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■ Original Research Article

Incidence of Perineal Tear According to Sultans Classification in a Tertiary Care Centre of Central India: An Observational Prospective Study

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Abstract

Aims: To determine the incidence of perineal tear and to classify cases according to Sultan's classification in a tertiary care centre of central India and to identify associated risk factors. **Settings and Design:** Prospective, observational study. **Methods and Material:** This study took place in department of OBGY, MYH Hospital, Indore for a period of 1 year which includes all vaginally delivered females who underwent some degree of perineal tear either in our institution or referred from outside. Non-obstetrical perineal trauma was excluded. Cases were classified according to Sultan's classification. Predisposing factors were assessed using a questionnaire. **Statistical analysis used:** Fisher's Exact test, Pearson Chi-square test. **Results:** Out of total 4712 deliveries in a year, 230 females with perineal tear were identified. Incidence being 4.9% & classified as 1st degree-80(34.8%), 2nd degree-144(62.6%), 3a 2(0.9%), 3b 1(0.4%) 4th degree-3(1.3%) according to Sultan's classification. Pre-disposing high risk factors identified were nulliparity, postdated pregnancy, malpresentations, delivered outside in primary or secondary care hospitals and labour induction where Postdated (p=0.001), nulliparity(p=0.001) and malpresentation (p=0.001) were significant whereas Episiotomy was identified as protective factor. **Conclusions:** Identification of risk factors, vigilant monitoring, supervision and perineal support are the key factors for prevention of perineal tear. Reducing the incidence and prevention of its complications can help minimizing major cause of postnatal morbidity in females

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Keywords: Perineal Tear; Sultans Classification; Incidence; Postdated pregnancy; Nulliparity; Malpresentations

Introduction:

Perineal tear or laceration is an injury to the skin and/ muscles between the vaginal introitus and anal opening. It is a common event in obstetrics, affecting most commonly primigravida and has been found to affect nearly 30-40% and is associated with high post-natal morbidity and mortality.[1] The prevalence of perineal injuries has been found to be highest in Asian women with race being an independent risk factor for severe perineal lacerations.[2] Mora-Hervas reported that in spontaneous delivered nulliparous women without episiotomy repair the risk of having perineal trauma is 9 times than those who had episiotomy repair.[3]

Anal sphincter injuries have a significant influence on women's quality of life, with perineal pain being the most upsetting.[4] In the near term, oedema, bruising owing to tight sutures, infection, or wound disintegration might occur, all of which are linked to perineal pain. In the initial postpartum period, perineal discomfort causes urinary retention and defecation issues (faecal and anal incontinence). She may develop dyspareunia and have reduced

sexual function in the long run. Due to significant perineal tearing, she may develop abscesses, wound collapse, and rectovaginal fistulae.[5] The prevalence of faecal incontinence in women is around 3-4% after childbirth due to occult anal sphincter injury that was either missed to be identified or was classified as second-degree tear inadvertently.[6]

The outcomes of these perineal tears depend on the diagnosis and the repair technique used. A careful examination of the perineum, which includes the rectal examination (in case of deep tear) needs to be performed prior to the suturing. An early detection of perineal tears leads to early management and improves the outcome with minimal to no future complications.[7] Considering the advantage of Sultan's classification of perineal tear, where he devised a more specific classification in which he grades anal sphincter complex which have better prognosis and promising outcome, the present study was undertaken in our institution with the objective to find the incidence of perineal tear and classify them according to sultans classification, as none of the studies which took place have shown the actual burden of perineal tears in a tertiary care centre.

Primary objectives:
To study the incidence of perineal tear in the inpatient department of obstetrics and gynaecology, M.G.M. Medical College and M.Y. Hospital, Indore.
To classify cases according to Sultan's Classification.

Secondary objective:
To identify the high-risk factors associated with perineal tear.

Subjects and Methods:

Study Place
The present study was conducted in the Department of Obstetrics & Gynaecology, M.G.M. Medical College and M.Y. Hospital, Indore (M.P.).

Study Design
Prospective, observational study

***Inclusion criteria*:** The study population consisted of all women who presented to the Department of Obstetrics and Gynaecology at the institution during the study period, who delivered vaginally and suffered some degree of perineal tear, either at our institute or referred from elsewhere with perineal tear.

Exclusion criteria: Woman with a non-obstetrical perineal tear like rape, molestation, fall, an accidental injury like a road traffic accident, etc were excluded from the study.

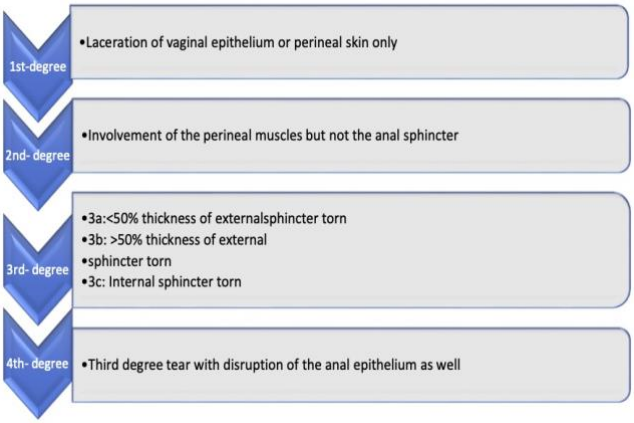
Methodology

All the women and/or their legally acceptable representatives were explained about the study in detail including the risks/benefits, the procedure, compliance, etc. All the queries of the woman were satisfactorily replied to. After obtaining their verbal consent to participate in the study, a voluntary written informed consent was obtained from them.

All the women underwent thorough vaginal examination and Sultan's Classification was applied to categorize the degree of perineal tear into first-, second-, third- and fourth-degree perineal tear.

Customized Proforma: A customized proforma was designed specifically for the requirement of the study and all the information was collected on this proforma.

Sultan's Classification f Perineal Trauma[8,9]
The following classification was used for perineal trauma:



Results

A. Incidence of perineal tear during a study period

Total vaginal deliveries during study period	Total perineal tear identified during the study period	INCIDENCE
4712	230	4.9%

B. Distribution of Perineal Tear According to Sultan's Classification

Degree of perineal tear	Number of perineal tears	Percentage	
1	80	34.8	
2	144	62.6	
3a	2	0.9	2.6%
3b	1	0.4	
3c	0	0	
4	3	1.3	
Total	230	100.0	

The majority were 2nd degree perineal tears and 2.6% of females suffered a major degree of perineal tear (3rd and 4th)

C. Distribution of Perineal Tear According to Age

AGE	NUMBER OF PERINEAL TEAR	PERCENTAGE
<=20 years	23	10.0
21-25	112	48.7
26-30	81	35.2
>30	14	6.1
TOTAL	230	100.0

Majority of the women were in the age group 21-30 years. The mean age of the women was 24.88 ± 3.59 years with a range from 19 years to 37 years

D. Distribution of women according to parity

Parity	Number of perineal tear	Percentage
Nulliparity	133	57.8
Primiparity	67	29.1
Multiparity	30	13.0
Total	230	100.0

E. Distribution of Women According to Gestational Age

Term / Preterm / Post-dated	Number of perineal tears	Percentage
Preterm	20	8.7
Post-dated	63	27.4
Term	147	63.9
Total	230	100.0

F. Distribution of Women According to Residence

Residence	Number of perineal tear	Percentage
Rural	140	60.9
Urban	90	39.1
Total	230	100.0

G. Distribution According to Place of Delivery

Place of Delivery	Number of perineal tear	Percentage
M.Y. Hospital	210	91.3
Outside	20	8.7
Total	230	100.0

H. Distribution of Women According to Booking Status

Booking Status	Number of perineal tear	Percentage
Booked	91	39.6
Unbooked	139	60.4
Total	230	100.0

Association Between Parity and Degree of Perineal Tear

There was a ***statistically significant*** association between parity and the degree of perineal tear (P=0.024). Of the 133 nulliparous women, 32 (24.1%) had 1st degree perineal tear, 99 (74.4%) had 2nd degree perineal tear, 1 (0.8%) had 3b degree perineal tear and 1 (0.8%) had 4th degree perineal tear. Of the 67 primiparity **women**, 30 (44.8%) had1st degree perineal tear, 34(50.7%) had 2nd degree perineal tear, 2 (3.0%) had 3a degree perineal tear and 1 (1.5%) had 4th degree perineal tear. Of the 30 multiparity women, 18 (60%) had 1st degree perineal tear, 11(36.7%) had 2nd degree perineal tear and 1 (3.3%) had 4th degree perineal tear.

Perineal tears are most prevalent in nulliparous females. With the increase in parity, incidence of perineal tear decreases, while there is no relation of 4th degree perineal tear with the parity.

Association between episiotomy given and degree of perineal tear.

There was a ***statistically significant*** association between episiotomy and degree of perineal tear (P=0.001), showing that the degree of perineal tear is dependent on the episiotomy. Of the 147 women in whom episiotomy was not given, 77 (52.4%) had 1 degree perineal tear, 66 (44.9%) had 2nd degree perineal tear, 2 (1.4%) had 3a degree perineal tear and 2 (1.4%) had 4th degree perineal tear. Of the 83 women in whom episiotomy was given, 2 (3.6%) had 1st

degree perineal tear, 78 (94.0%) had 2-degree perineal tear, 1 (1.2%) had 3b degree perineal tear and 1 (1.2%) had 4-degree perineal tear.

By giving episiotomy, incidence of second-degree perineal tear increases from 44.9% to 94.0% and those who had not given episiotomy suffered a major degree of perineal tear. On comparing incidence of perineal tears among vaginal deliveries with episiotomy and without episiotomy

Perineal Tear	Episiotomy Given	Episiotomy not given	Total	Fisher's exact Test P value
Yes	83 =3.8%	147 =5.76%	230	0.003* *(significant)*
No	2075	2407	4482	
Total	2158	2554	4712	

Perineal tears reported among vaginal deliveries where episiotomy was performed was 83 (3.8%) which was significantly lower than perineal tears reported among vaginal deliveries where episiotomy was not given (5.7%). *We can conclude that mediolateral episiotomy is a protective factor for prevention of perineal tear.* It should be taken into account that this doesn't promote liberal use of episiotomy in vaginal deliveries as mediolateral episiotomies may be associated with increased incidence of long-term complications like perineal pain and dyspareunia, but sufficient data is still lacking.

Association between gestational age and degree of perineal tear

Of the 63 post-dated pregnancies, 21 (33.3%) had 1 degree, 40(63.5%) had 2 degree, 1 (1.6%) had 3a degree and 01 (1.6%) had 4-degree perineal tear. Of the 20 preterm pregnancies, 14 (70.0%) had 1 degree, 06(30.0%) had 2-degree perineal tear. Of the 147 term pregnancies, 45 (30.6%) had 1 degree, 98(66.7%) had 2 degree, 1(0.7%) had 3a, 1(0.7%) had 3b, and 2 (1.4%) had 4-degree perineal tear.

There was no statistically significant association between gestational age and the degree of perineal tear (P=0.106), showing that the degree of perineal tear is not dependent on the gestational age. 2nd degree perineal tear is most common in term and postdated pregnancies except in preterm deliveries where 1st degree perineal tears are most prevalent.

On comparing Incidence of perineal tear in postdated vaginal deliveries and non-post-dated pregnancies:

The incidence of perineal tear in post-dated vaginal deliveries (10.4%) is significantly higher than in non-post-dated vaginal deliveries (4.0%) (P=0.001).

Perineal tear	Postdated pregnancies		Total	Fisher's Exact Test
	>40 weeks	<40 weeks		
Present	63 10.4%	167 4.00%	230	0.001*
Absent	539	3943	4482	
Total	602	4110	4712	

Association Between Post-dated Pregnancies And Induction of Labour

	Induced	Assisted	Spontaneous	TOTAL
Postdated (GA>40) pregnancies	38 60.3%	5 7.9%	20 31.7%	63
Non postdated (GA<40) pregnancies	24 14.4%	31 18.6%	112 67.1%	167
	62	36	132	230

There were 63 post-dated pregnancies, of these 60.3% were induced, 7.9% were assisted and 31.7% were spontaneous labour, while in non-postdated deliveries, 67.1% were spontaneous labour, 18.6% were assisted and 14.4% were induced**.** Perineal tears are more prevalent in post-dated pregnancies which were induced. There was a statistically significant association between postdated pregnancy and induction of labour (P=0.001).

Association Between Incidence of Perineal Tear and Malpresentations

Perineal tear	Malpresentations		Total	Fisher's Exact Test
	Present	Absent		
Present	30 17.8%	200 4.4%	230	0.001*
Absent	138	4374	4482	
Total	168	4574	4712	

Fisher's Exact Test applied. P value < 0.05 was taken as statistically significant.

There were a total 4712 vaginal deliveries during the study period. The incidence of perineal tears in women with malpresentation who underwent vaginal deliveries was 30(17.8%) in our study which was significantly higher than in women without malpresentation i.e., 200(4.4%) (P=0.001).

Association between birth weight and degree of perineal tear

Of the 84 neonates with birth weight <2.5 kg, 34 (40.5%) had 1st degree perineal tear and 50 (59.5%) had 2nd degree perineal tear. Of the 131 neonates with birth weight between 2.5-3.5 kg, 43 (32.8%) had 1st-degree perineal tear, 83 (63.4%) had 2nd degree perineal tear, 1 (0.8%) had 3a degree perineal tear, 1 (0.8%) had 3b degree perineal tear and 3 (2.3%) had 4th degree perineal tear. Of the 21 neonates with birth weight >3.5 kg, 5 (23.8%) had 1st degree perineal tear, 15 (71.4%) had 2-degree perineal tear and 1 (4.8%) had 3a degree perineal tear.

There was no statistically significant association seen between birth weight of neonates and the degree of perineal tears (P=0.281), showing that the degree of perineal tear is not dependent on the birth weight of the neonates.

Association between the place of delivery and degree of perineal tear

Of the 20 women delivered outside, 9 (45.0%) had 1st-degree perineal tear, 8 (40.0%) had 2nd- degree perineal tear, 1 (5%) had 3a degree perineal tear and 2 (10%) had 4th-degree perineal tear. There was a statistically significant association (P=0.001) i.e., delivery done outside carries risk of higher degree of perineal tear.

Association of residence and booking status in relation to advance labour

In women delivered outside, 15 (10.7%) women were from rural area and 5 (5.6%) were from urban area. 3 (3.3%) women were booked and 17 (12.2%) were unbooked.

In females reaching tertiary care in advance labour, 11 (7.9%) women were from rural area and only 4 (4.4%) were from urban area, 6 (6.6%) women were booked and 9 (6.5%) were unbooked.

Discussion:

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

During our study period of 1 year, we found 230 women, who sustained some degree of perineal tear during vaginal delivery either in the institution or outside the institution, who were then referred here for further management.

Thus, the incidence of perineal tear in our study came out to be 4.9% (Total vaginal deliveries in our institution during the study period was 4712). The incidence of perineal tear was 4.2% in the study done by Hudelist et al.[10] comparable to our study.

Degree of perineal tear

According to Sultan's classification, out of 230, 34.8% women had 1st degree, 62.6% women had 2nd degree, 0.9% women had 3a degree, 0.4% women had 3b degree and 1.3% women had 4-degree of perineal tear (major perineal tear – 2.6%). Woolner et al.[11] in their study reported a prevalence of third- and fourth- degree perineal tear in 2.8%, which is comparable to our study findings.

Age

Majority of the women were in the age group 21-30 years. In women of age less than 25 years, 2nd degree perineal tear (~65%) was more common, while in women of age more than 30 years, prevalence of 3rd degree and 4th degree perineal tears were seen. Degree of perineal tear is significantly associated with increasing age of the women (P=0.001) as corroborative with the study done by Papoutsis et al.[12]

Parity

57.8% of the women were nulliparous in our study. Perineal tears are most prevalent in nulliparous females and as the parity increases, incidence of perineal tear decreases. A significant association was seen between parity and the degree of perineal tear (P = 0.001). This result is comparable to the studies done by Hsieh et al.[13] where he found nulliparity to be an independent risk factor for perineal tear.

Gestational age

27.4% were postdated deliveries and in our study, we found that postdated pregnancy was the most frequent predisposing risk factor affecting 63 out of 230 patients

with perineal tear (27.4%). **Al**-Ghamdi et al[14] and Frigerio et al,[15] in their study found gestational age > 40 weeks as an independent risk factor for severe perineal tears. This is comparable with result in our study.

Episiotomy

Based on our study, it was found out that mediolateral episiotomies are protective in prevention of perineal tears. Mikolajczyk et al.[16] in their study found that perineal lacerations were not due to episiotomy, while on the other hand found that episiotomy had a protective effect and reduced the risk of periurethral lacerations. The findings of Mikolajczyk corroborate with the present study.

Institutional deliveries

Based on our study, we conclude that the deliveries done outside our institution suffered a major degree of perineal tear. The reason being lack of expertise in conducting the delivery. Smith et al.**[17]** in their study concluded a low incidence of anal sphincter injuries in hospital settings compared to community settings, which is comparable to our study.

Limitations of Our Study

The limitation of our study is that we had not included parameters like familial history of perineal tear and women without perineal tear as a control group, which might have provided a better understanding into the risk factors affecting the perineal tears. From our study, we can only identify pre-disposing factors affecting those who suffered a perineal tear.

Although we had not included these parameters, but we had analyzed many other parameters like postdatism, PIH, perineal tear repair, fetal presentation, outside delivered, advanced stage of labour, rural, unbooked etc. on which many of the earlier authors have not worked. This gave us to look into the relationship these parameters have on perineal tears.

Future Implications

Once we will identify the magnitude of burden of perineal tear in our centre, we will be able to identify the root cause and high-risk factors associated. We will then be able to sensitise the general population about the problem and help to minimise its incidence by lowering its risk factors and counsel them well about the preventive strategies beginning right from the antenatal period. Proper counselling and prevention is the key to decrease the pain and sufferings of the women so that the women feels safe and supported when undergoing repair and postpartum management after severe perineal trauma as in our society, there's been always a taboo to discuss openly about these perineal problems.

Based on our study which took place in tertiary centre, we also recommend further similar studies to occur in peripheral centres to assess the magnitude of this problem and training of staff in peripheral centres to prevent occurrence of perineal tear due to lack of expertise as we have seen many tears which occurred in those cases who were referred from outside

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Conflicting Interest: No

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The study was conducted in M.Y. Hospital, Indore, which is a state government-run hospital and all the treatment provided is free of cost and borne by the State Government. Also, no additional test/procedure was conducted for the specific requirement of the study, so there was no additional financial burden either on the woman or on the institution. Also, all study-related expenses were borne by the researcher. The present was not funded by any pharmaceutical company or institution.

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