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A Clinical Study of Cutaneous Manifestations in Pregnancy: A Dermatological Perspective

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Conflict of interest: Nil

Abstract

Background: Pregnancy is a unique physiological state associated with significant hormonal, metabolic, vascular, and immunological alterations that affect the skin. These changes may manifest as physiological variations, pregnancy-specific dermatoses, or coincidental dermatological conditions.

Materials and Methods: The current descriptive observational study was done among 100 pregnant women aged 20–35 years presenting with cutaneous manifestations at a tertiary care center. All women fulfilling the inclusion criteria were enrolled after obtaining informed consent. Ethical clearance was obtained from the Institutional Ethics Committee prior to commencement of the study.

Results: Physiological cutaneous changes predominated, accounting for 72% of cases. Pregnancy-specific dermatoses were seen in 14% of patients, while associated dermatoses were observed in an equal proportion (14%). Among physiological alterations, melasma (58%) was the most prevalent pigmentary change. Other commonly seen findings included linea nigra (46%), striae gravidarum (42%), and palmar erythema (18%). Most cutaneous manifestations were seen during 2nd trimester of pregnancy. Most patients showed favorable response to conservative management, and there is significant improvement or resolution in the postpartum period.

Conclusion: Cutaneous manifestations during pregnancy are diverse, with physiological changes constituting the majority of cases. Early recognition, accurate classification, and appropriate management are essential to ensure favorable outcomes.

Keywords: Pregnancy, cutaneous manifestations, physiological changes, pregnancy-specific dermatoses, atopic eruption of pregnancy

Introduction

Pregnancy is a physiological state associated with various hormonal, metabolic, vascular, and immunological changes. Many of these alterations become evident at the

level of the skin and are frequently encountered in routine clinical practice.[1] Cutaneous changes are common among the earliest features noticed by patients during pregnancy. The dermatological manifestations seen in pregnancy can broadly be divided into physiological changes, pregnancy-specific dermatoses, and coincidental skin disorders.[2] Physiological changes such as hyperpigmentation, striae gravidarum, and vascular alterations are extremely common and are usually benign in nature. But there is a concern due to cosmetic reasons.

Along with common physiological changes, pregnancy may also alter the course of pre-existing dermatological conditions and predispose to the development of new skin disorders due to complex immunological and hormonal shifts. The modified immune response during pregnancy, characterized by a shift towards humoral immunity, plays vital role in the pathogenesis of various pregnancy-specific dermatoses. These changes may affect the severity and presentation of skin diseases, making clinical evaluation challenging. Clear understanding of these alterations is essential for early diagnosis, appropriate management, and prevention of potential maternal and fetal complications associated with certain dermatological conditions.

Aim: To evaluate the pattern of cutaneous manifestations in pregnant women attending a tertiary care centre and to better understand their clinical relevance.

Materials and Methods

Type of study: descriptive observational study

Sample size: 100 pregnant women aged 20–35 years presenting with cutaneous manifestations at a tertiary care center.

Inclusion Criteria

- Pregnant women aged 20–35 years
- Presence of one or more cutaneous manifestations

Exclusion Criteria

- Severe dermatological conditions unrelated to pregnancy
- Patients unwilling to participate

Methodology

After obtaining informed consent, a detailed clinical history was recorded for each participant. This included age, gravidity, trimester of pregnancy, onset and duration of skin lesions, associated symptoms such as pruritus, and any history of pre-existing dermatological conditions.

A thorough dermatological examination was performed in all cases. Cutaneous manifestations were classified into:

1. Physiological changes
2. Pregnancy-specific dermatoses
3. Associated (coincidental) dermatoses

Data analysis: Collected data were entered into the excel and analysis was done using SPSS software version 24.0. Data were shown as frequencies and percentages.

Ethical aspects: Informed consent was taken from all participants

Results

Demography

Most of the participants were in the 26–30 years age group (42%), followed by 20–25 years (38%) and 31–35 years (20%). More than half of the study population were primigravida (56%), 44% were multigravida. Most patients presented during the second trimester (47%), followed by the third trimester (35%) and first trimester (18%). More patients were from rural areas (60%) compared to urban areas (40%).

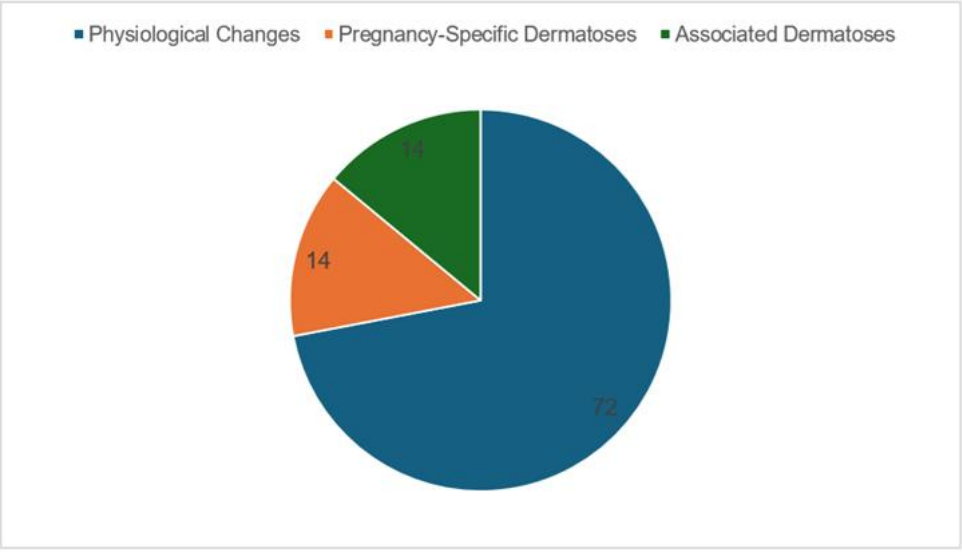
Table 1: Demographic data

Variable	Category	Number	Percentage (%)
Age (years)	20–25	38	38%
	26–30	42	42%
	31–35	20	20%
Gravidity	Primigravida	56	56%
	Multigravida	44	44%
Trimester	First trimester	18	18%
	Second trimester	47	47%
	Third trimester	35	35%
Residence *(optional)*	Urban	40	40%
	Rural	60	60%

Changes seen:

Physiological cutaneous changes constituted the majority of cases, accounting for 72% of patients. Pregnancy-specific dermatoses and associated dermatoses were observed in 14% each.

Graph 1: Changes seen in the study



Physiological changes: Among physiological changes, melasma (58%) was the most common finding, followed by linea nigra (46%), striae gravidarum (42%), and palmar erythema (18%).

Table 2: Physiological Changes

Condition	Number	Percentage
Melasma	58	58%
Linea Nigra	46	46%
Striae Gravidarum	42	42%
Palmar Erythema	18	18%

Clinical Findings

Most physiological changes were observed during the second trimester. Atopic eruption was the most common pregnancy-specific dermatosis. Most patients responded well to topical therapy and reassurance.

Table 3: Clinical findings seen

Clinical Parameter	Category	Number	Percentage (%)
Timing of presentation	First trimester	18	18%
	Second trimester	47	47%
	Third trimester	35	35%
Pruritus	Present	52	52%
	Absent	48	48%
Type of condition in pruritic cases	Pregnancy-specific dermatoses	14	26.9%
	Physiological changes with mild itching	28	53.8%
	Associated dermatoses	10	19.3%
Treatment response	Conservative management effective	78	78%

Outcome: Most had complete or partial resolution.

Graph 2: Outcome among subjects

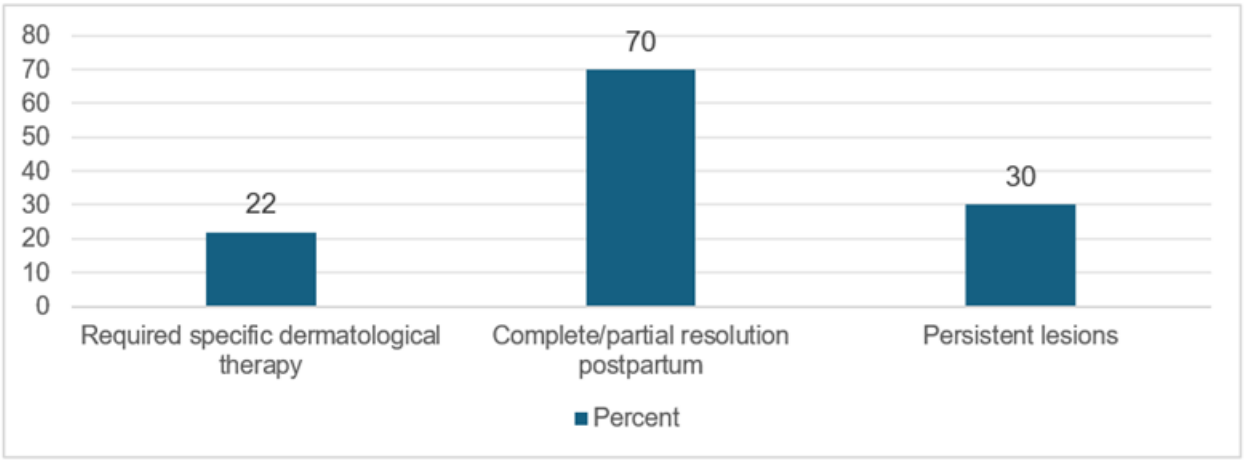


Figure 1: Linea nigra along with striae gravidarum in our study participant

Figure 2: Pruritic Urticarial Papules and Plaques of Pregnancy

Discussion

The findings of the present study are in agreement with previous reports, where physiological changes were found to be the most common dermatological manifestations in pregnancy.[3] Hyperpigmentation is one of the earliest and most frequently observed changes and is attributed to increased melanocyte activity under hormonal influence, particularly estrogen and melanocyte-stimulating hormone.[4] Though considered physiological, it causes cosmetic concern among patients. Striae gravidarum, another common finding occur due to hormonal factors and mechanical stretching of the skin, leading to disruption of dermal connective tissue.[5] Pregnancy-specific dermatoses, are less common, but of greater clinical importance. These include polymorphic eruption of pregnancy, atopic eruption of pregnancy, and pemphigoid gestationis.[6] These conditions are associated with pruritus and may require medical intervention. In certain cases, particularly pemphigoid gestationis, there may be implications for fetal outcome.[7] Coincidental dermatological conditions may occur during pregnancy, as new-onset diseases or as exacerbations of pre-existing disorders.[8]

Physiological skin changes are expected during pregnancy and are due to hormonal and vascular alterations.[9] Hyperpigmentation was the most commonly seen change. Linea nigra and melasma were commonly noted, and in some patients, pigmentation over the areola and other flexural areas was also seen. Though these changes are well recognized, the extent varied between individuals, affected by skin type and sun exposure.[10] Striae gravidarum were another common finding, particularly in the later stages of pregnancy. They were most often seen over the abdomen, thighs, and breasts. While mechanical stretching plays a role, hormonal factors affecting dermal connective tissue are also thought to contribute.[11] Vascular changes were seen including palmar erythema and, in some cases, increased visibility of superficial veins. These changes are asymptomatic and are believed to be related to elevated estrogen levels during pregnancy.[12]

Pregnancy-specific dermatoses formed a smaller proportion of cases in the present study, but they were clinically more significant due to the symptoms they produced and, in some cases, their potential implications. Among these, polymorphic eruption of pregnancy was

the most frequently observed condition. It presented in the third trimester with pruritic papules and plaques, mostly over the abdomen, and was more commonly seen in primigravidas.[13] Atopic eruption of pregnancy was also encountered and showed some variation in presentation. While a few patients had classical eczematous lesions, others presented with more papular eruptions, which at times made the diagnosis less straightforward. A definite history of atopy was not present in all cases, which has also been noted in previous studies.[14]

Pemphigoid gestationis was relatively rare in this study. But it is an important entity because of its autoimmune nature and possible association with adverse fetal outcomes. The clinical presentation in our cases was in line with what has been described in the literature, although early lesions were subtle in some patients.[15] Management and follow-up may differ from other pregnancy-related skin changes.[16] PUPP associated dermatoses included infections such as fungal and bacterial infections, as well as exacerbations of pre-existing dermatoses.[17]

In some patients, pre-existing skin diseases appeared to worsen during pregnancy, while in others, new-onset conditions were observed. This variation may be related to the immunological and hormonal changes that occur during pregnancy, which can alter the course of certain dermatological disorders.[18] Variations with other studies may be due to differences in sample size, demographic profile, and healthcare-seeking behaviour. In our setting, delayed presentation was not uncommon, which may have influenced the observed clinical spectrum. Another practical observation was that many patients were more concerned about cosmetic changes than symptoms. This shows the importance of counselling, as reassurance alone is sufficient in physiological conditions.[19,20]

Conclusion

The current study findings are particularly relevant in the Indian population, where more Fitzpatrick skin phototypes contribute to increased visibility and prevalence of pigmentary alterations[5,7]. Pemphigoid gestationis requires prompt recognition and careful monitoring due to its association with adverse fetal outcomes[13]. Climate, nutritional status, and socioeconomic conditions may further influence the pattern of cutaneous manifestations. So region-specific data, like that provided by this study, are essential for improving clinical awareness and tailoring management strategies. Enhanced clinician awareness, early diagnosis, and appropriate management of pregnancy-related dermatoses can improve maternal quality of life and contribute to favorable pregnancy outcomes.

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