

ORIGINAL ARTICLE

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 obstetrics and gynecology department of Liaquat University of Medical and Health Sciences Jamshoro/ Hyderabad from January to December 2018. During study period 130 women had tear were included in study. The sampling technique was non probability convenient. SPSS version 16 was used to enter and analyze data. Inclusion criteria were singleton term pregnancy with vertex presentation and perineal tear. Parameters included in study were age, parity, oxytocin use, with or without episiotomy, instrumental delivery. Birth attendant were house officer, post graduate trainee and registrar, mode of delivery, neonatal weight and severity of tear.

RESULTS: The frequency of tear was 7.55%. Fifty-one (39.23%) was in age group of 26-30 years. 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, twenty-nine (22.30%) had vacuum delivery. Seventy-nine (60.76%) baby were >3.5kg. Ninety (69.23%) had first degree tear. Tears were more when deliveries were carried out by house officer and junior trainee than registrar.

CONCLUSION: Majority of women had spontaneous vaginal delivery and had first and second degree tears. Primigravida, mediolateral episiotomy, induced / augmented labour, birth weight > 3.5 kg and inexperience doctors are the risk factors for tear. Knowledge of these risk factors will guide in predicting perineal tear among parturients.

KEY WORDS: 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, pain as well as long-term morbidity in terms of perineal pain, persistent pelvic pain, dyspareunia, anal sphincter injury, asymmetry, and faecal incontinence¹⁻⁴. Near 2.8% of primiparous and 0.4% of multigravida experience third and fourth-degree tear with flatus and faecal incontinence⁴.

There are four degrees of perineal tear. The first-degree tear involves vaginal mucosa only, second-degree tear involves vaginal mucosa and perineal muscles and rectovaginal fascia resulting in pelvic organ prolapse, rectocele and also effect sexual functions⁵, third-degree involve anal sphincter and rectal mucosa is involved in fourth degree tear.

Risk factors for a perineal tear are primipara, macrosomia, and episiotomy, induction of labor, instrumental delivery, and fetal head malposition⁶. Short perineum is seen in Asian women and has a lesser degree of stretch and high risk of fetomaternal disproportion, so episiotomy is routinely performed to assist in vaginal delivery which is also a risk factor for perineal tear⁷. Perineal tissues expand more easily during labor and reduce the need for episiotomy hence perineal trauma. A study by Beckman showed that if antenatal digital massage is performed by parturient or her partner started from 35 weeks of pregnancy for 1 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 episiotomy⁸. It is now recommended that restricted episiotomy is beneficial for women and reduces the severity of perineal tear⁹. Some recommended that the presence of skilled health care professionals at the time of delivery is important to factor for safe motherhood from pregnancy to child birth¹⁰. 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 its associated morbidity.

METHODOLOGY

A retrospective observational study was conducted in the obstetrics and gynecology department of Liaquat University of medical and health sciences Jamshoro / Hyderabad from January to December 2018. Data were collected from hospital records so departmental approval was obtained. Inclusion criteria were women with a term singleton pregnancy with cephalic 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 were 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 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. Out 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. With regards to parity, most of 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, 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**). The frequency of perineal tears was more 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
Parity		
P1	75	57.69
P2	30	23.07
P3	15	11.53
>P4	10	7.69

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

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

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

Severity Of Tear	Number	Percentage
1 st Degree	90	69.23
2 nd Degree	30	23.07
3 rd Degree	8	6.15
4 th Degree	2	1.53

DISCUSSION

In our study frequency of perineal tear was 7.55% it was higher than the study conducted in Saudi Arabia where the frequency was 1.4%¹¹ as all deliveries were conducted by experienced and trained obstetricians and less than Nigeria¹² where it was 18.8% due to the routine use of episiotomy and from Lahore where it was 16.11%¹³.

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 deliveries were conducted by junior doctors.

In our study, perineal tears were more in women of age group 26-30 years (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^{11,14-16}. In our study, perineal tears were more 83(63.8%) when oxytocin was used for induction or augmentation of labour. Similar results were also observed by Brohi ZP 2012¹⁷ and Fouelifack F 2017¹⁸. In induced and augmented labour, the frequent and strong uterine contractions and excessive pressure on inelastic 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 as the result of either extension of incision or improper episiotomy. A similar result was seen in other studies by Brohi ZP 2012¹⁷ and Groutz A et al¹⁹ and Worede DT 2020¹⁰ due to the extension of episiotomy incision or inappropriate episiotomy respectively, however, Al Thaydi AH 2018¹¹ and Smith LA 2013²⁰ did not find an association of perineal tear with episiotomy. Borgotta L 1989²¹ found an increased risk of anal sphincter injury when mediolateral episiotomy was used in multiparous women because of the lax vagina but decrease the risk of tear when used in nulliparous women. Studies had demonstrated that mid-line episiotomy is associated with severe trauma than no episiotomy. In our study mediolateral episiotomy was performed in difficult or instrumental deliveries and was associated with severe perineal trauma.

Ninety eight (76.15) delivered spontaneously, 22.30% of women delivered with vacuum had perineal tear which is comparable with other study^{10,11,19,22}. Association of perineal tear with vacuum is due to use of episiotomy and the velocity of extraction with vacuum is high so result in tear however study from secondary care hospital revealed that tears were more when forceps were used¹⁷. In our study vacuum was the main reason for tear because, in our institute, postgraduates are more familiar with vacuum use than forceps.

Birth weight of baby >3.5 kg was a contributing factor in 60.76% of perineal tear, due to use of episiotomy and instrumental delivery, it was supported in other studies by Parveen R 2018²³ in Multan and Worede DT 2020¹⁰ in Ethiopia, however, no such association of perineal tear with a birth weight of newborn was found by TO Egbe 2016²⁴ in Cameroon.

As far as delivering personnel/ birth attendants were risk factors, frequency of perineal tear were more 110 (84.6%) when difficult deliveries were carried out by house officer and junior postgraduate, the similar result was found in other studies also^{16, 17}. 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 Guinea²⁵ as the result of episiotomy, heavier birth weight, and instrumental vaginal delivery. In a study conducted in Catalonia⁹ there were a higher proportion

of first and second-degree perineal tears but the proportion of severe degree of perineal tear was less than 1% with or without episiotomy because they exclude instrumental vaginal deliveries from the study. Another study conducted in Uganda²⁶ 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 deliveries were carried out by junior and inexperienced doctors are the risk factors for perineal tear. Knowledge of these risk factors will guide in predicting perineal tear 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 tear.

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

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DATA SHARING STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

AUTHOR CONTRIBUTIONS

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

REFERENCES

1. Kean L. Perineal trauma. In: luesly DM, Baker PN, eds. *Obstetrics and Gynaecology: An evidence based text for MRCOG*. 2nd ed. London: Hodder Arnold 2010; 447-56.
2. Fazari AB, Fahad A, Husbaishi LYA. Perineal tears in childbirth - A Review. *J Univ Surg*. 2020; 8(5): 1-4. doi: 10.36648/2254-6758.8.5.132.
3. Gommesen D, Nohr E, Qvist N, Rasch V. Obstetric perineal tear, sexual function and dysperunia among primiparous women 12 month postpartum: A prospective cohort study. *BMJ Open*. 2019; 9(12): e32368. doi: 10.1136/bmjopen-2019-032368.
4. Grobman WA, Bailit JL, Rice MM, Wapner RJ, Reddy UM, Varner MW, et al. Racial and ethnic disparities in maternal morbidity and obstetric care. *Obstet Gynecol*. 2015; 125(6): 1460-7. doi: 10.1097/AOG.0000000000000735.
5. Papoutsis D, Antonakou A, Gornall A, Tzavara C. The incidence of and predictors of severe perineal trauma and intact perineum in women having a water birth in England. A hospital based–study. *J Womans Health*. 2021; 30(5): 681-8. doi: 10.1089/jwh.2019.8244.
6. Wang H, Jayasekara R, Warland J. The effect of “hands on” techniques on obstetric perineal laceration: A structured review of the literature. *Women Birth*. 2015; 28(3): 194-8. doi: 10.1016/j.wombi.2015.02.006.
7. Hsieh WC, Liag CC, Dennis WU. Prevalence and contributing factor for severe perineal damage following episiotomy assisted vaginal delivery: Taiwan *J Obstet Gynae*. 2014; 53(4): 481-5. doi: 10.1016/j.tjog.2013.07.002.
8. Beckmann MM, Stock OM. Antenatal perineal massage for reducing perineal trauma. *Cochrane Database Syst Rev*. 2013; 4: CD005123. doi: 10.1002/14651858.CD005123.pub3.
9. Escuriet R, Pueyo MJ, Garcia-Lausin D, Obregon N, Perez-Botella M, Lopez JM, et al . Vaginal delivery care episiotomy performed and examination of perineal tears: Cross sectional study in 43 public hospitals. *Obstet Gynecol Int J*. 2017; 7(6): 00270. doi: 10.15406/ogij.2017.07.00270.
10. Worede DT, Alemu S, Tsegaye TB. Risk factors for severe perineal laceration among vaginally delivered mother in public hospital in Ethiopia: Unmatched case control study. *Prime Healthcare*. 2020; 10(4): 001-005.
11. Al Thaydi AH, Al Ghamdi T, Chamsi AT, EL-Marwadi E. Perineal Tears Incidence. and Risk Factors; A four year experience in a single Saudi centre. *Interv J Gynae Womens Healthcare*. 2018; 1(5): 100-103. doi: 10.32474/IGWHC.2018.01.000122.
12. Ola ER, Bello O, Abudu OO, Anorlu RI. Episiotomies in Nigeria: should their use be restricted? *Niger Postgrad Med J*. 2002; 9(1): 13-16.
13. Sajid A, Ali HS, Sajid A, Hanif A. Comparasion of perineal tear in primigravida during vaginal delivery at term with and without medio-lateral episiotomy. *Ann King Edward Med Univ*. 2019; 25(3): 1-6.
14. Moller Bek K, Laurberg S. Intervention during labour: risk factor associated with complete tear of anal sphincter. *Acta Obstet Gynecol Scand*. 2992; 71(7): 520-4. doi: 10.3109/00016349209041443.
15. Christianson LM, Bovbjerg VE, McDavitt EC, Hullfish KL. Risk factors for perineal injury during delivery. *Am J Obstet Gynecol*. 2003; 189(1): 255-60. doi: 10.1067/mob.2003.547.
16. Hauck YL, Lewis L, Nathan EA, White C, Doherty DA. Risk factors for severe perineal trauma during vaginal childbirth: A Western Australian retrospective cohort study. *Women Birth*. 2015; 28(1):16-20. doi: 10.1016/j.wombi.2014.10.007.

17. Brohi ZP, Sadaf A, Zohra N, Parveen U. Frequency and severity of perineal tear in countess lady dufferin fund hospital Hyderabad. *J Pak Med Assoc.* 2012; 62(8): 803-6.
18. Fouelifack F, Essiben F, Kemadjou TL. Risk factor for genital tract laceration at Yaunde central hospital - Cameroon: A case control study. *J Adv Med Med Res.* 2017; 20(2): 1-8.
19. Groutz A, Cohen A, Gold R, Hasson J, Wegnier A, Lessing JB, et al. Risk factors for severe perineal injury during child birth: A case control study of 60 consecutive cases. *Colorectal Dis.* 2011; 13(8): e216-9. doi: 10.1111/j.1463-1318.2011.02620.x.
20. Smith LA, Price N, Samonite V, Burns EE. Incidence of and risk factor for perineal trauma: A prospective observational study. *BMC Pregnancy Childbirth.* 2013; 13: 59. doi: 10.1186/1471-2393-13-59.
21. Borgotta L, Piening SL, Cohen WR. Association of episiotomy and delivery position with deep perineal laceration during spontaneous delivery in nulliparous women. *Am J Obstet Gynecol.* 1989; 160(2): 294-7. doi: 10.1016/0002-9378(89)90428-6.
22. Jansson MH, Franzen K, Hiyoshi A, Tegerstedt G, Dahlgren H, Nilsson K. Risk factor for perineal and vaginal tears in primiparous women - The Prospective POPRACT Cohort study. *BMC Pregnancy Childbirth.* 2020; 20(1): 749. doi: 10.1186/s12884-020-03447-0.
23. Parveen R, Sadiq Q, Ali S. Perineal Tears: Frequency and severity of perineal tear among women during vaginal delivery: *Professional Med J.* 2018; 25(10): 1532-36. doi: 10.29309/TPMJ/18.3614.
24. TO Egbe, LN Kdeem, WA Takang. Prevalence and risk factors of perineal tears at the Limbe regional hospital, Cameroon prospective. *Int J Reprod Fertil Health.* 2016; 3(3): 70-78. doi: 10.19070/2377-1887-1600013.
25. Bah HO, Diallo AB, Soumah AMF, Diallo BS. Prevalence and characteristic of accidental perineal tears during childbirth in a communal medical centre in Guinea-Conakry: A cross-sectional study. *Int J Reprod Contracept Obstet Gynecol.* 2020; 9(1): 389-393.
26. Ali M, Migisha R, Ngozni J, Mahumuza J. Risk factors for obstetric anal sphincter injuries among women delivering at tertiary hospital in south western Uganda. *Obstet Gynecol Int.* 2020; 2020: 6035974.