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Original Research Article

To Sought out the Risk Factors Associated with Perinatal Tears, it's Severity and its Outcome on the Postpartum Period

Gahlot Kavita[1], Singh Punya Pratap[2], Nidhi Mishra[3], Lovely Kaushal[4], Abhay Tirki[5], Himanshu Sharma[6]
[1]Senior resident, Department of Obstetrics & Gynaecology, Bundelkhand Medical College, Sagar, Madhya Pradesh
[2]Assistant professor, Department of Radiodiagnosis, Bundelkhand Medical College, Sagar, Madhya Pradesh
[3]Assistant professor, Department of Obstetrics & Gynaecology, Bundelkhand Medical College, Sagar, Madhya Pradesh
[4]Professor & Head of department , Department of Radiodiagnosis, Bundelkhand Medical College, Sagar, Madhya Pradesh
[5]Associate professor, Department of Medicine, Bundelkhand Medical College, Sagar, Madhya Pradesh
[6]Assistent professor, Department of Pharmacology, Bundelkhand Medical College, Sagar, Madhya Pradesh

***Corresponding author**
Dr. Gahlot Kavita
Email: drkavitagahlot@gmail.com

Abstract: Aim of our study was to sought out the risk factors associated with perinatal tears, its severity and its outcome on the postpartum period. This was a retrospective study carried out at a tertiary teaching institute of central India(Bundelkhand Medical College and associated hospitals, Sagar) from January 2014 to January 2016. Delivery records were analysed with respect to maternal age, parity, gestational age, birth weight, type and severity of perineal tear and its associated complications. At our institute incidence of severe perinteal tear was 0.8%. The most common risk factor was nulliparity followed by fetal weight, fetal malpresentations and instrumental delivery. The most common complication was vulval haematoma (20%) followed by Pregnancy induced hypertension. Perineal tears are a common complication associated with vaginal delivery in our area. Proper antenatal checkups ,identification of high risk cases and their timely referral to a better higher centre with its proper management can reduced the incidence of such tears and associated complications and hence the associated maternal morbidity.
Keywords: Risk factors, perineal tears, Degree of tear, Nulliparity, Vulvar hematoma, Forceps delivery, Malpresentation

INTRODUCTION

A substantial risk of perineal tear to the mother always existed at vaginal tear, but with the improvement in the obstetric services, this era has declined, perineal injuries are one of the serious complications of the vaginal delivery that has a severe impact on the quality of life of a healthy woman and is responsible for post partum pain, negative emotional state, dyspareunia and psychological effects besides causing fecal and urinary incontinence. Pelvic floor morbidity is the end result of complex pattern of trauma involving nerves, muscles and anal sphincter. To decrease the pregnancy related perineal tears, it is important to identify the risk factors that predict perineal tears.

Degrees of perineal tears: According to the (ICD-9) international Classification of Diseases [1]

1 degree: Injury to the vaginal mucosa only.
2 degree: Injury to the perineal muscles but not to the anal sphincter.
3 degree: Injury to the perineum involving anal sphincter.
3a: < 50% of the external anal sphincter (EAS)
3b: $\geq$ 50% of the external anal sphincter (EAS)
3c: Internal anal sphincter torn
4 degree: Injury involving the rectal mucosa also.

Commonly the frequency of perineal tears varies in between 4 to 5% [2-4]. Risk factors for perineal tear during the delivery are described as nulliparity, fetal macrosomia, instrumental deliveries, prolonged 2nd stage of labor, abnormal fetal presentations and advanced maternal age [2-4]. Aim of our study was to identify the possible risk factors for severe perineal tears and its outcome on the immediate postpartum period and to give recommendations for prevention.

MATERIAL AND METHODS

This was a retrospective study of perineal tears (total 80 cases) that occurred during vaginal deliveries.

Data were reviewed from January 2014 to January 2016 at Budelkhand Medical College and Associate Hospitals, Sagar. 65 cases included the patients whose delivery were conducted at home, primary or community health centre or district hospitals and were referred to our centre for the management of associated medical or obstetrical complications. 15 deliveries were conducted in our hospital. All the vaginal delivery records were studied with respect to maternal age, gestational age, birth weight of fetus, presentation of fetus, instrumental delivery and associated complications.

RESULTS AND DISCUSSION

Our study included 80 patients out of which 15 patients were delivered in our hospital and 65 patients were referred as diagnosed cases of perineal tear associated with some complications. Among 80 cases of perineal tears 23 patients belonged to 1 degree tear, 41patients suffered from 2 degree tear, 14 patients had 3 degree tear and 2 patients had 4 degree tear. Patients with 1 and 2 degree tear were referred to our centre from primary and community health centers for the management of associated medical or obstetrical complications.

Table 1: Describes the demographic profile (maternal age, parity, gestational age) of the patients included in our study. Majority of the patients i.e. 48 (60 %) belonged to the age group of 21 — 30 years.15 (12/80) belonged to age group of 31 — 40 years, out of which 41 % suffered from severe perineal lacerations (3 and 4 degree). Among 80 patients, 2 patients (2.5%)patient suffered from 4 degree tear who were referred fromprimary health centre and district hospital to our centrerespectively as mismanaged 2nd stage of labour. First patient was a primigravida with known case of gestational diabetes mellitus and presented to us with shoulder dystocia with 4 degree tear. Shoulder dystocia was managed by Mc'robertsmanuvere and suprapubic pressure then repair of the tear.Other patient with 4 degree tear was postdated primipara with big baby a known case of preeclampsia to which outlet forcep applied to shorten 2nd stage of labour. 25% (20/80) patients were <20 years and among them 80 % had 2 degree tear and 15% patients had 3 degree tear.

In our study, 40% (32/80) patients were multipara and 60% (48/80) patients wereprimipara 12.5 % of multipara patients had 3 degree tear and 20.8 % of primipara patients had 3 degree tear, which again showed that severe degree of perineal tears are more common in prim ipara.2 patient among the primipara suffered from 4 degree tear as one patient was referred to our centre as a case of shoulder dystocia & other was a case of preeclampsia with instrumental forceps delivery.

Table 1: Severity of perineal tear with maternal demographic profile

S. No.		1 degree (28.7 %)		2nd degree (51.2%)		3rd degree (17.5 %)		4th degree(2.5%)	
		No.	%	No.	%	No.	%	No.	%
1.	MATERNAL AGE								
a	< 20 years (20 pts)	1	5	16	80	3	15		
b	21 - 30 years (48 pts)	18	37.5	22	45.8	8	16.6		
c	31 - 40 years (12 pts)	4	33.33	3	25	3	25	2	16.66
2.	PARITY								
a	Multipara (32 pts)	10	31.8	18	56.2	4	12.5		
b	Primipara (48 pts)	13	27	23	47.9	10	20.8	2	4.16
3.	GESTATIONAL AGE								
a	35 – 37 weeks (10 pts)	5	50	4	40	1	10		
b	37 – 40 weeks(64 pts)	18	28	35	54	11	17		
c	More than 40 weeks(6 pts)			2	33.3	2	33.3	2	33.3

Among the gestational age, it was observed that severity and degree of perineal tears increased with increasing gestational age i.e. 54% of patients with gestational age between 37 — 40 weeks had 2 degree tear and only 40 % patients between 34 — 36 weeks had 2 degree tear.Two patients with gestational age more than 40 weeks had 4 degree tear as this case was referred to us as case of shoulder dystocia & fetal macrosomia. One patient with gestational age > 40 weeks had 3 degree tear as this patient was a

primigravida who was referred to out centre as a case of non-progress of labour, was diagnosed to be anoccipito posterior position and delivery was accomplished with forceps application as face to pubis delivery. This suggests that prolonged 2nd stage of labour with fetal mal-presentation increases with chance of perineal tear.

Table 2 shows that birth weight of babies of majority of the patients i.e. 62.5 % (50/80) were between 2.6 — 3 kg. 56 % patients had 2 degree tear and 16 % patients had 3 degree tear. Among the patients with baby weight >3 kg, 50% patients had 2 degree tear and 25 % patients had 3 degree tear which thus showed that degree and severity of perineal tears increased with increasing birth weight of the babies.

Table 2: Severity of perineal tears with birth weight & associated factors

S. No.		1 degree		2nddegree		3rd degree		4th degree	
		No.	%	No.	%	No.	%	No.	%
1.	BIRTH WEIGHT (Kg)								
a	20 - 2.5 (14 pts)	7	50	5	35.7	2	14.2		
b	2.6 – 3.0 (50 pts)	14	28	28	56	8	16		
C	>3.0 (16 pts)	2	12.5	8	50	4	25	2	12.5
2.	ASSOCIATED FACTORS								
a	Pre-EclampticToxemia(PET) (8 pts)	2	25	6	75				
b	Very severe anemia (32 pts)	20	62.5	12	37.5				
c	Cardiac disease (2 pts)	1	50	1	50				
d	Gestational diabetes mellitus (3 pts)			2	66.66			1	33.33

One patient with birth weight between 2.1 — 2.5 kg had 3 degree tear as she was a primipara and referred from primary health centre as mishandled case of arrested hydrocephalus head of preterm vaginal breech delivery was accomplished by ultrasound guided trans-abdominal drainage followed by repair of 3 degree perineal tear. Two patient with birth weight > 3kg suffered from 4 degree tear as this patient was referred to us as mismanaged case of shoulder dystocia & macrosomia. The most common medical complication in our study (40 %) was found to be very severe anaemia (Hb- <4gm %) followed by pre-eclamptictoxemia (BP> 140/90 mm Hg).

Table 3this table showed that the deliveries which were conducted at hospitals by trained personals had lesser incidence and severity of perineal tears as compared to deliveries which were conducted at homes by untrained dias. In our set up, 51 % patients suffered from 2 degree tear and 17.5 % patient suffered from 3 degree tear.33 % patients of home deliveries and 16 % patients delivered at peripheries suffered from 3 degree tear, which signifies the importance of deliveries to be conducted at higher institutions by trained personnel.

Table 3: Severity of perineal tears with mode & place of delivery

S. No.		1 degree		2nd degree		3rd degree		4th degree	
		No.	%	No.	%	No.	%	No.	%
1.	PLACE OF DELIVERY								
a	Hospital delivery (15 pts)	4	26.6	10	66.6	1	6.6		
b	Referred cases								
	(i) Home (15 pts)			10	66.66	5	33.33		
	(ii) PHC/CHC/District hospitals(50 pts)	19	38	21	42	8	16	2	4
2.	MODE OF DELIVERY								
a	Normal (60 pts)	21	35	25	41.6	13	21.6	1	1.6
b	Instrumental								
	(i) Forceps (14 pts)			12	85.7	1	7.15	1	7.15
	(ii) Ventouse (6 pts)	2	33.33	4	66.66				

Among patients who had spontaneous vaginal delivery, 23.2% patients suffered from severe perineal lacerations (3 and 4 degree tears) whereas 41.6 % patients had 2 degree tear. Among the instrumental deliveries, forceps application was more traumatic than the Ventouse application as 85.7 % and 66.66% patients suffered from 2 degree tear when forceps and ventouse were applied respectively. There was no patient who suffered from 3 degree tear when ventouse was applied but 1 patient had 3 degree tear with forceps application as it was anoccipito posterior position and the delivery was accomplished with forceps as face to pubis delivery. It shows that the instrumental deliveries are more successful at higher institutions by well trained personals.

Table 4 shows the complications associated with perineal tears in terms of extensions, PPH (atonic or traumatic) and vulval haematomas. None of the patients with 1 degree tear suffered from vulva) haematoma and 21% patients had atonic PPH. 12% patients with 2 degree tear had extension along the lateral wall of vagina whereas 21 % patients with 3 degree tear had extensions, 9.7 % patients with 2 degree had traumatic PPH whereas 42 % patients with 3 degree tear had traumatic PPH which was clinically significant.

Fig. 1(A): A case of 3rd degree tear with bilateral valval hematoma (Right > Left)

Fig. 1(B): Right valval hematoma seen as a well-defined heteroechoic lesion predominantly Hypoechoic

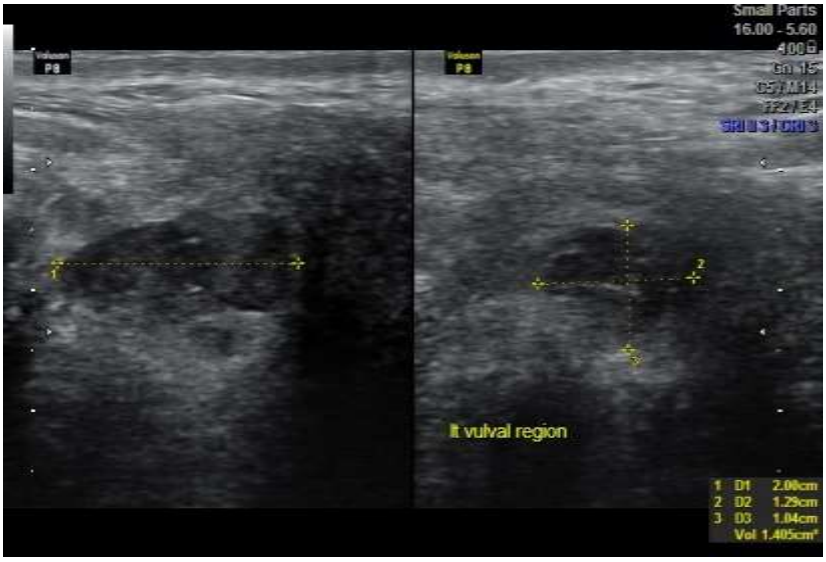

Fig. 1(C): Left valval hematoma seen as a well-defined heteroechoic lesion predominantly Hypoechoic

71 % patients with 3 degree tear had vulva) haematomas which were drained and only 14 % patients with degree tear had vulval haematomas which required drainage which was clinically significant. The size and depth of the haematomas were more in patients with 3 degree tear as compared to 2 degree tear.

Table 4: Severity of perineal tears with mode& its associated complications

S. No.	Complication	1 degree		2nddegree		3rd degree		4th degree	
		No.	%	No.	%	No.	%	No.	%
1	Extension of tear (8 pts)			5	12	3	21		
2	Atonic Post-partum hemorrhage (21 pts)	5	21	12	29	4	28		
3	Traumatic Post partum hemorrhage (12 pts)			4	9.7	6	42	2	100
3	Vulval hematoma (16 pts)			6	14.6	10	71		

Table 5 describes maternal morbidity in terms of hospital stay, need of blood transfusion and wound infection. None of the patient with 1 degree tear had to stay in the hospital beyond 5 days or suffered from wound infection, but 78 % patients required blood transfusion due to their very severe anaemic status (Hb<4gm%), 2 patient with 4 degree tear had to stay in the hospital for more than 5 days as she had primary repair and thus needed prolonged intravenous antibiotics and postoperative care. 71 % patients with 3 degree tear and 19.5 % patients with 2 degree tear stayed in the hospital for more than 5 days. All patients with 3 degree tear required blood transfusion but it was due to their other associated complications like vulval haematomas and traumatic PPH. 92 % patients with 2 degree tear required blood transfusion, out of this 12patients required this because of their very severe anaemic status(Hb< 4 gm%) .

Table 5: Severity of perineal tears with maternal morbidity

S. No.	Associated Complication	1 degree		2nddergee		3rd degree		4th degree	
		No.	%	No.	%	No.	%	No.	%
1	Hospital stay (for more than 5 days)(20 pts)			8	19.5	10	71	2	100
2	Need of blood transfusion (71 pts)	18	78	38	92	14	100	2	100
3	Traumatic Post partum hemorrhage (6 pts)			4	9.7	3	14		

DISCUSSION

The incidence of severe perineal lacerations (3 and 4 degree) was 0.8 % whereas the reported incidence varies between 4 to 5% and even as high as 24% by some authors [2-4]. Our study group includes the patients which were referred to our centre with some

medical or obstetric complications; the-reported incidence was found to be approximately similar when compared with other studies.

Nulliparity was the most important factor in our study, which agrees with several other studies [5].Cause of this was difference in the elasticity and strength of connective tissues of the primipara and multipara as the content of hydroxyproline is reduced and thus the strength of connective tissues is decreased in multipara.

Gestational age was found to be an independent risk factor, this corroborated with Crawford *etal* [6] and increased fetal weight associated with increasing gestational age is only explanation. Increased fetal weight was also found to be the risk factor in our study which is in accordance with several other studies [3].

It was observed that deliveries conducted at home by untrained dias was associated with more severe degree of tears as compared to deliveries conducted by trained personnels at hospital.

Instrumental deliveries also increase the risk of perineal tears which is more when forceps is used as compared to ventouse [7] application which was also found in our study. Any intervention that substantially accelerates the last part of the second stage of labour could be harmful to the pelvic floor tissues. Our institution being a tertiary care center accounted for 20% (16/80) of vulval haematomas whereas reported incidence is 0.3-10% [8]. Our institution being a referral centre also accounted for the increased incidence of blood transfusion as majority of patients were severely anemic. All these data showed that complications like extensions or tear, PPH & valval hematoma increased with the increasing severity of the perineal tears which is thus responsible for increased maternal morbidity in terms of increased hospital stay, need of blood transfusion, infection of wound site in the immediate post partum period.

CONCLUSION

Recognition of antenatal and intrapartum factors that increases the chance for perineal tears must be identified beforehand to decrease the risk of anal and urinary dysfunction in parturient women. Proper antenatal checkups identification of high risk cases and their timely referral, promotion of institution deliveries by trained personnel, proper management of 2nd stage of labour i.e. avoid premature bearing down, avoid injudicious and incorrect use of forceps, avoid breech extraction before full dilation of the cervix, excessive fundal pressure during delivery, adequate and timely episiotomy when indicated, identification of tears and lacerations and suturing them and carefully with strict aseptic precautions. All these modalities can decrease the rate of perineal tears and its associated complications and hence the associated maternal morbidity.

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