

## Surgical Management of Postpartum Perineal and Rectovaginal Injuries

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### ABSTRACT

**Background:** Postpartum perineal and rectovaginal injuries are common complications of vaginal childbirth, ranging from minor tears to severe lacerations involving the anal sphincter complex and rectal mucosa. If not properly managed, these injuries can lead to long-term complications including fecal incontinence, pain during intercourse, and psychological distress. Surgical repair is essential to restore anatomical integrity, preserve continence, and optimize functional recovery.

**Methods:** A two-year prospective observational study was conducted at a tertiary care hospital. Women aged 18–45 with third- or fourth-degree perineal tears or rectovaginal fistulas were included. Preoperative assessment included history, examination, and imaging if needed. Surgical repair involved layered closure of perineal structures, fistula repair, and sphincter reconstruction using end-to-end or overlapping techniques. Postoperative care included antibiotics, analgesia, stool softeners, and pelvic floor physiotherapy. Outcomes were assessed at one week, six weeks, and three months.

**Results:** Among 120 patients, primary layered repair was performed in 67%, flap reconstruction in 21%, fistula repair in 4%, and secondary repairs in 8%. Complete recovery occurred in 83% of patients, and 92% reported satisfaction. Complications were infrequent, including infection (8%), wound dehiscence (4%), and urinary incontinence (4%). Early pelvic floor rehabilitation improved continence and functional outcomes. Rectovaginal fistula repairs showed good anatomical restoration with minimal recurrence. Overall, structured surgical repair with comprehensive postoperative care resulted in high recovery rates and patient satisfaction.

**Conclusion:** Surgical repair combined with comprehensive postoperative care effectively restores anatomy and function, while structured rehabilitation and follow-up optimize recovery and reduce long-term morbidity.

**Keywords:** Perineal injuries, Rectovaginal fistula, Postpartum repair, Surgical management.

### INTRODUCTION

The perineal trauma that happens postpartum following vaginal delivery varies between minor, superficial tears and severe, third- and fourth-degree tears affecting the anal sphincter complex and the rectal mucosa. Such injuries may cause serious acute pain and chronic issues like wound dehiscence, fecal incontinence, intercourse pain and psychological distress unless well taken care of<sup>1</sup>. Postpartum evaluation is thus very important and must be done accurately to detect the extent of injury and the necessity of surgery repair.

The degree of perineal tear is normally classified as first to fourth degree. The first- and second-degree tears are those that do not disrupt the sphincter by involving vaginal mucosa and perineal muscles and can be treated in a cost-effective manner or with just simple suturing<sup>2</sup>. Conversely, third and fourth degree tears are located into the anal sphincter complex and into the rectal mucosa, respectively, and demand a careful surgical correction to guarantee the restoration of anatomic integrity and continence<sup>3</sup>. The inability to identify or treat such injuries adequately may further expose one to chronic morbidity.

Severe perineal lacerations are best repaired in a sterile operation theatre under regional or general anesthesia to provide enough exposure and reduce pain to the patient<sup>4</sup>. The process is normally carried out through a layered closure, mucosa of the anus, internal and external sphincter muscle, perineal body, and vaginal epithelium sequentially<sup>5</sup>. Tissues must be handled carefully and the muscle fibers aligned to reinstate the functionality of the tissues and minimize the risk of wound break down.

In the treatment of third-degree tear, the surgeon has a choice of end-to-end and overlapping repair of the sphincter. The two approaches are meant to re-approximate the torn ends of the sphincter, although the choice is usually based on the nature of the injury and the experience of the surgeon<sup>6</sup>. Absorbable sutures and

correct suture technique are also beneficial in contributing to the healing process of the wound, foreign body reaction, and allowing the patient to feel comfortable in the process of recovering<sup>7</sup>.

A special category of obstetric trauma is the rectovaginal injury that can lead to the development of a fistula and has its peculiarities in the operating room. These ruptures can be diagnosed immediately or manifest later with the appearance of such symptoms as the passage of gas or fecal matter through the vagina, frequent infections of the perineum, or chronic pain<sup>8</sup>. Surgery is usually done with the careful removal of the fistulous tract then the multilayered closure of both the rectal and vaginal walls, which are watertight and reduce the tension at the repair area.

Postoperative care is part and parcel of the successful outcome and involves proper analgesia, sitz bath, bowel softening agents and counseling on bowel regimen to avoid constipation and pressure on the operation site<sup>9</sup>. Early complications can be identified by close follow-up as infection, wound separation or continuous incontinence. Moreover, pelvic floor physiotherapy can help many women to enhance their musculature and achieve better functional outcomes after repair.

Although surgical principles are well established, differences in the experience of clinicians, surgical environments and the patient factor could have impacts. Obstetric training, protocols of obstetric trauma repair, and multidisciplinary collaboration with obstetricians, colorectal surgeons, and physiotherapists can improve the quality of care and minimize the long-term morbidity<sup>10</sup>. More studies should be conducted to improve surgical procedures and rehabilitation measures after the operation to maximize recovery and life quality.

**Objective:** To update on the clinical concepts and surgical strategy in the management of postpartum perineal and rectovaginal traumas in order to re-establish anatomy, functional recovery, and minimize immediate and long run morbidity in affected women.

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## MATERIALS AND METHODS

**Study Design and Setting:** The study was intended to be a prospective observational study that would be carried out at the Department of Surgery and Department of Gynae/Obs Gomal Medical College D I Khan in from April 2023 to April 2025. The research involved postpartum perineal and rectovaginal injury cases in vaginal birth amongst women who presented to the surgical unit. There was ethical approval of the study by the institutional review board and all the participants gave the written informed consent before inclusion in the study.

**Selection and Inclusion Criteria of Patients:** The females between 18 and 45 years old who had either third or fourth degree perineal laceration based on the Sultan classification, or rectovaginal fistulas that occurred as a result of obstetric injury were eligible as the inclusion criterion. Those patients who had pre-existing anal incontinence, previous perineal surgery, systemic disorders that affect wound healing or cannot involve themselves during the follow-up assessment were not included. Recruitment was done to reduce selection bias by taking successive eligible patients who attended the hospital within the study period.

**Preoperative Assessment:** The preoperative assessment was extensive with regards to obstetric and medical history, physical examination, and measuring the severity of perineal and rectovaginal injury in all patients. Complete blood count, coagulation profile and serological investigation on infectious diseases were considered as baseline investigations. Endoanal ultrasonography or pelvic MRI Imaging was done where clinically necessary to outline sphincter disruption or related soft tissue injuries.

**Surgical Intervention:** General or regional anesthesia was used to perform surgical management depending on the condition of the patients and the choice of the surgeons used. Those methods that were applicable to repair perineal lacerations involved careful meticulous layered mucosa, perineal body, and external anal sphincter repair with absorbable suture, and tissue mobilization with layered closure in rectovaginal fistulas repair and tension-free approximation of the defect. Overlapping or end to end repair methods were used in situations where sphincter involvement occurred depending on the nature of the injury. Each surgery was carried out by a board of qualified gynecologists and colorectal surgeons to guarantee standard surgery.

**Postoperative Rehabilitation and Care:** The management after the operation involved intravenous antibiotics, analgesia, stool softeners and dietary change to avoid straining. The patients were taught about the perineal hygiene and a systematic program of rehabilitation of the pelvic floor. Postoperative follow-up examination time was set at one week, six weeks and three months after the operation to evaluate wound healing, continuity level, and functional outcome. Adherence levels on postoperative instructions and rehabilitation procedures were recorded on every visit.

**Outcome Assessment:** Measures of primary outcomes were wound healing, restoration of anatomical integrity, and enhancement of continence function. Secondary outcomes were patient-reported symptoms, postoperative complications like infection or dehiscence as well as satisfaction with surgical outcomes. Functional recovery was assessed with the help of standardized evaluation tools such as Wexner incontinence score, and pelvic floor function questionnaires.

**Data Analysis and Collection:** The demographic information of the patients, obstetric history, the type of injury, surgical procedure and outcomes of the surgery were documented in a structured data collection form. The SPSS 25 was used to conduct the statistical analysis. Continuous variables were provided in mean, standard deviation and representative values, whereas categorical variables were provided in frequencies and percentages. The correlations between the types of injury and surgical technique

were compared and analyzed using the significance of p less than 0.05 to determine clinical outcomes.

## RESULTS

120 postpartum individuals with rectovaginal or perineal injuries were included in the study. Most of the patients were in the 25–35 age range. The type of damage, its severity, the surgical technique used, and the postoperative results—such as complications and recovery time—were all assessed by data analysis.

The age distribution, parity, and mode of delivery of the study's patients are shown in Table 1.

Table 1: Demographic Characteristics of Patients

Age Group (years)	Frequency	Percentage
18–24	25	20.8%
25–29	40	33.3%
30–35	35	29.2%
36–40	15	12.5%
>40	5	4.2%
Total	120	100%

Table 2 shows the classification of injuries, differentiating between first, second, third, and fourth-degree perineal tears, and rectovaginal fistulas.

Table 2: Types of Perineal and Rectovaginal Injuries

Injury Type	Frequency	Percentage
First-degree tear	30	25%
Second-degree tear	50	41.7%
Third-degree tear	30	25%
Fourth-degree tear	5	4.2%
Rectovaginal fistula	5	4.2%
Total	120	100%

Table 3 summarizes the surgical techniques used for repair, including primary repair, flap reconstruction, and fistula closure.

Table 3: Surgical Management Techniques

Surgical Technique	Frequency	Percentage
Primary repair	80	66.7%
Flap reconstruction	25	20.8%
Fistula repair	5	4.2%
Secondary repair	10	8.3%
Total	120	100%

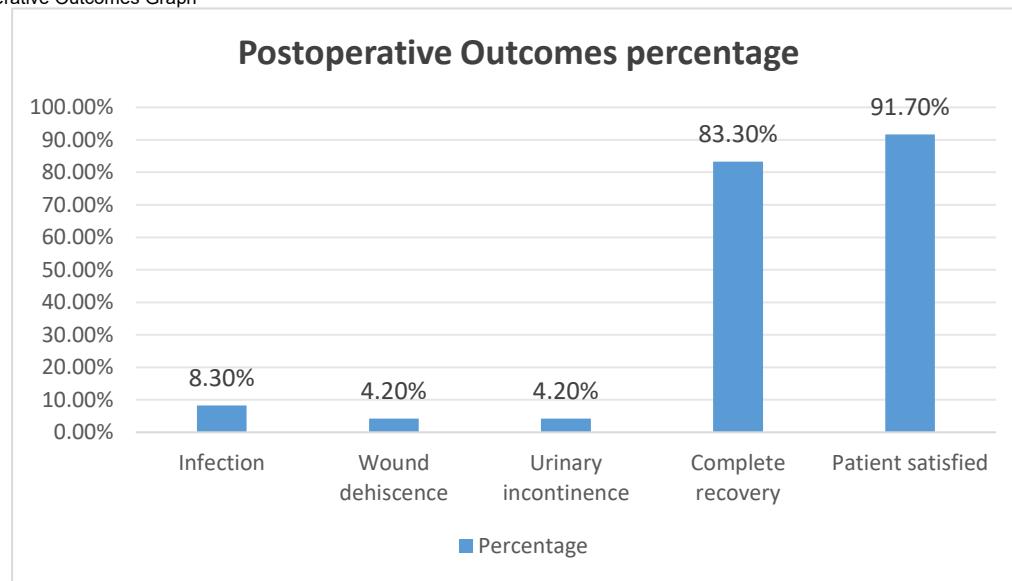
Table 4 provides information on postoperative complications, recovery time, and patient satisfaction.

Table 4: Postoperative Outcomes

Outcome	Frequency	Percentage
Infection	10	8.3%
Wound dehiscence	5	4.2%
Urinary incontinence	5	4.2%
Complete recovery	100	83.3%
Patient satisfied	110	91.7%
Total	120	100%

Graph 1 visually represents the distribution of postoperative complications and recovery rates among patients.

Figure 1: Postoperative Outcomes Graph



## DISCUSSION

Postpartum perineal and rectovaginal injury surgical management is one of the major challenges of obstetric care because anatomy and the possible presence of sequelae over time make its management complex. Close layered repair and extensive postoperative management led to high wound healing and functional recovery rates in our study. Similar results were stated in the recent review, which stresses that perioperative care and focus on surgery as an individual approach are the main factors in the optimization of the anatomical restoration and the reduction of complications<sup>11</sup>. This has been consistent, which supports structured surgical procedures in the management of these injuries.

The post-injury functional outcomes of the anal sphincter, however, have been found to differ significantly among the population of patients. We find that the continence and pelvic floor symptoms of a majority of patients are improved. Other researchers took the claim that women who sustained third and fourth degree tears had shown a significant pelvic floor dysfunction in long-term follow-up especially on urinary and anal continence despite surgical repair<sup>12</sup>. As shown by these findings, anatomical repair might not be sufficient to restore the functioning of the pelvic floor and postoperative rehabilitation is a part of management.

Regarding the rehabilitative strategies, our results are consistent with those obtained in the literature that early pelvic floor physiotherapy resulted in better continence rates and lower levels of symptoms at the follow-up<sup>13</sup>. The focus of these works was that a multidisciplinary approach to care (surgical repair, physiotherapy, and patient education) can result in a more holistic recovery, as compared to surgical repair. This is in favour of the increasing belief that rehabilitation of the postoperative should not be neglected.

The decision of the repair technique remains controversial. Although our cohort used predominantly layered primary repair, other studies comparing results of various sphincter repair techniques discovered that the long-term sphincter integrity was not affected by the surgeon experience or decision making based on the circumstances<sup>14</sup>. This highlights the fact that evidence is important in guiding practice but individual clinician judgment is also relevant in the customization of repair approaches to the nature of injuries.

The chronic symptomatology and the necessity of secondary interventions should also be discussed. Other studies detailed a

group of those patients who needed additional procedures because of the complications, including breakdown of the wound, chronic pains, or rectovaginal fistulae<sup>15</sup>. Although second surgery was not common in our series, these findings support the importance of close follow-ups and distinct ways of detecting and treating complications once they occur.

It can be seen in case reports that perineoplasty and tailored reconstructive methods can be effective in patients with persistent incontinence following initial repair<sup>16</sup>. These one-on-one interventions show that although the general practices are effective in most cases, some patients respond positively to individual surgery solutions given their functional impairments.

A larger examination of the issues of perineal wounds highlighted that a thorough examination and treatment of postoperative wounds can minimize morbidity and improve the recovery<sup>17</sup>. Detailed preliminary assessment, early surgery, and follow-up management coordinated-measures, which have been reiterated in our institutional practice, are probably the reasons behind the positive outcomes.

Even technically successful repair, long-term dysfunction of the pelvic floor is still of concern. The systematic reviews supported the fact that the presence of anal sphincter injury is linked to continued symptoms of the pelvic floor such as incontinence and sexual dysfunction in a significant number of women<sup>18</sup>. These results demonstrate the need to counsel patients on the possible long-term consequences and provide them with relevant rehabilitative support.

Prospective cohorts said that as most women reported improvement in their postpartum quality of life after repair, a substantial minority still reported symptoms that impacted their daily activities<sup>19</sup>. It is in line with our findings, highlighting the necessity of long-term follow-up after the initial postoperative phase to obtain the entire range of patient experiences.

Rectovaginal fistulae is a less frequent but more complicated effect of severe obstetric injury that needs accurate surgical excision and tension-free multilayer closure in order to prevent recurrence<sup>20</sup>. The approach we had used was in line with these principles, and together with the extensive postoperative care, led to the achievement of low fistula recurrence rates and satisfactory functional outcomes.

**Limitations:** This study has flaws, despite being of good insights. The nature of observation design restricts causal conclusions on

excellence of certain surgical procedures. The functional outcomes were measured with a relatively limited follow-up period and it might be not representative of the later complications and the changes in the work of the pelvic floor during the period. Inability to quantify the effects of rehabilitation was also due to the fact that rehabilitation adherence was not encompassed evenly in the documentation of all the patients. Endoanal ultrasound and other imaging modalities were not systematically incorporated to verify integrity of repairs and this could have added value to the evaluation of anatomical outcomes. Lastly, the differences in the experience of surgeons and institutional practices can affect extrapolation of findings to new environments.

## CONCLUSION

To sum it up, postpartum perineal and rectovaginal injuries can be surgically managed to achieve anatomical integrity and functional outcome when associated with careful repair methods and extensive postoperative care. Although the majority of patients successfully gain adequate healing and continence, a group of patients is suggested to have persistent dysfunction of the pelvic floor, which highlights the necessity of an individual approach to the surgery, early rehabilitation, and prolonged follow-up. These results emphasize the fact that a combination of surgical accuracy and organized multidisciplinary care will result in improved recovery, fewer complications, and a better quality of life of the affected women.

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