Original Research Article

Evaluation of prevalence and impact of Striae gravidarum on the dermatology - Specific quality of life in pregnant women

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Abstract

Background: During pregnancy many skin changes may be experienced by a woman. Striae gravidarum (SG) is the commonest physiological skin change which seems to be undesirable. Striae gravidarum are frequently found as linear lesions on abdomen, breasts, buttocks and thighs. Primary aim of this study was to evaluate the prevalence and effect of SG on the dermatology-specific quality of life (QOL) of pregnant women. **Methods:** This multicentric cross-sectional study was conducted in KPC Medical College, Kolkata and Silchar Medical College, Assam using Davey's score to asses intensity of striae gravidarum and World Health Organization Quality of Life assessment questionnaire Skindex-29 for dermatology specific QOL. Total 333 primigravida women of 35 weeks to 38 weeks gestation with singleton pregnancy were recruited from the ante-natal clinics of two medical colleges from May 2016 to October 2017. **Results:** Striae gravidarum was prevalent in 80.78% of women (269 cases), of which 47.95 % (129 women) had it with severe intensity. In our study, majority of the pregnant women with SG were below 30 years of age (88.4%) and weight gain in pregnancy also had relation with SG (p- 0.0002536). Mean gestational period of noticing stretch marks was 27.4 weeks. Significantly higher scores on Skindex 29 which means poor dermatology-specific quality of life (QOL) was noted in women with severe striae gravidarum ($p<0.00001$). **Conclusion:** Striae gravidarum is highly prevalent skin change in pregnant Indian women. Dermatology specific QOL is significantly affected by Striae gravidarum.

Key Words: Striae gravidarum, Dermatology-specific Quality of life.

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INTRODUCTION

Variety of skin changes can occur during pregnancy. Common changes are hyperpigmentation, melasma, striae gravidarum (SG), prurigo gravidarum and some nail, hair, vascular, and oral cavity changes. SG is the commonest physiological skin change during pregnancy which seems to be undesirable. Stretch marks are not an illness but many women are upset by the appearance of such marks during pregnancy. Stretch marks occur along with the pigmentary changes in most pregnant women, usually by the end of the third trimester with reported incidence of up to 90%[1]. SG are frequently found as linear lesions on abdomen, breasts, buttocks and thighs. Fresh ones are usually pinkish in colour, which progresses to white. Stretch marks are often causing pruritus and significant psychological distress in pregnant women especially if they are severe. The cause of striae is multifactorial and includes physical factors (e.g., actual stretching of the skin) and hormonal factors (e.g., effects of adrenocortical steroids, estrogen, and relaxin on the skin's elastic fibers).[2] Nonwhites and women with a history of breast or thigh striae or a family history of striae gravidarum also are at higher risk.[3] Very few datas are available on the prevalence of striae gravidarum and its impact on quality of life of women. From cosmetic concern women often seek various expensive and painful treatments, but in vain[4]. These background initiated us to evaluate the prevalence and impact of SG on the dermatology-specific quality of life in pregnant women.

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MATERIAL AND METHODS

Study design- Present study is a cross-sectional, self-administered questionnaire oriented one. The study has been conducted in KPC Medical College, Kolkata and Silchar Medical College, Assam. Primary aim of this study was to evaluate the prevalence and effect of Striae gravidarum on the dermatology-specific quality of life (QOL) of pregnant women. Due permission was taken from the ethical committee of the respective institutions. Davey's scoring was used to assess the severity of abdominal Striae gravidarum (5) and WHOQOL-BREF Skindex 29 for assessment of impact of Striae gravidarum on emotional aspect of Dermatology-specific Quality of life of pregnant women. Participants were primigravida mothers with singleton pregnancy of 35 to 38 weeks of gestation attending the antenatal clinics of the said institutions from May 2016 to October 2017. Pregnant women having other preexisting dermatological abnormality were excluded from our study. We assessed the presence and extent of SG on the abdomen of pregnant mothers by using Davey's scores. They were explained about the Dermatology Life Quality Index (DLQI) chart which was also having standardized Bengali version. Informed written consent was obtained from willing participants. 333 women were recruited fulfilling all criterias for this self-administered study having a minimum education up to 8th standard. Their age at pregnancy, height and weight at first antenatal visit, were collected from the records. Gestational period of noticing stretch marks and weight gain during pregnancy was also taken into consideration.

Methodology: Davey's score The abdomen was divided into four quadrants using a longitudinal and horizontal line through the umbilicus. Each quadrant was scored 0 (=clear skin), 1 (=moderate number of striae) or 2 (=many striae). Total sum scores ranged from 0 to 8. The severity of striae gravidarum was divided into three categories, 0 (absent), 1 to 2 (mild), and 3 to 8 (severe)[5]. Skindex 29 is a questionnaire developed by Chren *et al* in 1997(6). It has got 30 items forming 3 different scales in assessing skin problems. Emotional aspect was included in 10 items which is clubbed as the Dermatology Life Quality Index (DLQI). We have used the DLQI which consists of 0 to 4 score ranging from no involvement to mild, moderate, or severe affection for each of the 10 points. Out of total 40 score, 25% i.e. score 10 and above is considered as significant impact on QOL. We used English version as well as validated Bengali translation. Statistical analysis was done using Chi square and p value <0.05 was considered significant.

RESULTS

Datas from both the centers were evaluated together. The clinical parameters are summarized in Table 1. Majority of the pregnant women with SG were below 30 years of age (88.4%). Weight gain in pregnancy had relation with SG (p- 0.0002536).

Table 1: Clinical parameters

		With SG (n= 269)	Without SG (n= 64)	P value (chi Sqaure)
Age (in years)	<20	82(30.4%)	9(14%)	<0.0001 (92.97)
	20-30	156(58%)	12(18.7%)	
	>30	31(11.5%)	43(67%)	
Height	<152 cm	121(45%)	27(42%)	0.7940 (0.163)
	>152 cm	148(55%)	37(57.8%)	
Weight gain in pregnancy	<10 kg	55(20.4%)	23(36%)	0.0002536 (16.56)
	>10-13 kg	186(69.1%)	27(42%)	
	>13kg	28(10.4%)	14(21.8%)	

*n- number of cases

The prevalence of SG was very high, 269 pregnant women out of 333 (80.78%). Severe form of striae gravidarum was seen amongst 47.95% cases of total subject having stretch marks of pregnancy. Mean gestational period of noticing stretch marks was 27.4 weeks. The extent of striae gravidarum is summarized in Table 2.

Table 2: Severity of abdominal Striae gravidarum assessment by Davey's scoring

		Number	Percentage
Without SG		64	19.2%
With SG		269	80.78%
Severity of SG	1 to 2 (mild)	140	52.04%
	3 to 8 (severe)	129	47.95%

DLQI score shows significant emotional involvement of those with severe form of Striae gravidarum (p value-<0.00001) as seen in Table-3.We had considered 25% scoring (10 score) in the DLQI chart as significant emotional involvement for the Dermatology-specific Quality of life of pregnant women.

Table 3: Skindex 29 (DLQI) in pregnant women with SG

DLQI Score	Mild SG (n=140)	Severe SG (n=129)	Total	P value (chi Square)
<10	83(82.17%)	18 (17.82%)	101	<0.00001 (58.62)
>10	57(33.92%)	111 (66.07%)	168	

*n- number of cases

DISCUSSION

Stretch marks are not an illness but many women are upset by the appearance of such marks during pregnancy. As SG does not pose a significant health risk of the woman, there are very few studies available regarding this subject which is even more specific for a highly populous country like India with many other major issues. Most of the striae fade to pale- or flesh-colored lines and

shrink postpartum but they usually do not disappear completely. Although stretch marks appear in thighs, breasts, buttocks, it is most prominent in abdomen and our study concentrates on abdominal striae. Generally applicable methods to estimate the striae gravidarum were reported by Davey[5] and Atwal *et al*[7]. In Davey's method, the striae gravidarum spreading through the whole abdomen are evaluated, and this method is widely used. We have also used Davey's scoring system. An evaluation of colour of the striae gravidarum as well as their presenting features are documented in Atwal's method. In the study by Yamaguchi *et al*[8] prevalence of striae gravidarum among Japanese women was 39.1% (27.7% for primipara and 51.8% for multipara). The occurrence rates of SG among primipara in the UK was 63% in a study by Thomas RG *et al* (9). Our study reveals a much higher prevalence of striae gravidarum among primigravida women (80.78%) which is similar to the findings of Ghasemi A *et al*[10]. They observed that 87.7% of the women developed SG with a mean Davey's score of 4.04 +/- 2.47. We observed that there was relation between age at pregnancy and stria. In our study majority of the pregnant women with SG were below 30 years of age (88.4%). Joly P also found that women with striae gravidarum were younger than those with no striae gravidarum[11]. According to Yamaguchi *et al* (8) the severity of striae gravidarum depended on parity ($p < 0.001$), and severe cases appeared in 4.3% of primipara and 25.9% of multipara. Atwal *et al* did study on primipara and found that 12% cases had severe striae[7]. Our study population was also confined to primigravida with much higher rate of severe striae gravidarum (47.95%). High prevalence, and severity amongst our subjects maybe a contribution of genetic factor, weather of these particular region of India affecting hydration of the skin etc. We found that weight gain in pregnancy also had relation with SG (p- 0.0002536) which is similar to the findings of Yamaguchi *et al*[8]. Once striae gravidarum appear during pregnancy, they remain after delivery. Dermatology specific QOL scale such as Skindex-29 is most often used in clinical studies to assess the impact of striae gravidarum on emotional aspects (12). Severe striae gravidarum is significantly affecting the emotional aspect of QOL. In our study majority of women (66.07%) having severe SG had score >10 (p value <0.00001). Yamiguchi *et al* found that severe SG impaired emotion in the dermatology-specific QOL significantly more than mild striae gravidarum did[8]. In this regard, our inference matches with other studies. As a result many women use some form of prophylaxis which again reflects their impaired QOL.

Limitations of current study: We did not assess role of emollients, or hydrating agents as a prophylaxis of striae gravidarum if any. Very high prevalence of striae gravidarum and its significant effect on emotional domain in our study also necessitates larger amount of study material for future evaluation and giving importance for development of prophylactic methods. Our future studies also should focus on multigravida women, and evaluation of QOL after delivery as striae gravidarum once appears is a permanent phenomenon.

CONCLUSION

Prevalence of striae gravidarum is very high in the Indian women. Presence of severe striae gravidarum imposes significant emotional risk on Dermatology-specific Quality of life of pregnant women. Some effective remedies should be invented so that pregnant women need not have to console by saying striae gravidarums are "first drawing of their babies".

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