

Assessment of Perineal Trauma during Child Birth by Estimation of Striae Gravidarum Score among Post-natal Mothers at Selected Hospitals of New Delhi

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Abstract

Perineal trauma or injury to perineum is a contributing factor affecting the postpartum health. Striae gravidarum is thought to be one of such factors associated with the perineal outcome during normal vaginal delivery. In this study, an exploratory research design including 81 post-natal mothers via purposive sampling was used. Structured questionnaire was used to obtain background information and obstetrical data of the post-natal mothers. Striae gravidarum was assessed using Attwal numerical scoring system. Analysis and interpretation of data was done through Statistical Package for the Social Sciences (SPSS) version 16.0 by using both descriptive and inferential statistics. The range of striae gravidarum obtained score for the subjects was 0-18 with a mean score 6.85; 28 (34.6%) post-natal mothers were having no significant striae, 27 (34.6%) had mild striae, 22 (27.2%) had moderate striae and 4 (4.9%) post-natal mothers had significant striae. Also, 22 (27.2%) had intact perineum, 9 (11.1%) suffered first degree perineal trauma and 50 (61.7%) post-natal mothers either had episiotomy or second-degree perineal trauma. Using Chi-square test it was found that there was no significant relationship between the total striae gravidarum score and perineal trauma during childbirth. Our results contradict the findings of previous studies which found a significant relationship between the striae gravidarum and perineal trauma among post-natal mothers.

Child birth is a unique, exciting, cheering yet sometimes a worrisome experience for the woman and her healthcare providers. It is one of the most inspiring and emotional events that occurs in one's life. But the joy of childbirth sometimes is accompanied with pain for long period. Perineal trauma or injury to perineum is one of the most common cause of such pains.

Perineal trauma is any damage to the genitalia during child birth that occurs spontaneously or intentionally by surgical incision (episiotomy). Spontaneous tears are defined as first degree when they involve the perineal skin only; second degree tears involve the perineal muscles and skin; third degree tears involve the anal sphincter complex and fourth degree tears involve the anal sphincter complex and anal epithelium (Kettle & Tohill, 2008).

Striae gravidarum (SG), also known as striae distensae or "stretch marks", are common in pregnancy. They are characterised clinically by linear bands that are initially erythematous to violaceous and gradually fade to become skin coloured or

hypopigmented atrophic lines that may be thin or wide. SG occurs on the abdomen, breasts, buttocks, hips and thighs and usually develops after the 24th week of gestation.

Perineal trauma and pain are the common problems affecting maternal postpartum health. The severity of perineal trauma increases the intensity of perineal pain at days 1 and 7 following the child birth. In an Australian research it has been established that there is high prevalence rate of maternal health problems up to 6 months after birth, with one or more health problems reported by 94 percent of women. The most commonly cited were painful perineum (21%) and sexual problems (26.3%). These problems were especially pertinent to primiparous women and to those who had an episiotomy and/or instrumental birth (Osman et al, 2007).

Abdominal stretch marks are thought to be developed because of poor skin elasticity during pregnancy. The one with the no or less stretch marks may have better skin elasticity and less likely to have perineal tear and vaginal tissue damage during vaginal delivery. Studies show that some hormones like estrogen, relaxin and adrenocortical decrease the adhesiveness between collagen fibres and increase ground substance which results in the formation of striae in areas of stretching. Striae may form due to structural connective tissue changes that include

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realignment and reduced elastin and fibrillin in the dermis (Dahlen & Homer, 2008). During a normal vaginal birth, the foetal head exerts significant pressure on the perineum and vaginal vault tissues. For few women, perineal trauma occurs so easily even with a small baby and apparently with the easy birth. Whereas, others deliver with intact perineum despite large babies or any other abnormality. Same midwife using similar techniques for perineal protection with each birth getting very different perineal outcomes depicts that there are other factors at work besides perineal management. Techniques, size, and presentation of the baby are also important. Something that could be missing out shows the skin's ability to maintain an intact perineum during birth (Kapadia et al, 2014).

The present study sought to explore the ability of striae gravidarum score to identify the risk of perineal trauma in mothers during child birth.

Review of Literature

Kapadia et al (2014) undertook a study to predict the perineal tear during child birth by assessment of striae gravidarum score; 300 patients delivered normally were examined in the maternity ward 1 to 2 days after the delivery. The assessment of striae gravidarum was performed by the single resident in all the women, who was blind to the information whether the suturing had been performed. Severity scoring of striae gravidarum was observed using the numerical scoring system of Atwal. Later the same resident collected all medical, obstetric and demographic data from medical files. The data was entered into Epi Info 7 statistical analysis software package and Chi-square test on the various risk factors and delivery outcomes was done. The only predictors of perineal tear found to be statistically significant were severity of striae gravidarum and episiotomy given or not. The authors concluded that total striae score can be used as an additional valuable predictor of the risk for perineal tear.

Halperin et al (2010) explored the association between striae gravidarum and the risk for perineal trauma in child birth. A cross-sectional study was done at Maternity ward in university medical centres of Israel including 385 women who delivered vaginally. Post-natal mothers were assessed on day 1 to 2 after delivery. Striae gravidarum score was assessed using the Atwal numerical scoring system by the single midwife who was not the part of delivery process and unaware about the perineal condition whether suturing was done or not. Later, the same midwife collected all medical and demographic data of the mothers. The data was entered and analysed using SPSS 15 (Chicago, IL). Significantly higher total striae scores were found using independent sample t tests in women with perineal trauma compared with women with-

out perineal trauma (3.60 ± 0.39 vs. 2.31 ± 0.23 , $p=5.003$). This study demonstrated a significant relationship between striae gravidarum and perineal trauma.

Objectives

The study was carried out with following objectives:

- To identify the total striae gravidarum score using the Atwal numerical scoring system among post-natal mothers.
- To assess the perineal trauma among post-natal mothers.
- To find out the relationship between total striae gravidarum score and perineal trauma during child birth among post-natal mothers.

Methodology

An exploratory research design was used to assess the perineal trauma during child birth by estimation of total striae gravidarum score among postnatal mothers; 81 post-natal were selected using non-probability convenience sampling from post-natal wards of Lal Bahadur Shastri Hospital, Mayur Vihar and Jag Pravesh Hospital, Shastri Park, New Delhi. Background data and obstetric data was obtained from post-natal mothers and their medical records. Ethical permission was taken from the Jamia Hamdard Institutional Ethics Committee to conduct the research study. Written informed consent was taken from each study subjects. Coding of the participant's name was done which ensured their anonymity. Selected mothers were assessed for striae gravidarum using Atwal Numerical Scoring system. Content validity was evaluated by obstetricians and gynecologists and nursing experts.

Results

The data was coded and entered in Microsoft Excel Sheet. Analysis and interpretation of data was done

Table 1: Frequency and percentage distribution of post-natal mothers by their demographic characteristics (n=81)

S. No.	Variables	Frequency (f)	Percentage (%)
1	Age		
	Less than 20 years	1	1.2
	20-25 years	55	67.9
	26-30 years	20	24.7
	31 and above	5	6.2
2	Education status		
	No formal education	27	33.3
	Primary schooling	24	29.6
	Higher secondary	19	23.5
	Graduation and above	11	13.6
3	Occupation		
	Homemaker	80	98.8
	Government job/private job	1	1.2

Table 2: Frequency and percentage distribution of post-natal mothers as per their obstetrical data (n=81)

S. No.	Obstetrical Data	Frequency (f)	Percentage (%)
1	Parity		
	First	36	44.4
	Second	30	37
	Third	13	16
	Fourth and above.	2	2.5
2	History of previous vaginal birth		
	0	34	42
	1	36	44.4
	2	10	12.3
	3	1	1.2
3	Associated obstetrical complications		
	No apparent complication	67	82.7
	Diabetes or gestational diabetes mellitus	4	4.9
	Hypertension or PIH & related disorders	4	4.9
	Thyroid disorder	2	2.5
	Other or multiple problems	4	4.9
4	Period of gestation at the time of delivery		
	Below 37 weeks	9	11.1
	37 weeks - 38 weeks	44	54.3
	39 weeks - 40 weeks	22	27.2
	Beyond 40 weeks	6	7.4
5	Type of delivery		
	Spontaneous	22	27.2
	Induced or augmented	59	72.8
6	Postnatal day		
	Day 1	7	8.6
	Day 2	49	60.5
	Day 3	25	30.9
7	Episiotomy		
	Given	46	56.8
	Not given	35	43.2
8	Neonatal birth weight		
	Below 2.0 kg	2	2.5
	2.1 - 2.5 kg	33	40.7
	2.6 - 3.0 kg	33	40.7
	3.1 - 3.5 kg	13	16

through Statistical Package for the Social Sciences (SPSS) version 16.0 by using both descriptive and inferential statistics. Frequency and percentage distribution of post-natal mothers by their demographic characteristics and as per their obstetrical data is shown in Table 1 & 2 respectively.

Table 1 presents the age, education status and occupation of mothers. Table 2 presents background information of post-natal mothers including their dietary pattern, exercise pattern and whether they use any oil/lotion/cream to treat or prevent striae gravidarum and its duration and time of use.

Frequency and percentage distribution of post-natal mothers were calculated as per the classification of total striae gravidarum scores. Out of 81 post-natal mothers, 28 (34.6%) mothers were having no significant striae, 27 (34.6%) had mild striae, 22 (27.2%) had moderate striae and 4 (4.9%)

post-natal mothers had significant striae. Frequency and percentage distribution were computed as per the laid down criteria for assessment of perineal trauma; 22 (27.2%) post-natal mothers had intact perineum, 9 (11.1%) were having first degree perineal trauma and 50 (61.7%) post-natal mothers either had episiotomy or Second-degree perineal trauma.

Relationship between the Total Striae Gravidarum Score and Perineal Trauma

Table 3 show that the obtained Chi-square value with Yates correction of 2.368 is lower than the table value of 12.59 at df(6) at 0.05 level of significance. This indicates that there is no significant relationship between the total striae gravidarum score and perineal trauma during child birth.

Relationship between Perineal Trauma and Selected Variables like Age, Parity and Neonatal Birth Weight

The Chi-square analysis among age and perineal trauma at 0.05 level of significance had shown statistically no significant relationship between the age and perineal trauma during child birth.

As for parity and perineal trauma, obtained Chi-square value with Yates correction of 24.676 is greater than the table value of 12.59 at df (6) at 0.05 level of significance. This indicated a significant relationship between the parity and perineal trauma during child birth.

With Chi-square analysis it was found that there is no significant relationship between the neonatal birth weight and perineal trauma during childbirth.

Discussion

The present study showed no significant relationship between the total striae gravidarum score and perineal trauma during childbirth as the Chi-square value with Yates correction of 2.368 is lower than the table value of 12.59 at df(6) at 0.05 level of significance.

In a similar study by Kapadia et al (2014) to predict the perineal tear during childbirth by assessment of striae gravidarum score, 300 patients delivered normally were examined in the maternity ward 1 to 2 days after the delivery. The assessment of striae gravidarum was performed using the numerical scoring system of Atwal and all medical, obstetric and demographic data from medical files was collected. The data entered into Epi Info 7 statistical analysis software package and Chi-square test on the various risk factors and delivery outcomes was done. Variables statistically significant in predicting lacerations namely striae gravidarum

Table 3: Association between total striae gravidarum score and perineal trauma among post-natal mothers (n=81)

		Total striae gravidarum score				Chi-square	df	'p' value
		Not Significant	Mild	Moderate	Significant			
Perineal trauma	Intact perineum	10	6	6	0	2.368	6	0.88
	First degree	4	4	1	0			
	Second degree	14	17	15	4			

$\chi^2 (6) = 12.59$, not significant at $p \geq 0.05$.

score and episiotomies were analysed. The authors concluded that total striae score can be used as an additional valuable predictor of the risk for perineal tear. The findings of the present study are in contrast with this study. The present study found no significant relationship between striae gravidarum score and perineal trauma. Other findings of the present study show that parity is related to perineal trauma whereas neonatal birth weight had no effect over perineal trauma.

Another study by Halperin et al (2018) explored the association between striae gravidarum and the risk for perineal trauma in child birth. In a cross-sectional study done at Maternity ward in five university medical centres of Israel including 385 women who delivered vaginally, striae gravidarum score was assessed using the Atwal numerical scoring system. The association was examined between perineal trauma as the outcome measure, defined by tears or laceration, and the total striae scores (TSS) obtained at the abdomen, hips, buttocks, and breast. Significantly higher TSS scores were found in women with perineal trauma compared with women without perineal trauma. Again, the present study does not validate the findings of this study and concludes that there is no association between total Striae Gravidarum score and perineal trauma during child birth. Even during the period of data collection researcher felt that striae gravidarum score do not affect the severity of perineal trauma. Here, parity was found to affect the perineal trauma which is also reflected in the present study.

Implications of the study

Research studies conducted in this area are very few where the relationship between the striae gravidarum and perineal trauma has been established. More studies can be taken up in this area.

Recommendations

- The study can be replicated on a larger sample to validate the findings and make generalisation.
- A comparable study can be done with primigravida and multigravida to compare the striae gravidarum and perineal outcome further estab-

lish the relationship.

- An interventional study can be done on antenatal mothers to understand the clinical relevance of striae gravidarum and its role in reducing perineal trauma.

Conclusion

In the present study no significant relationship was observed between the total striae gravidarum score and perineal trauma during child birth as the Chi-square value with Yates correction of 2.368 was lower than the table value of 12.59 at df (6) at 0.05 level of significance. This finding is contradictory with the previous studies. This concept needs to be over-scrutinised and more studies can be taken up related to this and others factors. Also, despite observational method, interventional study on antenatal mothers can be done to see the clinical significance of striae gravidarum assessment on the extent of perineal trauma.

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