

# Frequency - Risk Factors and Severity of Perineal Tear

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## ABSTRACT

**OBJECTIVE:** To find out the frequency, risk factors and severity of perineal tear during vaginal delivery in the parturients at the tertiary care hospital.

**METHODOLOGY:** A retrospective observational study was conducted in the Gynecology and Obstetrics Department, Liaquat University of Medical and Health Sciences, Jamshoro/ Hyderabad, from January to December 2018. During the study period, 130 women who had tears were included. The sampling technique was non-probability convenient. Inclusion criteria were singleton term pregnancy with vertex presentation and perineal tear. Parameters included in the study were age, parity, oxytocin use, with or without episiotomy, and instrumental delivery. Birth attendants were house officers, postgraduate trainees, and registrars, as well as the mode of delivery, neonatal weight, and severity of tear. SPSS version 16 was used to enter and analyze data.

**RESULTS:** The frequency of tears was 7.55%. Fifty-one (39.23%) were 26-30 years old. Seventy-five (57.69%) were Primigravida. Eighty-three (63.8%) had oxytocin used. Ninety-two (70.7%) had mediolateral episiotomy, ninety-eight (76.1%) had spontaneous delivery, and twenty-nine (22.30%) had vacuum delivery. Seventy-nine (60.76%) babies were >3.5kg. Ninety (69.23%) had first-degree tears. Tears were more when the house officer and junior trainee than the registrar carried out deliveries.

**CONCLUSION:** The majority of women had a spontaneous vaginal delivery and had first and second-degree tears. Primigravida, mediolateral episiotomy, induced/augmented labour, birth weight > 3.5 kg and inexperienced doctors are the risk factors for tear. Knowledge of these risk factors will guide the prediction of perineal tears among parturients.

**KEYWORDS:** Perineal tear, Frequency, risk factors, severity, episiotomy, instrumental delivery.

## INTRODUCTION

Perineal trauma is common during vaginal delivery, and it is associated with short-term significant morbidities like hemorrhage, infection, and pain, as well as long-term morbidity in terms of perineal pain, persistent pelvic pain, dyspareunia, anal sphincter injury, asymmetry, and faecal incontinence<sup>1-4</sup>, near 2.8% of primiparous and 0.4% of multigravida experience third and fourth-degree tear with flatus and faecal incontinence<sup>4</sup>.

There are four degrees of perineal tear. The first-degree tear involves vaginal mucosa only; the second-degree tear involves vaginal mucosa and perineal muscles and rectovaginal fascia resulting in pelvic organ prolapse and rectocele and also affects sexual functions<sup>5</sup>; the third-degree involves anal sphincter and rectal mucosa are involved in fourth-degree tear. Risk factors for a perineal tear are primipara, macrosomia, episiotomy, induction of labor, instrumental delivery, and fetal head malposition<sup>6</sup>. Short perineum is seen in Asian women and has a

lesser degree of stretch and a high risk of fetomaternal disproportion, so episiotomy is routinely performed to assist in vaginal delivery, which is also a risk factor for perineal tear<sup>7</sup>. Perineal tissues expand more easily during labor and reduce the need for episiotomy, hence perineal trauma. A study by Beckman showed that if a parturient or her partner performs the antenatal digital massage started from 35 weeks of pregnancy for one month as well as massaging the perineal area during the second stage of labor reduces the risk of perineal tear as well as decreases the need for episiotomy<sup>8</sup>. It is now recommended that restricted episiotomy is beneficial for women and reduces the severity of perineal tear<sup>9</sup>. Some suggested that skilled healthcare professionals at the delivery time are essential in safe motherhood from pregnancy to childbirth<sup>10</sup>. Our study aims were to find out the risk factors and severity of perineal tear at vaginal delivery so try to avoid these in the future and their associated morbidity.

## METHODOLOGY

A retrospective observational study was conducted in the Obstetrics and Gynecology Department, Liaquat University of Medical and Health Sciences, Jamshoro/ Hyderabad, from January to December 2018. Departmental approval was obtained for data collection from hospital records. Inclusion criteria were women with a term singleton pregnancy with cephalic

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presentation who delivered at the hospital and had some degree of perineal tear. Exclusion criteria were preterm, breech, multiple gestation, and antepartum hemorrhage. Information extracted included age, parity either primiparous or multiparous, with or without mediolateral episiotomy, mode of delivery either spontaneous, instrumental delivery such as vacuum or forceps assisted, Birth attended were divided into house officer, post-graduate trainee or registrar, the weight of babies at Birth and severity of the perineal tear.

The sampling technique is by applying the nonprobability convenient technique. The sample size for this study was obtained by applying the formula:

$$n = \frac{z^2 pq}{d^2}$$

Statistical Package for Social Sciences (SPSS) version 16.0 was used to enter and analyze the data. Frequencies and percentages were calculated.

## RESULTS

The total number of vaginal deliveries during the study period was 1720. Of them, 130 women sustained some degree of perineal tear, giving an overall frequency of perineal tear of 7.55%. The majority of 51 (39.23 %) of women were in the age group between 26-30 years. Regarding parity, most of the parturients seventy-five (57.69%) were primipara (p1), thirty (23.07%) were para2, and fifteen (11.53%) were Para 3 (**Table I**). Ninety-two (70.7%) women had a mediolateral episiotomy, and eighty-three (63.8%) had oxytocin for induction or augmentation of labor. Spontaneous vaginal deliveries were in ninety-eight (76.15%) of women, twenty-nine (22.30%) of women had vacuum delivery, and three (2.3%) had a forceps delivery. The birth weight of babies was >3.5 kg in seventy-nine (60.76%) and <3.5 kg in fifty-one (39.23%) (**Table II**). The most frequent finding observed was a first-degree perineal tear in ninety (69.23%) of women, followed by second degree seen in thirty (23.07%), eight (6.15%) had a third-degree tear, and two (1.53%) of women had a fourth-degree perineal tear (**Table III**). Perineal tears were more frequent when deliveries were carried out by house officers and junior postgraduate trainees 110 (84.6%) than registrars 20(15.38%).

**TABLE I: AGE AND PARITY OF PATIENTS (n =130)**

Age	Number	Percentage
20-25	38	29.23
26-35	51	39.23
31-35	29	22.30
>35	12	9.23
<b>Parity</b>		
P1	75	57.69
P2	30	23.07
P3	15	11.53
>P4	10	7.69

**TABLE II: CHARACTERISTIC OF DELIVERY AND FETAL BIRTH WEIGHT (n=130)**

Episiotomy	Number	Percentage
None	38	29.23
Mediolateral	92	70.77
<b>Oxytocin</b>		
Used	83	63.8
Not used	47	36.1
<b>Mode Of Delivery</b>		
Spontaneous	98	76.15
Vacuum Delivery	29	22.30
Forceps Delivery	3	2.30
<b>Fetal Birth Weight</b>		
<3.5 kg	51	39.23
>3.5 kg	79	60.76
<b>Birth Attendant</b>		
Junior Doctors	110	84.61
Registrar	20	15.38

**TABLE III: SEVERITY OF PERINEAL TEAR (n= 130)**

Severity of Tear	Number	Percentage
1 <sup>st</sup> Degree	90	69.23
2 <sup>nd</sup> Degree	30	23.07
3 <sup>rd</sup> Degree	8	6.15
4 <sup>th</sup> Degree	2	1.53

## DISCUSSION

In our study, the frequency of perineal tear was 7.55%, which was higher than the study conducted in Saudi Arabia, where the frequency was 1.4%<sup>11</sup> as all deliveries were performed by experienced and trained obstetricians and less than in Nigeria<sup>12</sup> where it was 18.8% due to the routine use of episiotomy and from Lahore where it was 16.11%<sup>13</sup>.

Risk factors for a perineal tear in our study were primipara, labor induction or augmentation with oxytocin, use of episiotomy, vacuum-assisted vaginal deliveries, heavier birth weight, and when junior doctors conducted deliveries.

In our study, perineal tears were more common in women aged 26-30 (39.23%) and primipara (57.69%). It may be due to increasing pressure on the perineum or relative inelasticity or rigidity of the perineum, thus likely inevitability of the perineum to tear in nullipara and poor compliance of parturient during pushing; similar findings have been reported by other studies as well<sup>11,14-16</sup>. In our research, perineal tears were more than 83(63.8%) when oxytocin was used for induction or augmentation of labour. Similar results were also observed by Brohi ZP 2012<sup>17</sup> and Fouelifack F 2017<sup>18</sup>. In induced and augmented labour, the frequent and strong uterine contractions

and excessive pressure on the elastic perineum result in tear. So careful monitoring of parturient during labor should be done whenever it is induced or augmented with oxytocin.

In our study, eighty-six (66.1%) of perineal tears were associated with episiotomy due to either extension of incision or improper episiotomy. A similar result was seen in other studies by Brohi ZP 2012<sup>17</sup> and Groutz A et al.<sup>19</sup> and Worede DT 2020<sup>10</sup> due to the extension of episiotomy incision or inappropriate episiotomy, respectively. However, Al Thaydi AH 2018<sup>11</sup> and Smith LA 2013<sup>20</sup> did not find perineal tear association with episiotomy. Borgotta L 1989<sup>21</sup> found an increased risk of anal sphincter injury when mediolateral episiotomy was used in multiparous women because of the lax vagina. Still, it decreased the risk of tears when used in nulliparous women. Studies have demonstrated that mid-line episiotomy is associated with severe trauma than no episiotomy. In our research, mediolateral episiotomy was performed in difficult or instrumental deliveries and was associated with severe perineal trauma.

Ninety-eight (76.15) delivered spontaneously, and 22.30% of women delivered with vacuum had perineal tears, which is comparable with other studies<sup>10,11,19,22</sup>. The association of perineal tears with vacuum is due to the use of episiotomy, and the velocity of extraction with vacuum is high, resulting in tears; however, a secondary care hospital study revealed that tears were more when forceps were used<sup>17</sup>. In our research, the vacuum was the main reason for the tear because postgraduates at our institute are more familiar with vacuum use than forceps.

Birth weight of a baby >3.5 kg was a contributing factor in 60.76% of perineal tears due to episiotomy and instrumental delivery; it was supported in other studies by Parveen R 2018<sup>23</sup> in Multan and Worede DT 2020<sup>10</sup> in Ethiopia. However, no such association of perineal tear with the birth weight of a newborn was found by TO Egbe 2016<sup>24</sup> in Cameroon.

As far as delivering personnel/ birth attendants were risk factors, the frequency of perineal tears was more than 110 (84.6%) when house officers and junior postgraduates carried out difficult deliveries; a similar result was found in other studies also<sup>16,17</sup>. It may be due to lack of experience, lack of intrapartum as well as lack of perineal care in the second stage of labor. In our study, 69.23% were first-degree, and 23.07% were second-degree tears. Severe degrees of perineal tear (third and fourth-degree tear) were seen in 7.68%. Similar results were also observed in a study conducted in Guinea<sup>25</sup> as the result of episiotomy, heavier birth weight, and instrumental vaginal delivery. A study conducted in Catalonia<sup>9</sup> showed a higher proportion of first and second-degree perineal tears. Still, the proportion of severe degree of perineal tear was less than 1% with or without episiotomy because they excluded instrumental vaginal deliveries from the study conducted in Uganda<sup>26</sup> found the frequency of third and fourth-

degree tears were 6.6% as the result of prolonged second-stage, episiotomy, and referral case.

## CONCLUSION

In our study majority of women had a spontaneous vaginal delivery and had first and second-degree perineal tears. Primigravida, mediolateral episiotomy, induced/augmented labor, baby birth weight > 3.5 kg, and when junior and inexperienced doctors carried out deliveries are the risk factors for perineal tear. Knowledge of these risk factors will guide the prediction of perineal tears among parturients in the labor ward.

## RECOMMENDATIONS

Identification of risk factors, vigilant intrapartum care, perineal massage, adequate perineal support during the second stage of delivery, and vigilant supervisor can reduce the frequency and associated morbidity of perineal tears.

**Conflict of Interest:** There is no conflict of interest among the authors.

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## DATA SHARING STATEMENT

The data supporting this study's findings are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

## AUTHOR CONTRIBUTION

Farhana Shaikh: Conceive and design study, analyses and interpretation of data.

Chandra Madhudas: Drafting of manuscript.

Najma Bano: Editing and final approval of the manuscript.

Fozia Shaikh: Analyses and Interpretation of data.

Samina Shaikh: Collection of data

Sajida Yousfani: Final approval of the manuscript.

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