Frequency and severity of perineal tears in Countess Lady Duffrin Fund Hospital, Hyderabad

Zahida Perveen Brohi,[1] Aneela Sadaf,[2] Nishat Zohra,[3] Uzma Perveen[4]

Department of Obstetrics & Gynaecology, Isra University Hospital,[1,3,4] Countess Lady Duffrin Fund Hospital (CDF),[2] Hyderabad Sindh, Pakistan.

Corresponding Author: Zahida Perveen Brohi. Email: zahidaparveen66@yahoo.com

Abstract

Objective: To observe the frequency and severity of perineal tears during vaginal delivery.

Methods: It was a prospective observational study done at the Countess Lady Duffrin Fund Hospital, Hyderabad, Pakistan, from December 1, 2009 to May 31, 2010. Women with full-term singleton pregnancy primigravida or multigravida, in active labour were included in the study. Patients with pre-term labour, breech presentation and antepartum haemorrhage were excluded, leaving the study population to be 147/1488. A pre-designed structured proforma was used after informed verbal consent by the patient. All results were analysed on SPSS version 11. Frequencies and percentages were calculated, while Spearman's rho test (two-tailed) was applied for categorical variables. A p-value of less than or equal to 0.05 was considered significant.

Results: The frequency of perineal tears in our study was 147/1488 (9.8%). The mean age was 28.08±7.47, ranging between 17-42 years. The vast majority, 100 (68%) delivered spontaneously, 45 (30.6%) were delivered with help of the forceps, and only 2 (1.4%) had vacuum delivery. Parity, oxytocin use, mediolateral episiotomy, forceps use, weight of babies>3.6kg were significantly associated with perineal tears.

Conclusion: Perineal tears cause considerable post-natal morbidity. Identification of risk factors, vigilant monitoring during labour and good perineal support is recommended for minimising the risk of perineal trauma as well as morbidity.

Keywords: Perineal tears, Risk factors, Forceps-assisted delivery, Mediolateral episiotomy. (JPMA 62: 803; 2012)

Introduction

Perineal trauma is a common event in first labours, affecting up to 90 percent of primigravidas and is sometime associated with considerable post-natal morbidity and mortality.[1] These patients are at an increased risk of recurrent severe perineal lacerations in subsequent deliveries.[2] Many of these patients develop subsequent anal incontinence and sexual dysfunction despite an adequate primary sphincter repair.[3] Around 3-4% of women after childbirth suffer from faecal incontinence which is because of occult anal sphincter injury that has either been missed or it has been wrongly classified as a second-degree tear.[4] Women are biologically more vulnerable to perineal injuries as they have low maximum resting anal pressure, low voluntary contraction pressure, and more perineal descent on straining as compared to men. Advancing age leads to perineal descent at rest and decreased puduendal nerve conduction. A decline in resting anal pressure and decreased ano-rectal sensory function leads to lower anal squeeze pressure.[5] Several risk factors such as nulliparity, prolonged labour, large babies, episiotomy, instrumental deliveries, induction of labour and the use of epidural analgesia have been reported in association with severe perineal lacerations.[6] Studies indicate that race is an independent risk factor for severe perineal lacerations after vaginal delivery, with Asian women at the highest risk.[7]

Attention should be focused on the improvement of obstetric practice to minimise perineal trauma as anal sphincter damage following delivery is significantly associated with subsequent ano-rectal complaints.[8] This study was conducted to highlight the frequency and severity of perineal tears during vaginal delivery which leads to major physical, psychological and social problems.

Patients and Methods

The prospective observational study was done at CDF Hospital, Hyderabad, Pakistan, from 1st December 2009 to 31st May 2010. Women with full-term singleton pregnancy, primigravida or multigravida, in active labour were included after taking informed comment, while patients with pre-term labour, breech presentation and ante-partum haemorrhage were excluded from the study.

At the time of admission, a detailed history was noted and relevant investigations were done. Information about the patient's labour and delivery was subsequently collected on a pre-designed structured proforma after taking informed verbal consent. The proforma was completed by the delivering

personnel (doctor/midwife on duty) and saved in a computer. The proforma included demographic data and clinical characteristics in which parity was divided into primiparous and multiparous; the type of episiotomy was mediolateral or no episiotomy; the type of vaginal delivery was divided into spontaneous, forceps and vacuum delivery; the birth attendants were divided into midwife, medical officer and registrar; and the birth-weight was divided into 5 categories. According to routine protocol, at the end of the third stage of labour, the perineum, vulva, vagina and cervix were examined for any tears and managed according to their severity.

All results were analysed on SPSS version 11. Frequencies and percentages were calculated. The effects of parity use of oxytocin, episiotomy, mode of delivery, weight of baby, and birth attendants on the degree of perineal tears were tested by Spearman's rho correlation (2-tailed). A p-value of less than or equal to 0.05 was considered significant.

The tear was categorised into four types: first-degree tear was defined as laceration limited to the superficial perineal skin or vaginal mucosa; second-degree tear was defined as laceration extending beyond fourchette, perineal skin and vaginal mucosa to perineal muscles and fascia, but not to the anal sphincter; third-degree tear included injury to fourchette, perineal skin, vaginal mucosa, muscles, and the anal sphincter; while the fourth-degree tear involved rectal mucosa as well.

Results

A total of 1488 patients were admitted for vaginal deliveries. Of them, 147 (9.8%) patients — 103 (70.1%) primiparous and 44 (29.9%) multiparous — had some perineal injuries and were included in the study.

The mean age of the study population was 28.08 ± 7.47, ranging between 17-42 years (Table-1). Most of the patients were unbooked. Of the total, 100 (68%) delivered spontanously, while 45 (30.6%) delivered with the help of forceps, and 2 (1.4%) had vaccum delivery (Table-2). Of our patients, 105 (71.4%) underwent mediolateral episiotomy and the primigravida were significantly associated with the frequency of severe lacerations ($p<0.006$). Perineal tears were significantly associated with episiotomy ($p<0.003$), and so was the use of oxytocin for either induction or

Table-1: Demographic data of study participants (n = 147).

Mean age in years	28.08 ± 7.47
Range	17-42
Residence	
Urban	68(46.3%)
Semi Urban	21(14.3%)
Rural	58(39.5%)
Socioeconomic status	
Lower	129(87.8%)
Middle	18(12.2%)
Upper	00(00%)
Literacy	
Literate	60(40.8%)
Illiterate	87(59.2%)
No of Antenatal Visits	
0 visits	87(59.1%)
1-3 visits	42(28.6%)
4-6 visits	18(12.2%)
> 7 visits	00(00%)

Table-2: Clinical Characteristics with degree of perineal tears (n=147).

Characteristics	Total patients (n=147) %	First degree perineal tear (n-%)	Second degree perineal tear (n-%)	Third degree perineal tear (n-%)	Fourth degree perineal tear (n-%)	p-value
Parity						
Primiparous	103(70.1%)	22(21.3%)	38(36.8%)	38(36.8%)	5(4.8%)	≤ 0.006*
Multiparous	44(29.9%)	22(50%)	9(20.4%)	12(27.2%)	1(2.2%)	
Oxytocin use						
Yes	92(62.6%)	17(18.4%)	32(34.7%)	38(41.3%)	5(5.4%)	≤ 0.001**
No	55(37.4%)	27(49%)	15(27.2%)	12(21.8%)	1(1.8%)	
Episiotomy						
None	42(28.6%)	22(52.3%)	10(23.8%)	09(21.4%)	1(2.3%)	≤ 0.001*
Mediolateral	105(71.4%)	22(20.9%)	37(35.2%)	41(39.0%)	5(4.7%)	
Mode of delivery						
· Spontaneous	100(68%)	40(40%)	35(35%)	22(22%)	3(3%)	
· Forceps delivery	45(30.6%)	03(6.6%)	11(24.4%)	28(62.2%)	03(6.6%)	≤ 0.001**
· Vacuum delivery	02(1.4%)	1(50%)	1(50%)	0(0%)	0(0%)	
Birth Weight						
2-2.5 kg	8(5.4%)	4(50%)	4(50%)	0(0%)	0(0%)	
2.6-3 kg	21(14.3%)	11(52.3%)	8(38%)	2(9.5%)	0(0%)	≤ 0.001**
3.1-3.5 kg	51(34.7%)	15(29.4%)	29(56.8%)	4(7.8%)	3(5.8%)	
3.6-4 kg	56(38.1%)	12(21.4%)	4(7.1%)	38(67.8%)	2(3.5%)	
> 4 kg	11(7.5%)	2(18.1%)	2(18.1%)	6(54.5%)	1(9%)	

*P-value is statistically significant.
**P value is statistically highly significant.

augmentation of labour (p<0.001). Third-degree perineal tears were more frequent with forcep assisted deliveries, 28 (62.2%) (p <0.00).

The occurrence of tears was in 51 (34.7%) cases when the birth weight of the baby was in the range of 3.1-3.5 kg, 56 (38.1%) cases in 3.6 - 4 kg, and 11 (7.5%) cases when it was more than 4 kg, (p <0.00).

The perineal tears were more frequent when the deliveries were conducted by midwives, 67 (45.6%), and junior medical officers, 79 (53.7%). The incidence of tears was very low when the deliveries were conducted by the registrar (p <0.005) (Table-3).

Discussion

The study showed that the frequency of perineal tears was (9.8%) which was comparable with another study conducted at Liaqat University Hospital, Hyderabad, which showed the frequency to be 9.9%.[9] In our study nulliparous women were at more risk of the tear than multiparous. The relative inelasticity of the perineum in nulliparae, which is reduced after one or more deliveries, might be responsible for this.[10] The induction with oxytocin is significantly associated with perineal tear, Haadem et al[11] had the same results, and suggested that this might be due to increased pressure on the perineum or the inelastic vaginal tissue which might be responsible for the slow progress of labour, hence indicating the use of oxytocin.[11] There was strong association between episiotomy and perineal tears (p<0.001) in our study, Bek and Laurberg[12] also found an increased risk of anal sphincter tear when mediolateral episiotomy was used (OR 2.8 [95% CI 1.6-5]), while Borgatta et al[13] .found a decreased risk of anal sphincter tear when mediolateral episiotomy was used in nulliparous women, but an increased risk when used in multiparous women. Episiotomy is the most common operation in obstetrics.[3] and is used to facilitate the delivery and avoid the foetal trauma, like intracranial haemorrhage and distress, and also to decrease the chance of prineal and pelvic floor damage. Studies have demonstrated that midline episiotomy carries a high risk of severe perineal lacerations than no episiotomy.[14-16] As in this study, mediolateral episiotomy demonstratesd very high rate of perineal tears. It is possible that mediolateral episiotomy was chosen when a difficult delivery or instrumental delivery was conducted. This might explain the almost two-fold increase in the risk for severe laccerations in this study. Other studies[17,18] have demonstrated that mediolateral episiotomy is associated with incereased risk of anal sphincter injuries, whereas others have found it to be protective against severe anal sphincter injuries.[19,20] Instrumental deliveries, especially forcep deliveries, were associated with 21% of severe perineal tears in our study. Similar findings have been reported by other authors.[21] In addition Sultan et al reported endosonography sphincter defects in 80% of forcep deliveries compared with none of the vaccum deliveries. A reason for this difference might be the velocity of extraction, which is higher in forceps delivery and may lead to more trauma. Also, the placement of forceps over the foetal skull enlarges the cranial diameter, causing a higher risk of perineal trauma than in vaccum extraction.[4] However, most women report infrequent problems and there is no difference in long-term follow-up between forceps and vaccum deliveries.[22]

The current study indicated a positive association between third degree perineal tears and birthweight over 3600g-4000g, while Bek et al[12] found strong assocaiton betrween third degree perineal tears and birthweight over 4000g.[9]

In our study, another important risk factor found was the high incidence of tears when difficult deliveries were conducted by midwives and junior doctors. There have been few investigations into the relationship between birth attendnce level and the incidence of severe perineal lacerations after vaginal delivery. Anthony et al[23] found that midwives had a significantally lower rate of severe lacerations compared to junior residents and medical students.

Research studies investigating anal sphincter damage have demonstrated sphincter defects visible on ultrasound in 40% of women after vaginal delivery of their first baby, although two-third of these were asymptomatic.[24]

The exact incidence of faecal incontenence is not known. It is common especially in older individuals and in women. The causes of faecal incontenece are multifactorial, obstetric trauma being one of the common causes. The symptoms may presents many years after the delivery and can worsen with time. The two factors implicated in the development of faecal incontinence after vaginal birth are pudendal neuropathy and structural damage to the anal sphincter.[25,26]

All women sustaining perineal trauma should be carefully examined to assess the severity of damage to the perineum, vagina and rectum. The repair must be performed or directly supervised by a practitioner trained in the repair of third and fourth degree perineal tears. At 6 to12 weeks a full evaluation of the degree of symptoms, including endosonography and manometery, should take place. Women who may have undergone a secondary anal sphincter repair should be subsequently delivered by caesarean section.

Conclusion

Perineal tears cause considerable post-natal morbidity. Identification of risk factors, vigilant monitoring and supervision by senior doctors during difficult/instrumental deliveries and good perineal support is recommended for minimising the risk of perineal trauma as well as morbidity.

Disclosure: As the Lady Durffrin (Fund) Hospital (CDF) Hyderabad does not have an Institutional Review Board, so this approval could not be obtained.

Acknowledgement

We are grateful to Dr Syed M. Tahir for his assistance in data analysis.

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. Peleg D, Kennedy CM, Merrill D, Zlatnik FJ. Risk of repetition of severe perineal laceration. Obstet Gynecol 1999; 93: 1021-4.
3. Sultan AH, Kamm MA, Hudson CN, Bartram CI. Third degree obstetric and sphincter tears: risk factors and outcome of primary repair. BMJ 1994; 308: 887-91.
4. Sultan AH, Kamm MA, Hudson CN, Thomas JM, Bartram CI. Anal-sphincter disruption during vaginal delivery. N Engl J Med 1993; 329: 1905-11.
5. Woodman PJ, Graney DO. Anatomy and physiology of female perineal body with relevance to obstetrical injury and repair. Clin Anat 2002; 15: 321-34.
6. Riskin-Mashiash S, O'Brian Smith E, Wilkins IA. Risk factors for severe perineal tear: can we do better? Am J Perinatol 2002; 19: 225-34.
7. Goldberg J, Hyslop T, Tolosa JE, Sultana C. Racial differences in severe perineal lacerations after vaginal delivery. Am J Obstet Gynecol 2003; 188: 1063-7.
8. De Leeuw JW, Vierhout ME, Struijk PC, Hop WC, Wallenburg HC. Anal sphincter damage after vaginal delivery: functional outcome and risk factors for fecal incontinence. Acta Obstet Gynecol Scand 2001; 80: 830-4.
9. Farooq S, Farook SM, Abbasi RM. Pattern of perineal tears during vaginal delivery at a public sector University Hospital of Sindh. Pak J Med Sci 2010; 26: 856-9.
10. Moller Bek K, Laurberg S. Intervention during labour: risk factors associated with complete tear of the anal sphincter. Acta Obstet Gynecol Scand 1992; 71: 520-4.
11. Haadem K, Ohrlander S, Lingman G. Long-term ailments due to anal sphincter rupture caused by delivery - a hidden problem. Eur J Obstet Gynecol Repord Biol 1988; 27: 27-32.
12. Bek KM, Laurberg S. Risk of anal incontinence from subsequent vaginal delivery after a complete obstetric anal tear. Br J Obstet Gynaecol 1992; 99: 724-6.
13. Borgotta L, Piening S, Cohen WR. Association of episiotomy and delivery opsition with deep perineal lacertation during spontaneous delivery in nulliparous women. Am J Obstet Gynecol 1989; 160: 294-8.
14. Green J, Sooho S. Factors associated with rectal injury in spontaneous deliveries. Obstet Gynecol 1989; 75: 732-8.
15. Nager CW ,Halliwell JP. Episiotomy increases perineal laceration length in primiparous women. Am J Obstet Gynecol 2001; 185: 444-50.
16. Noolley RJ. Benefits and risks of episiotomy :a review of the English -language literature since 1980 Part I. Obstet Gynecol Surv 1995; 50: 806-35.
17. Moller Bek K, Laurberg S . Intervention during labour: risk factors associated with complete tear of the anal sphincter. Acta Obstet Gynecol Scand 1992; 71: 520-4.
18. Walsh CJ, Mooney EF, Upton GJ, Motson RW. Incidence of third -degree perineal tears in labour and outcome after primary repair. Br J Surg 1996; 83: 218-21.
19. Shiono P,Klebanoff MA, Carey JC Midline episiotomies :more harm than good? Obstet Gynecol 1990; 75: 765-70.
20. Poen A, Felt-Bersma RJ, Dekker GA, Deville W, Cuesta MA, Menwissen SG. Third degree obstetric perineal tear :risk factors and the preventive role of mediolateral episiotomy. Br J Obstet Gynecol 1997; 104: 563-6.
21. Combs CA, Robertson PA, Laros RK Jr. Risk factors for third-degree and fourth-degree perineal lacerations in forceps and vacuum deliveries. Am J Obstet Gynecol 1990; 163: 100-4.
22. Johanson RB, Heycock E, Carter J, Sultan AH, Walklate K< Jones PW. Maternal and child health after assisted vaginal delivery : five year follow-up of a randomized controlled study comparing forceps and ventouse.Br J Obstet Gynecol 1999; 106: 544-9.
23. Anthony S, Buitendijk S, Zonderven KT, van Rijssel EJ, Verkerk PH. Episiotomies and the occurrence of severe perineal lacerations. Br J Obstet Gynecol 1994; 101: 1064-7.
24. Fynes M, O'Herilhy C .The influence of mode of delivery on anal sphincter injury and fecal incontinence. Obstet Gynacol 2001; 3: 120-5.
25. Nelson R,Norton N, Cautley E,Furner S. Community -based prevalence of anal incontinence. JAMA 1995; 274: 559-61.
26. Cheetham MJ ,Malouf AJ,Kamm MA.Fecal incontinence .Gastroentrol Clin North Am 2001; 30: 115-30.