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RESEARCH ARTICLE

Episiotomy-Related Perineal Injury During Spontaneous Vaginal Delivery

Normal Doğum Sırasında Epizyotomiye Bağlı Perine Yaralanması

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ABSTRACT

Aim: Perineal tear a common occurrence during vaginal delivery. In this study, we present patients who underwent surgical intervention due to iatrogenic perineal tears during vaginal delivery.

Method: We retrospectively reviewed patients who had iatrogenic perineal tear during normal vaginal delivery and for whom consultation by the general surgery unit was requested between May 2017 and December 2017.

Results: Mean age of the patients was 27 years. Mean follow-up after surgery was one week. All patients underwent surgery due to grade 3A perineal tear after episiotomy with mediolateral incision during vaginal delivery under spinal anesthesia. Mean birth weight of the delivered infants was 3331 g and mean head circumference was 34.7 cm. Sphincter tone was reduced in digital rectal examination on postoperative day 1, and improved but still lower than normal on day 7. Three patients (42.8%) had gas incontinence, while no patients had fecal incontinence.

Conclusion: Anorectal injuries are managed by surgical interventions which vary depending on time to intervention, severity of injury, severity of fecal contamination, presence of comorbid injuries, the patient's general health status, and the surgeon's preference and experience. Primary repair should be preferred in case of early diagnosis.

Keywords: Episiotomy, rectal injury, treatment

ÖZ

Amaç: Perine yırtıkları vajinal yolla doğum sürecinde sıklıkla karşılaşılan durumlardandır. Bu çalışmada normal vajinal yolla doğum esnasında iyatrojenik olarak gelişen perine yırtıkları nedeniyle cerrahi uygulanan hastaların sunulması amaçlanmıştır.

Yöntem: Mayıs 2017 ile Aralık 2017 tarihleri arasında Şanlıurfa Eğitim ve Araştırma Hastanesi'nde normal vajinal yolla doğum esnasında karşılaşılan ve genel cerrahi kliniğine konsülte edilen iyatrojenik perine yırtığı olan hastalar retrospektif olarak değerlendirildi.

Bulgular: Hastaların yaş ortalama 27 idi. Yapılan cerrahi sonrası ortalama takip süresi 1 hafta idi. Tüm hastalara spinal anestezi altında normal doğum esnasında mediyolateral epizyotomi sonrasında 3A. Derece perine yırtığı nedeniyle cerrahi müdahale yapıldı. Doğan bebeklerin ortalama doğum ağırlığı 3322 gr olup, baş çevresi ölçümü 34,7 cm olarak saptandı. Müdahale edilen hastaların hepsinde 3A derece perine yırtığı mevcuttu. Hastaların post operatif 1. gün parmakla rektal muayenelerinde sfinkter tonusunun azalmış olduğu görüldü. Yedinci gün parmakla rektal muayenede sfinkter tonuslarının ilk günki muayeneye göre daha aktif olduğu ancak normale göre azalmış olduğu izlendi. Birinci hafta sonunda 3 (%42,8) hastada gaz inkontinansı olduğu görüldü, hiçbir hastanın gaita inkontinansı yoktu.

Sonuç: Anorektal yaralanmalarının tedavisi cerrahi olup, tedavinin prosedürü müdahale sürene, yaralanmanın derecesine, fekal kontaminasyon derecesine, eşlik eden yaralanma varlığına, hastanın genel durumuna, cerrahın tercih ve tecrübesine göre değişiklikler göstermektedir. Erken tanı konan yaralanmalarda primer onarım tercih edilmelidir.

Anahtar Kelimeler: Epizyotomi, rektal yaralanma, tedavi

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Introduction

Iatrogenic etiology is frequently encountered in rectal injuries although blunt and penetrating traumas are commonly seen in other body regions. Iatrogenic causes include diagnostic and therapeutic procedures at anal canal and rectum as well as urological, obstetric and gynecological interventions.[1,2] Perineal tears are one of the most commonly seen complications during vaginal delivery. Perineal tears are classified by perineal injury classification (Table 1) which uses depth of tear for grading.[3,4] Maternal pain and discomfort are common in grade 1 and 2 perineal tears. Infection rate is low at follow-up and long-term sequels are unlikely. The pain is more severe while risk for infection or dehiscence is higher in grade 3 and 4 perineal tears. Thus, they may be associated to long-term morbidities such as chronic pain, sexual dysfunction, urinary incontinence, fecal incontinence, pelvic organ prolapse and fistula formation.[5] Our hospital is at a region where birth rate is high with a high volume of obstetric patients. In this study, it was aimed to present patients underwent due to iatrogenic perineal tears during vaginal delivery.

Materials and Methods

We retrospectively reviewed patients who had iatrogenic perineal tear during normal vaginal delivery and were consulted to general surgery clinic during May, 2017 and December, 2017. The study was made according to Helsinki Declaration. In 2017, total number of births was 30.888 in our hospital, including 20.714 spontaneous vaginal delivery and 10.714 cesarean sections. Of the patients underwent spontaneous vaginal delivery, episiotomy was performed in 12.215. We included only patients with grade 3A perineal injury excluding those with grade 1 and 2 injuries. The perineal injury classification was used to identify degree of rectal injury in order to determine treatment modality.[3,4] The inclusion criterion was detection of grade 3 perineal tear during vaginal delivery. In all cases, data regarding age, parity, comorbid condition, type of anesthesia, labor induction, type of episiotomy, fetal characteristics [biparietal diameter (BPD), presentation, head circumference and birth weight], instrumentation during delivery, rectal injury score, time to surgical intervention from injury, surgical intervention employed, continence at early postoperative period and digital rectal examination findings were extracted from patient files and electronic database. All patients/legal surrogates gave written informed consent for surgical interventions during delivery. In all patients, sphincteroplasty with 2/0 Vicryl was performed in perineal tears. In addition to peroperative antibiotic prophylaxis, all patients received broad-spectrum antibiotic with aerobic and anaerobic coverage. Oral intake was withdrawn at postoperative day one. Clear liquids were started on day 1 and foods on day 2. Perineal examination and digital rectal examination were performed to patients during postoperative follow-up and at control visit on outpatient clinic. There are several scoring systems for incontinence in the literature. In our study, scoring was performed based on long-term follow-up in the patients. In our hospital, anal manometry and endoanal sonography was unavailable; thus, the patients were referred to reference centers for these interventions, resulting in failure to score incontinence. The patients were referred to centers with capability of endoscopic rectal sonography and anal manometry for long-term follow-up.

Table 1. Perineal injury classification

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, 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 with a communication of the vagina epithelium and anal epithelium)

Statistical Analysis

Statistical Package for the Social Sciences (SPSS 21 Inc., Chicago, IL, USA) computer software was used for bio-statistical analyses. When the data were presented as mean values their standard deviation values were given, when they were presented as median values their minimum (min)-maximum (max) values were also stated.

Results

The study included seven patients, who underwent surgical intervention due to iatrogenic perineal tear during vaginal delivery between May, 2017 and December, 2017. Mean age was 27 years (min-max: 20-45 years). Mean follow-up after surgery was one week. The parity was 2.2 (min-max: 1-5) and 2 patients were nullipara. All patients underwent surgery due to grade 3 perineal tears after episiotomy with mediolateral incision during vaginal delivery under spinal anesthesia. Induction was used in three patients (42.8%). No instrumentation (forceps and/or vacuum extraction) was needed in any patient (Table 2). When fetal characteristics were assessed, it was seen that all fetuses had cephalic presentation. Mean BPD was 38.2 mm (min-max: 37-39 mm) while mean birth weight was 3322 g (min-max: 3000-4060

g) and mean head circumference was 34.7 cm (min-max: 34-35 cm) (Table 3). Mean time to surgical intervention was 26.4 min (min-max: 20-30 min). There was grade 3A grade 3A perineal tear in all patients underwent surgery. It was found that sphincter tone was decreased in digital rectal examination on day 1 while no finding suggestive of infection was detected in perineal examination. Daily examination was performed during follow-up. Sphincter tone was more active but decreased than normal on digital rectal examination on day 7 after surgery. It was found that there was gas incontinence in 3 patients (42.8%) while no patient had fecal incontinence. No wound infection was detected during one-week follow-up.

Discussion

The majority of rectal injuries occur as a result of blunt or penetrating traumas. Perineal tears are one of the common complications in vaginal delivery. Both clinician and patients are closely pertained to grade of perineal tears, perineal tears requiring surgical intervention and consequences of surgical intervention. Rectal injuries during delivery should have to be recognized as soon as it occurs; otherwise, treatment delay and complications can be seen. The diagnosis can be made by inspection in anal canal and perineal injuries as well as combined rectal injuries at one-third lower portion. Severity of injury can be identified by examination following insertion of a urinary catheter.[6] Rectal examination should be routinely performed after delivery; otherwise, perineal lesion can be overlooked and present as late complications. Etiological factors resulting in perineal injuries during delivery can be related to maternal or fetal characteristics. Maternal factors include pelvic length, rapid presentation and tissue characteristics. In our study, no comorbid systemic disease was present in our patients. Fetal factors include head circumference and presentation anomalies. Instrumentation and forced mechanical examination during delivery can increase risk for injury. No instrumentation (forceps and/or vacuum extraction) was used in our patients. When we assessed our cases, it was found that mean head circumference was 34.7 cm (25-50 percentile) whereas mean birth weight was 3322 g (25-90 percentile). Episiotomy with midline incision increases risk for severe perineal tear due to low resistance pathway towards anal sphincter. Using episiotomy when indicated is associated with decreased

Table 2. The demographic and clinical characteristics of the patients

Patient no	Age	Gender	Additional comorbidity	Parity	Anesthesia	Episiotomy	Induction	Instrumentation
1	33	Female	None	1	Spinal	Mediolateral	None	None
2	45	Female	None	5	Spinal	Mediolateral	None	None
3	22	Female	None	2	Spinal	Mediolateral	Done	None
4	21	Female	None	2	Spinal	Mediolateral	Done	None
5	26	Female	None	3	Spinal	Mediolateral	None	None
6	20	Female	None	1	Spinal	Mediolateral	Done	None
7	22	Female	None	2	Spinal	Mediolateral	None	None

Table 3. The characteristics of the fetuses

Patient no	Fetal prensentation	BPD (mm)	Head circumference (cm)	Birth weight (gr)
1	Vertex	38	35	3000
2	Vertex	38	35	4060
3	Vertex	37	34	3200
4	Vertex	39	35	3500
5	Vertex	38	35	3000
6	Vertex	39	34	3500
7	Vertex	39	35	3200

BPD: Biparietal diameter

Table 4. The intraoperative and postoperative results of the patients

Patient no	RIS	Intervention period (mn)	Po 1st day anal tonus	Po 7th day anal tonus	Po 7th day tonus and continans
1	3	15	Minimal	Minimal	Normal
2	2	30	Minimal	Minimal	Normal
3	2	30	Minimal	Minimal	Incontinence
4	3	25	Minimal	Minimal	Normal
5	3	25	Minimal	Minimal	Normal
6	2	30	Minimal	Minimal	Incontinence
7	3	20	Minimal	Minimal	Incontinence

Po: Postoperative, RIS: Rectal injury score

severe perineal trauma when compared to routine use of episiotomy.[7] It was seen that mediolateral episiotomy was used in all patients in our study. In previous studies, it has been reported that prognosis is associated to width of trauma, presence of additional trauma, time to intervention, general health status, age and fecal contamination in cases with rectal injury.[8] In a study on 4 patients with isolated rectal injury during delivery, Morrel et al.[9] suggested that sufficient visualization at early period is key factor and that selection of anesthesia could vary depending on clinicians' preference. The incision of anal sphincter isn't recommended since it may cause anal dysfunction even it was repaired immediately. Authors recommended closing defect with single-layer continuous suture. In our study, mean time to intervention was 26.4 minutes and all patients underwent surgery under spinal anesthesia. In addition, Morrel et al.[9] recommended broad-spectrum antibiotics without temporary stoma. In rectal injuries, the goal of surgical treatment is to reduce morbidity and mortality associated to pelvic contamination or sepsis. Rectal injuries are assessed as intraperitoneal and extra-peritoneal injuries.[6,10] Primary repair and diverting ostomies are often preferred in the management of intraperitoneal injuries. Primary repair is generally recommended in extra-peritoneal rectal injuries. Pre-sacral drainage is suggested in the management of extra-peritoneal injuries in particular.[10,11] Contaminated area at pre-sacral area is dissected, which, in turn, removed from posterolateral part of anus via Penrose drain.[12] Tears in anorectal sphincter should be identified during first intervention, which should be repaired primarily. Secondary interventions to scar tissue are more complicated with higher failure rates.[13] We also gave broad-spectrum antibiotics with aerobic and anaerobic coverage after sphincteroplasty with Vicryl sutures. No local or systemic infection was observed in our patients. This study has some limitations including retrospective design, limited sample size and lack of control group. In conclusion, anorectal injuries are managed by surgery which varies depending on time to intervention, severity of injury, severity of fecal contamination, presence of comorbid injuries, general health status, surgeon's preference and experience. Primary repair should be preferred in case of early diagnosis. It is likely to face with anorectal injuries following vaginal delivery for surgeons. This is important in regions with high birth rate. We think that patients with perineal and rectal injuries, especially those with sphincter injury, can be managed successfully by early diagnosis and timely intervention.

Ethics

Ethics Committee Approval: Retrospective study.

Informed Consent: Retrospective study.

Peer-review: External and internal peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: M.P., Concept: M.P., D.A.Ç., Design: M.P, T.G., Data Collection or Processing: M.P., Y.Y., Analysis or Interpretation: M.P., D.A.Ç., S.Y., Literature Search: T.G, Y.Y., Writing: M.P.

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