

Perineal Tears; Frequency, Severity and Risk factors in a Tertiary Care Hospital

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Abstract

Objective: To observe the frequency, severity, and risk factors of perineal tears during vaginal delivery in a tertiary care hospital.

Methodology: This was a cohort study of women, aged 15-45 years, of ≥ 36 weeks gestation, with a cephalic presentation, delivered from January to December 2021 at Lady Reading Hospital, Peshawar. A structured proforma was used to gather data on women's demographic, obstetric, and labour details. Women with perineal tears were grouped into the minor tears group (first and second-degree) and the major tears group (third and fourth-degree). Institutional Ethics Review Committee approval was taken (266/LRH/MTI).

Results: Among the 7304 deliveries, 876 women sustained perineal tears constituting a frequency of 11.99%. About 740 (84.5%) women had minor tears. First degree, (n=256), Second degree, (n=484), and 136 (15.5%) had major tears, Third degree, (n=99), Fourth degree, (n=37). The mean age, body mass index and gestational age was 30.19+6.10 (range; 15-45), 32.02+2.77 (range; 25-40), and 38.9+1.53 (range; 36-42) respectively. Women with an instrumental vaginal delivery were more prone to have a major tear in comparison to a spontaneous vaginal delivery ($p < 0.00$). Primiparity, oxytocin, shoulder dystocia, instrumental vaginal delivery, and high birth weight were significantly associated with perineal tears. Women with instrumental vaginal delivery were more likely to have major tears without an episiotomy.

Conclusions: Perineal tear is frequent post-natal morbidity. Perineal tears are significantly high in primiparous women, oxytocin, shoulder dystocia, instrumental vaginal delivery, and high birth weight. Episiotomy should be given only when indicated.

Keywords: Perineal tears, Episiotomy, Risk factors.

Cite this article: Abrar S, Abrar T, sayyed E, Hussain SS. Perineal Tears; Frequency, Severity and Risk factors in a Tertiary Care Hospital. BMC J Med Sci. 2022. 3(2): 75-79.

Introduction

Perineal tears are a common complication of vaginal delivery. It is a genital tract injury during vaginal delivery that occurs either spontaneously or due to an episiotomy.¹ Its frequency differs in various parts of the world, with a reported global prevalence of 85%.^{2, 3} Second-degree perineal tears are reported to occur in 35.1–78.3% of primiparous and 34.8–39.6% of multiparous women, while major tears account for 5.1–8.3% tears in primiparous and 1.8–2.8% of multiparous women.^{2, 3}

The reported frequency of perineal tears in Pakistan varies in different studies. A local study from a tertiary care hospital in Pakistan has shown a prevalence of 79.89%, with first-degree perineal tears being the most common, accounting for 101(68.7%) cases, while 39 (26.5%) cases sustained second-degree perineal tears, and only 2.7% and 2.0% of cases had third and fourth-degree perineal tears respectively.⁴ Another local study revealed a frequency of 9.8%, with 70.1% in primiparous and 22.9% in multiparous women.⁵

Major perineal tears are associated with major

Authorship Contribution: ¹Substantial contributions to the conception or design of the work; or the acquisition, Final approval of the study to be published, ^{2,3}Data analysis, Literature review, ⁴Drafting the work or revising it critically for important intellectual content

Funding Source: none

Conflict of Interest: none

Received: Oct 10, 2022

Accepted: Jan 07, 2023

morbidities and complications such as anal incontinence, dyspareunia, sexual dysfunctions, and persistent pain in women,⁶ and are given particular attention. However, minor degree tears may also lead to complications like the risk of pelvic organ prolapse and sexual dysfunction.⁷

The literature reports its association with numerous risk factors. The prolonged second stage of labour, instrumental vaginal delivery (IVD), more than 4 kg birth weight, occiput-posterior presentation,³ and Asian ethnicity⁸ are the reported independent risk factors for major tears.

The association of episiotomy with perineal tears is controversial. While some studies show a protective effect of episiotomy on severe perineal tears,⁹ a Cochrane systematic review revealed that routine episiotomy increased the risk of obstetric anal sphincter injuries.¹⁰

Since perineal tears are highly prevalent and associated with a variety of risk factors, we aimed to conduct a study to find the prevalence of perineal trauma during vaginal delivery and its associated risk factors at our institution. This would enable us to identify women at risk of sustaining tears and can help us to formulate plans to reduce this morbidity.

Material and Methods

This cohort study included all women, aged 15-45 years, of ≥ 36 weeks gestation, with a cephalic presentation, delivered between January to December 2021 at Lady Reading Hospital, Peshawar. Patients with intrauterine fetal death and incomplete data were excluded. The study was conducted after approval from the Ethics Committee of Lady Reading Hospital (266/LRH/MTI). A structured proforma was used to gather data from medical records on demographic variables (age, literacy), obstetric variables (parity, induction of labour, fetal position, gestational age, second stage of labour duration, complication of shoulder dystocia, type of perineal trauma, mode of delivery) and weight of the neonate. Perineal tears are graded into four degrees. The first and second involve only the vaginal mucosa or mucosa along with perineal muscles respectively, and are referred to as minor tears. The third and fourth degrees involve the anal sphincter or anal sphincter along with anal mucosa, respectively, and are said to be

major tears.¹ We grouped women into two groups; minor and major tears groups.

Results were presented using frequencies and proportions for discontinuous variables, and mean and standard deviations (SD) or median and interquartile range (IQR) for continuous variables. For inferential statistics, the Chi-square test, the independent t-test, and the Mann–Whitney U test were used as appropriate. A p-value of <0.05 was taken as significant. The data was entered and analyzed using SPSS 21.

Results

About 7530 women were delivered vaginally during the study period. After excluding 226 women (87 due to intrauterine fetal death, and 139 due to missing data) our study population was 7304. Among them, 876 women sustained perineal tears with a frequency of 11.9%. Out of 876 women, 256 sustained first-degree tears, 484 were second-degree, 99 were third-degree, and only 37 women were complicated by fourth-degree perineal tears. The mean age, gestation, and BMI were 30.19, 38.9, and 32.02 respectively.

The majority of the cases were primigravida 578 (66%), illiterate 811 (92.6%), unbooked 761 (86.9%), delivered spontaneously 594 (67.8%), and had occiput-anterior (OA) fetal position 763 (87.1%). Only 282 (32.2%) had an IVD (Table I). On comparing the severity of tears, there was a significantly higher trend of sustaining major tears in primiparous women ($p < 0.00$), those who had an IVD ($p < 0.00$), with the use of syntocinon ($p < 0.00$), shoulder dystocia ($p < 0.00$), and high neonatal weight ($p < 0.00$) (Table II). On comparing the degree of tears according to the mode of delivery, perineal tears were significantly higher in women without episiotomy ($p < 0.00$).

Table III compares the degree of perineal tears in different modes of delivery in women with or without episiotomy. In the absence of episiotomy, women were 2.49 times more likely to have a major degree tear with forceps vaginal delivery and 4.8 times more likely with ventouse delivery than women with episiotomy.

Discussion

The findings of our study revealed an incidence of perineal tears of 11.9%, with minor tears (first and second degree) in 740 (84.5%) patients, while major tears (third and fourth degree) occurred in 136 (15.5%)

Table I: Demographic characteristic of the study population (n=876).

Variables	Frequency (%)
Maternal age	
Mean ± SD	30.19+6.10
Range	15-45
≤ 25 years n (%)	01 (0.1%)
26–30 years	411 (46.9%)
31–35 years	419 (47.8%)
> 35 years	45 (5.1%)
BMI	
Mean ± SD	32.02+2.77
Range	25-40
≤ 25 kg/m ²	470 (53.7%)
25.1–30 kg/m ²	10 (1.1%)
> 30 kg/m ²	395 (45.1%)
Gestational age	
Mean ± SD	38.9+1.53
Range	36-42
Preterm (<37)	167 (19.1%)
Term (37–42w)	568 (64.8%)
Post-term (>42w)	141 (16.1%)
Parity	
Primigravida	578 (66%)
Multigravida	298 (34%)
Episiotomy	323 (36.9%)
Booking status	115 (13.1%)
Mode of delivery	
SVD	594 (67.8%)
IVD	282 (32.2%)
Induction of labour	214 (24.4%)
Syntocinon	213 (24.3%)
Literacy	
Literate	65 (7.4%)
Illiterate	811 (92.6%)
Shoulder dystocia	63 (7.2%)
Duration of the second stage of labour	
Median (IQR)	70 (63)
Range	26-125
≤ 35 min	161 (18.6%)
36–120 min	645 (73.6%)
> 120 min	70 (8%)
Fetal position	
Occiput-anterior	763 (87.1%)
Occiput-posterior	113 (12.9%)

patients. This is in line with the results of a study conducted in Ethiopia, which showed a frequency of 13.2%,¹¹ but other local studies have shown a lower frequency of 7.55% and 9.8%.^{5, 12} According to a clinical audit of major degree perineal tears, the frequency of OASIS (obstetric anal sphincter injuries) was 0.56% over 10 years, with 69% occurring in nulliparous.¹³ Primiparity, IVD, syntocinon use, shoulder dystocia, and high birth weight were significantly associated with major tears in the current study.

Primiparity and maternal age are documented to be associated with perineal tears in many other studies.^{5, 12, 14} Abedzadeh-Kalahroudi showed that perineal injury was 18.46 times more likely in primiparous women after adjusting for the other factors.¹⁵ This could be due to the finding that younger women have relatively inelastic perineum.

Table II. Comparison of Demographic and Obstetric characteristics between Types of Perineal tears (n=876).

Variables	Minor=740	Major=136	p-value
Maternal age	30.12+6.14	30.61+5.9	0.386 ^a
BMI	32.05+2.78	31.82+2.76	0.37 ^a
Gestational age	39.05+1.49	38.25+1.60	0.00 ^a
Parity			
Primiparous	543 (73.4%)	35 (25.7%)	0.00 ^b
Multiparous	197 (25.7%)	101 (74.3%)	
Episiotomy	270 (36.5)	53 (38.9%)	0.581 ^b
Mode of delivery			
SVD	549 (74.2%)	45 (25.8%)	0.00 ^b
IVD	191 (25.8%)	91 (66.9%)	
Induction of labour			
Yes	185 (25%)	29 (21.3%)	0.359 ^b
No	555 (75%)	107 (78.7%)	
Syntocinon			
Yes	155 (20.9%)	58 (42.6%)	0.00 ^b
no	585 (79.1%)	78 (57.4%)	
Literacy			
Literate	52 (7%)	13 (9.6%)	0.30 ^b
Illiterate	688 (93%)	123 (90.4%)	
Shoulder dystocia			
Yes	24 (3.2%)	39 (28.7%)	0.00 ^b
No	716 (96.8%)	97 (71.3%)	
Fetal position			
Occiput-anterior	643 (86.9%)	120 (88.2%)	0.66 ^b
Occiput-posterior	97 (13.1%)	16 (11.8%)	
Duration of the second stage of labour	39 (36-42)	38 (36-42)	0.11 ^c
Neonatal weight	2.7 (2-4.7)	3.6 (2-5)	0.00 ^c

Table III: Comparison of type of delivery with the severity of tears.

Type of delivery ± episiotomy	Minor tears n (%)	Major tears n (%)
Spontaneous vaginal delivery		
+ Episiotomy	200 (27%)	31 (22.8%)
- Episiotomy	348 (47%)	14 (10.3%)
Forceps vaginal delivery		
+ Episiotomy	35 (4.7%)	16 (11.8%)
- Episiotomy	72 (9.7%)	40 (29.4%)
Ventouse vaginal delivery		
+ Episiotomy	35 (4.7%)	06 (4.4%)
- Episiotomy	49 (6.6%)	29 (21.3%)

Similar to the findings of other studies, the use of oxytocin was significantly associated with perineal tears.^{5, 16} According to Haadem et al., this association could be due to the inelastic vaginal tissue resulting in the slow progress of labour, and hence the need for oxytocin.¹⁶

This study showed that major tears occurred mostly in patients with a higher neonatal weight, and in deliveries complicated by shoulder dystocia. Similar findings were observed in other studies^{5, 11, 17, 18} However, Masoumeh Abedzadeh-Kalahroudi failed to show an association between the weight of the newborn and perineal trauma.¹⁵ This could be due to elective caesarean section for diagnosed macrosomia and fewer vaginal deliveries in their study.

A study evaluating the incidence of perineal tears in primiparous women revealed that vacuum vaginal delivery was independently associated with second and major degree perineal tears, 2.53 (95% CI: 1.07, 5.98). Post-term delivery and shorter second stage of labour (equal to or less than 15 minutes) were significantly associated with second-degree perineal tears.¹⁹

Episiotomy is usually used to facilitate childbirth and prevent severe perineal tears by increasing the capacity of the pelvic outlet. However, data reveal that perineal lacerations are usually smaller and fast recovering than episiotomy.²⁰ The frequency in our study was 36.9%, which is comparable to the frequency reported internationally,²¹ however it is much lower than the figures reported from studies conducted in tertiary care hospitals in Pakistan with a frequency of 70.77% and 71.4%.^{5,12} This could be due to our department's protocol of discouraging elective episiotomies in every primigravidae and using it when needed.

The current study showed a protective effect of episiotomy on both minor and major perineal tears in patients with forceps, and ventouse delivery, which is supported by other studies, that have revealed a negative correlation between mediolateral episiotomy (MLE) and major tears in forceps and ventouse delivery but an insignificant difference in women with an SVD.¹⁰ A ten-year analysis of the Dutch Perinatal Registry revealed that the incidences of major tears after forceps vaginal delivery in primiparous women were 3.4% in women with MLE versus 26.7% in women without MLE (adjusted OR 0.09, 95% CI 0.07-0.11), and 2.6% versus 14.2% respectively, in multiparous women with and without MLE (adjusted OR 0.13, 95% CI 0.08-0.22).²² Similarly, another study of 1530 IVD by Mazeau PC et al. reported significantly less OASIS following episiotomy ($p < 0.0001$).²³

However, unlike the findings of our study, a randomized trial by Neelam et al. showed that the rate of severe perineal tears was significantly higher in patients who receive episiotomy in comparison to those without episiotomy (60.87% vs. 47.83% $p = 0.019$).²⁴

The strength of our study is the inclusion of a large number of women and all types of vaginal deliveries conducted during the study period. Its limitation includes its retrospective nature.

Conclusion

In conclusion, this study shows that primiparity, IVD, the use of syntocinon, shoulder dystocia, and high birth weight were significantly associated with major tears.

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