Original Article

Surgical Treatment Results in Obstetric and Iatrogenic Anal Sphincter Injuries

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Abstract

One of the most important causes of perineal tears is vaginal delivery or episiotomy. It is also among the iatrogenic causes. Perineal tears have the advantage that they can be effectively corrected by surgical repair. However, if perineal tears occurring upon delivery are not recognized and repaired immediately, the possibility of developing fecal incontinence and other complications increases. Since the aim of our study was to examine the surgical treatment of obstetric perineal tears, the files of patients who underwent anal sphincter repair between January 1, 2017, and January 1, 2019, were reviewed retrospectively. The files of 26 patients were analyzed in the present study. Sixteen patients were due to obstetric injuries; fourteen (70%) patients in the first 24 hours, and 6 (30%) occurred later. The data of the group repaired in the first 24 hours (early group) and the group repaired later was analyzed; there was no significant difference in terms of mean age, the number of births, and episiotomy opening ($p>0.05674$). However, there was a significant difference in the hospital stay ($p<0.05$). Obstetric anal sphincter injuries affect about half of women who have a vaginal delivery, and incontinence develops in 25% of primiparous patients with these injuries. The opinion of an experienced second physician is required. Effective sphincter repairs applied in this way can prevent long-term complications such as anal incontinence.

Keywords: Anal sphincter, Obstetric iatrogenic, Surgical, Treatment

Introduction

One of the most important causes of perineal tears is vaginal delivery or episiotomy. It is also among the iatrogenic causes of perineal tears in the anal canal, rectal surgery, and some urological and gynecological interventions [1-4]. After delivery, approximately 20-30% of women develop urinary incontinence, and 3-5% develop fecal incontinence. The most important causes of this condition are pudendal nerve damage or perineal rupture [5].

Perineal tears are classified according to "perineal injury classification." This classification is made according to the depth of the injury **(Table 1)** [6]. Pain and discomfort are the main symptoms in Grade 1 and 2 tears. Infection and development of fecal incontinence are rare. In tears grade 3 and 4, pain is a more serious symptom. There is a high probability of infection, fecal and urinary incontinence, prolapse of the pelvic organs, and fistula formations. Therefore, it is recommended to repair grade 3 and 4 tears [7].

Perineal tears have the advantage that they can be effectively corrected by surgical repair. Surgical repair of sphincter ruptures eliminates or significantly improves most continence disorders; however, if perineal tears occurring upon delivery are not recognized and repaired immediately, the possibility of developing fecal incontinence and other complications increases [8].

This study aimed to evaluate the surgical treatment results of grade 3-4 perineal tears developed for obstetric reasons.

Table 1. Classification of Perineal Tears

Grade 1	Laceration of the vaginal mucosa or perineal skin only
Grade 2	Laceration involving the perineal muscles
Grade 3	Laceration involving the anal sphincter muscles, being further subdivided into 3A, 3B, and 3C:
3A	Where <50% of the external anal sphincter is torn
3B	Where >50% of the external anal sphincter is torn
3C	Where the external and internal anal sphincters are torn
Grade 4	Laceration extending through the anal epithelium (resulting in a communication of the vagina epithelium and anal epithelium)

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Materials and Methods

The files of patients who underwent anal sphincter repair between January 1, 2017, and January 1, 2019, were reviewed retrospectively. Since our study aimed to examine the surgical treatment of obstetric perineal injury, perineal injuries other than obstetric injuries were excluded from the study. Patients who did not come to the control or did not have enough information in the file examination were also excluded from the study.

Obstetric perineal tears were graded according to the classification in **Table 1**. The year the injury occurred, the patient's age, the number of births, the place of birth (hospital, home), episio status, time of injury, and the time elapsed between admission to our clinic were recorded.

The patients were divided into "early and late group" groups within the first 24 hours after delivery and those who applied later. The repair technique of the groups, the length of hospital stay, and whether incontinence developed in the 6 month controls were determined and compared.

When determining whether incontinence has developed, ask the patients, "Have you had any involuntary gas or bowel movements since the repair?" and "Have you noticed any rectal discharge in your underwear?" questions were asked. If yes to any of the two questions, it was accepted that incontinence developed.

General surgeons performed all surgeries. An elliptical incision was made around the anus in the lithotomy position, and the skin and subcutaneous tissues surrounding the sphincter were dissected. The injured external sphincter ends were dissected from the surrounding tissue and internal anal sphincter. The sphincter ends were approximated to overlap and repaired with polypropylene sutures.

Statistical Analysis

Analysis of patient data was performed with SPSS software v21 (SPSS-Inc, Chicago, USA). P<0.05 (previous value) was considered statistically significant. Data were reported as mean ± SD. The Shapiro-Wilk test was used for the normality of continuous distributions. Differences between incoming data groups were compared with Student's T-test. The relationship between grades and continuous variables was evaluated by Spearman correlation analysis.

Results and Discussion

The files of 26 patients were analyzed in the study. Of these patients, 16 were due to obstetric injuries, and four were due to non-birth trauma or various operations. These patients and 6 patients whose records could not be accessed sufficiently were excluded from the study. The mean age of the patients included in the study was 33.58. Fourteen (70%) patients' injuries were repaired in the first 24 hours, and six (30%) patients later. When the data of the group that was repaired in the first 24 hours (early group) and the group that was repaired later were compared, there was no significant difference in terms of mean age, number of births, and episiotomy opening (p>0.05674). However, there was a significant difference in terms of length of hospital stay (p<0.05) **(Table 2)**.

When the groups were evaluated regarding fecal incontinence at six months, there was no significant difference between the groups p>0.0588 **(Table 2)**.

Table 2. Descriptive Findings of the Cases

	Early group	Late group	P value
Age	33.35	34.25	p>0.0589
Number of births	1.55	1.47	p>0.0548
place of birth	Hospital 11 Home 3	Hospital 3 Home 1	p>0.0527
Episiotomy opening	10	3	p>0.0564
repair time	18.4	37.6	P<0.05
hospital stay	3.1	7.2	P<0.05
6 months incontinence	4	1	p>0.0588

Obstetric anal sphincter tears affect approximately half of women who have had a vaginal delivery, and incontinence develops in 25% of primiparas with these injuries [9].

In the study conducted by Nordenstam *et al*., it is recommended that the injuries be recognized in the delivery room and repaired by physicians experienced in sphincter repair in the early period, and it has been shown that delaying the repair time for 8-12 hours does not affect the functional results in one-year follow-up [10]. Harvey *et al*. also stated that the repair could be delayed up to 12 hours due to lack of adequate equipment and experienced surgeon [11].

However, there is no clear literature about the most appropriate time interval for early primary repair. After a difficult delivery for both the patient and the physician, early repair of the injury in the delivery room often makes it difficult to get a second professional opinion. The recognition of anatomical planes is difficult due to prolonged labor, resulting in an ineffective sphincter repair. Postponing sphincter repair for a few hours gives the prescribing physician time to prepare himself and get a second opinion to perform an effective repair without harming the patient. The French Society of Obstetrics and Gynecology recommends getting a second opinion in case of doubt. A recent examination performed by an experienced physician increases the sensitivity of injury diagnosis from 11% to 24.5%. If possible, applying endoanal ultrasound by professional increases this rate by 1.2% [12].

Our study observed that performing the repair after or before 24 hours did not make a significant difference, except for the length of stay. It was thought that this difference in the duration of hospitalization developed due to the comorbid

conditions that required consultation of the relevant branches before general anesthesia in the patients who underwent late repair.

In a research performed Theobald *et al*. which included 39,227 vaginal deliveries, the risk factors for Grade 3 and Grade 4 obstetric anal sphincter injuries as maternal age over 39, fetal birth weight higher than 3500 mg, use of instruments such as forceps and vacuum, and episiotomy, were observed. The same study showed that episiotomy was not associated with sphincter injury and incontinence in patients who did not need to use a congenital instrument. In our study, similar to the literature, none of the patients required the use of a congenital instrument, and no relationship was found between the opening of an episiotomy and the development of incontinence [13].

Our study did not evaluate whether sexual dysfunction developed after the repair, whether the patient felt intermittent pain, and long-term complications of sphincter injury were not questioned.

As a result, to perform an effective sphincter repair, it is necessary to get the opinion of an experienced second physician; the patient and the surgeon should rest for a 'time' after the difficult delivery, and the decision should be made after the final procedure. Effective sphincter repairs applied in this way can prevent long-term complications such as anal incontinence.

Conclusion

Postpartum anal sphincter injury is an important disease that affects the patient's life quality. It should be treated by experienced surgeons. This is one of the most important reasons affecting the success of treatment. In order to evaluate the surgical success, larger case series should be examined.

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