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Prediction of perineal tear by striae gravidarum score

Prempati Mayanglambam[1], Rizu Negi[2]
Associate Professor, Department of Obstetrics and Gynecological, School of Nursing Galgotias University, Greater Noida, Uttar Pradesh, India

Abstract
Abdominal stretch marks found during pregnancy may be indicative of poor skin elasticity. One who does not have stretch marks may have better skin elasticity and may be less likely to tear perineal and vaginal tissue during vaginal delivery. Striae gravidarum (SG) is a common phenomenon of stretch marks observed during pregnancy that may be an indicator of poor skin elasticity. Striae gravidarum is a physiological skin change that many pregnant women experience during pregnancy. The striae are often accompanied by a reddish purple color during pregnancy, and then lose pigmentation and become atrophic in the long term after pregnancy. Striae gravidarum seems to be undesirable to many pregnant women. However, the impact of striae gravidarum on pregnant women who experience it has not been clarified.

Keywords: pregnancy, skin, striae gravidarum, atrophic

Introduction
Striae gravidarum is a physiological skin change that many pregnant women experience during pregnancy. They are linear lesions frequently found on the abdomen, breasts, buttocks and thighs. The type and amount of collagen in connective tissue are considered to determine the individual's elastic index. The skin surface is made up of a complex network of crossing thin lines. The two dimensional relationship between primary and secondary lines determines the skin texture and its grade of irregularity. Striae gravidarum is caused by changes in the structural connective tissue due to a hormonal elect on the alignment and reduced elastin and fibrillin in the dermis. This correlational research will examine the contribution of a woman's connective tissue elasticity as a factor in maintaining an intact perineum during birth, using abdominal striae as the marker variable for connective tissue elasticity. It is important to investigate if there might be any relationship of skin type to perineal integrity, so as to help in making decisions regarding the woman's care during childbirth. Various studies were designed to identify factors for determining this and particularly whether abdominal striae gravidarum can predict the likelihood and severity of tear. As striae gravidarum are regarded as a physiological change, medical professionals do not pay much attention to pregnant women with this condition, and thus few data on the prevalence and quality of life (QOL) of women having striae gravidarum are available.

Studies and scoring of SG
It has been reported in a study that both genetic and physical factors are involved in the development of SG. Choi and colleagues have reported that 55.9% of the primiparous women showed signs of SG in the second trimester while 63.1% of the multiparous women developed SG in the third trimester, with significant difference in the time of SG appearance between the two groups. Latha and Haritha have reported in 2017 that the occurrence of striae was widely observed in the multigravida (79%) as compared to the primigravida (65%). It was observed by Katta and colleagues that striae occurred in 99.1% of multipara women on abdomen where as they were observed in 89.2% of primis. The primiparous females were seen to be psychologically distressed over the beauty concerns resulting from SG and their quality of life.8 The Davey's scoring tool was used in a Japanese study to assess the gravity of SG and the Skindex 29 tool was used to assess the Dermatology specific Quality of Life (QoL). It was found that SG was 37.8% prevalent out of which 91.6 % primiparae and 61.6 % multiparae made attempts to prevent SG. The pregnant females with SG showed a lower QoL for emotion when compared to those without SG. With or without SG, women who took preventive measures against SG showed similar QoL scores for emotion.9 In light of the findings of previous studies it is of significance that such an investigation be conducted to correlate the emotional wellbeing of women and their quality of life with SG, a psychologically disturbing change on the skin of pregnant women. This could direct attention of maternity caregivers to proper management of SG to improve the quality of life of pregnant women

However Severity scoring of SG was observed using the numerical scoring system of Atwal. 7 This scale provides a rank based on observation of four areas in which SG is most commonly observed (abdomen, hips, buttocks, and breast). The score includes the following criteria

(a) The number of SG at each body site (0=no striae signs, 1=1-4 striae, 2=5-10 striae, 3=more than 10 striae) and

(b) The color of the SG which ranges from pale to purple (0=no redness, 1=pink, 2=dark red, 3=purple).

The final score for each body site, relating to number and color, ranges from 0 to 6. Accordingly, the TSS (total striae score) for all four body sites ranges from 0 to 24. Women having TSS score up to 12 were considered to be having mild striae, 13-18 TSS score indicated moderate striae and more than 18 TSS Score indicated severe striae

Risk factors
The most common risk factors for SG include younger age, maternal and family history of SG, higher pre pregnancy and

pre-delivery weight, and higher birth weight. Most studies showed a statistically significant association between these risk factors and SG, however Findik *et al*, did not confirm pre-pregnancy weight or maternal age as a risk factor. Most studies also demonstrated that a history of striae on the breasts, hips, and thighs was associated with formation of SG. On the contrary, a study of 299 Caucasian women showed that although striae on the breasts increased risk of SG, striae on the thighs decreased the risk of SG. However, confounding factors should be considered. Increased alcohol intake, decreased water consumption, decreased blood vitamin C levels, and expecting a male baby were also found to be more common among those women who developed SG in select studies. Even though it has been speculated that diabetes and increased serum glucose levels could play a part in the pathogenesis of SG, the studies included here did not reveal an association with diabetes or glycosylated hemoglobin levels. Studies were limited by study type, size, and patient population.

Striae occur in over 70% of pregnant women and tend to develop after 25 weeks of gestation. Despite the fact that their etiology has not yet been fully understood, it is accepted that a combination of genetic factors, endocrine alterations and mechanical stretching of skin play a significant role.

Straie gravidarum score: prediction of perineal tear

Perineal trauma is common during vaginal birth and can range from minor mucosal lacerations to severe injury that involves the musculature of the perineum and rectum.1 perineal trauma may be associated with several complications including hemorrhage, perineal pain, dyspareunia, rectovaginal fistulae, perineal abscess and incontinence. Such complications are found to have a major negative effect on physical, psychological, social aspects and quality of life. Episiotomy as an intervention to avoid perineal tear is debatable. Therefore, better prediction of women at risk for spontaneous perineal tear is needed to improve the outcome of vaginal childbirth.3 Abdominal stretch marks found during pregnancy may be indicative of poor skin elasticity. One who does not have stretch marks may have better skin elasticity and may be less likely to tear perineal and vaginal tissue during vaginal delivery. This study was conducted to determine whether striae gravidarum could predict lacerations and their severity. During a normal vaginal birth, the fetal head exerts significant pressure on the tissues of the perineum and vaginal vault. Some women seem to have tissue that tears easily, even with a small baby and apparently easy birth. Others will give birth over intact perineum in spite of large babies or unusual presentations. If the same midwife uses approximately the same perineal protection techniques with each birth but gets very different perineal outcomes, one must assume that there are other factors besides perineal management at work. Techniques, size, and presentation of the baby those are also important in the ability to maintain an intact perineum during birth.

Striae gravidarum (SG) is a common phenomenon of stretch marks observed during pregnancy that may be an indicator of poor skin elasticity.

Discussion

Striae gravidarum is common occurrence during pregnancy, though its severity is not considered as a medical condition in any clinical relevance for consideration in routine follow-up practice. It develops after 24 weeks of gestation. It has been reported that previous occurrence of striae on the breasts or thighs, family history of striae and race are significant predictors of striae development.5 Previous studies have demonstrated that maternal age, baseline and delivery BMI, neonatal birth weight, length and head circumference were independently associated with the occurrence of striae.7 Many factors have an impact on whether patients have perineal tears at the time of delivery. These factors are outlined in Table 1.

Table 1: Factors associated with perineal tear

Component	Perineal Tear	No Perineal Tear
Striae No striae Mild (TSS up to 12) Moderate (TSS 13-18) Severe (TSS>18)		
Delivery Type Controlled, Slow Rapid, Emergency		
Conducted by Junior resident Senior resident		
Fetal Position occipito anteriorOccipito posterior		
Episiotomy Given Not given		
Baby Weight (KG) 2.1 - 2.5 2.5 – 3>3		

Conclusion

Striae score should be thus part of obstetrical assessment of the patients in the third trimester of pregnancy because such scores can be obtained with a simple and noninvasive observation. Paramedical staff in peripheral centers can also be trained to calculate the total striae score which can help them decide if episiotomy is to be given or not. Episiotomy definitely seems to be preventive for perineal tears but giving episiotomy for the same is still debatable as episiotomy in itself is associated with morbidity. But some studies it is observed that episiotomy given in patients with moderate to severe striae gravidarum definitely protects against perineal tears.

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