weeks of gestation was admitted for scheduled induction of labor due to gestational hypertension. She had no history of diabetes, connective tissue disorders, or prior pelvic surgery. Her family history was unremarkable, with no known hereditary disorders. She was a non-smoker and denied alcohol or substance use. Her pre-pregnancy body mass index was 24.8 kg/m^2. This was her second pregnancy; her first pregnancy had ended in an early spontaneous miscarriage at 8 weeks without surgical intervention. On admission, her cervix was 0 cm dilated, mid-position, soft, 50% effaced, and at −3 station, corresponding to a Bishop score of 4, indicating an unfavorable cervix. Labor was induced with 10 mg intravaginal slow-release dinoprostone (Propess). The insert was

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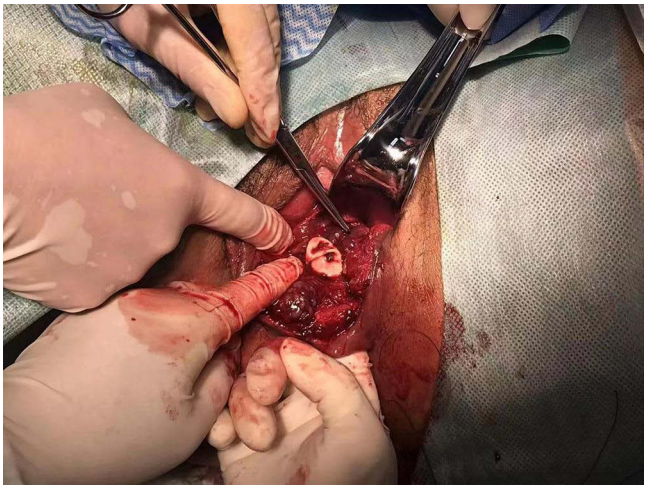

Figure 1 Isolated rectal buttonhole tear.

removed after 3.5 hours due to spontaneous rupture of membranes. At that time, the cervix was 2 cm dilated, 80% effaced, and at −3 station. Uterine hyperstimulation occurred and was managed with nifedipine. Epidural analgesia was subsequently administered. Labor progressed rapidly thereafter. The total duration of the first stage was 3 hours and 55 minutes, with an active phase of only 45 minutes, suggesting a relatively rapid labor progression, though not strictly meeting the classical definition of precipitate labor (<3 hours). The second stage lasted 20 minutes. A male infant weighing 3.9 kg was delivered vaginally in good condition without episiotomy. The third stage was uneventful. Rectovaginal examination was performed due to moderate vaginal bleeding after delivery. The patient did not initially report severe pain or specific rectal symptoms, highlighting the subtle clinical presentation of this injury. Examination revealed a 4 cm longitudinal midline rectovaginal tear with irregular edges. Both the internal and external anal sphincters were intact (Figure 1), consistent with a rectal buttonhole tear.

The tear was repaired under general anesthesia. The rectal mucosa and rectovaginal septum were closed with interrupted 3–0 sutures, and the vaginal mucosa was repaired using continuous 2–0 Vicryl sutures. No diverting colostomy was performed. Prophylactic intravenous antibiotics (cefuroxime sodium 1.5 g twice daily) were administered intraoperatively and continued for 7 days. Antidiarrheal therapy was prescribed, and the patient was maintained on a low-fiber liquid diet for 8 days. The postoperative course was uneventful. The patient was discharged on postoperative day 10 after resumption of normal bowel movements. Follow-up at 6 weeks, 6 months, and 1 year demonstrated complete healing, with no symptoms of fecal or flatal incontinence. Rectovaginal examination confirmed an intact repair.

In this case, several potential risk factors for rectal buttonhole tear were identified, including nulliparity, delivery of a macrosomic infant (3.9 kg), uterine hyperstimulation, and rapid labor progression with a short active phase. These factors may have contributed to excessive stress on the rectovaginal septum, increasing susceptibility to this rare injury.

Discussion

Rectal buttonhole tear is a rare obstetric injury characterized by disruption of the rectal mucosa with an intact anal sphincter complex, with a reported incidence of approximately 0.014%–0.06%.[1,2] Owing to preservation of the perineum and sphincter, the diagnosis is frequently missed unless a careful rectovaginal examination is routinely performed after delivery.[3,4] Missed injuries can result in rectovaginal fistula and significant morbidity.[5]

The mechanism is thought to involve excessive shearing forces across the rectovaginal septum during the second stage of labor, particularly when rapid fetal descent or disproportionate pressure is present.[6] In the present case, several contributing factors were identified, including nulliparity, delivery of a macrosomic infant (3.9 kg), uterine hyperstimulation, and a short active phase suggestive of rapid labor progression. Although the total duration of labor did not strictly meet criteria for precipitate labor, the accelerated active phase may have increased mechanical stress on the rectovaginal septum.[7,8]

Previous reports emphasize that such injuries often occur without episiotomy and may present with minimal external signs, reinforcing the importance of systematic post-delivery assessment, including digital rectal examination.[3,9] Early recognition allows for prompt primary repair, which is associated with favorable outcomes when performed meticulously with layered closure and appropriate postoperative care.[10]

Management strategies remain variable, but most authors recommend immediate repair with absorbable sutures, antibiotic prophylaxis, bowel management, and close follow-up.[10–12] The role of diverting colostomy is generally reserved for complex or delayed cases.[11] In this case, primary repair without colostomy resulted in complete healing and no long-term functional sequelae at 1-year follow-up.

This case highlights key clinical implications. First, rectal buttonhole tears can occur even in the absence of overt perineal trauma. Second, rapid labor dynamics and fetal macrosomia may increase risk. Third, routine rectovaginal examination is essential to avoid missed diagnosis. Finally, timely and appropriate surgical repair can achieve excellent functional outcomes.

Conclusion

In conclusion, heightened awareness and systematic examination are critical for early detection of rectal buttonhole tears. Identification of risk factors and adherence to meticulous repair techniques can minimize complications and improve patient outcomes.

Data Sharing Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Ethics Approval and Informed Consent

This study was approved by the Medical Ethics Committee of the Affiliated People's Hospital of Ningbo University (Approval number:2025-N-034). Written informed consent had been provided by this patient to have the case details and accompanying image published. The Affiliated People's Hospital of Ningbo University approved the publication of the case details.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

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