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Clinical Spectrum and Maternal–Fetal Outcomes of Dermatoses of Pregnancy: A Cross-Sectional Study

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Abstract

Introduction: Dermatoses of pregnancy represent a group of inflammatory and pruritic skin disorders occurring specifically during pregnancy or in the immediate postpartum period. Hormonal, immunological, and vascular changes during pregnancy influence the skin, resulting in physiological changes and specific pathological dermatoses. Pregnancy-specific dermatoses include atopic eruption of pregnancy, polymorphic eruption of pregnancy [pruritic urticarial papules and plaques of pregnancy (PUPP)], pemphigoid gestationis, and intrahepatic cholestasis of pregnancy. Some of these conditions are benign, whereas others are associated with adverse maternal and fetal outcomes. ***Materials and Methods:*** A cross-sectional observational study was conducted from September 2024 to August 2025 among pregnant women attending antenatal clinics presenting with dermatological complaints. Detailed clinical examination, obstetric evaluation, laboratory investigations, and follow- up were performed. Patients were categorized based on clinical diagnosis and gestational age of onset. ***Results:*** Among 150 pregnant women evaluated, pregnancy-specific dermatoses were diagnosed in 34% of cases. Atopic eruption of pregnancy was the most common condition followed by Polymorphic eruption of pregnancy, intrahepatic cholestasis of pregnancy, and pemphigoid gestationis. Majority of cases occurred during the third trimester. Significant association was observed between pruritus severity and type of dermatosis. ***Conclusion:*** Dermatoses of pregnancy are relatively common and require early diagnosis. Identification of high-risk conditions such as intrahepatic cholestasis and pemphigoid gestationis is essential to prevent fetal complications. Multidisciplinary management improves maternal comfort and fetal outcome.

Keywords: Dermatoses of pregnancy, PUPPP, Pemphigoid gestationis, Atopic eruption of pregnancy, Obstetric dermatology

INTRODUCTION

Pregnancy is associated with numerous physiological and pathological skin changes due to hormonal fluctuations, immune modulation, and metabolic alterations. Dermatological manifestations during pregnancy may be classified into physiological changes, exacerbation of pre-existing dermatoses, and pregnancy-specific dermatoses. Pregnancy-specific dermatoses constitute a heterogeneous group of inflammatory skin disorders that occur exclusively during gestation or postpartum.

Hormonal changes such as increased estrogen and progesterone levels play a major role in skin alterations during pregnancy. These hormonal effects cause hyperpigmentation, vascular dilatation, and glandular changes. In addition, immunological adaptation during pregnancy results in suppression of cell-mediated immunity, which contributes to development of inflammatory dermatoses and increased susceptibility to infections.

The classification of pregnancy dermatoses has evolved over time. The currently accepted classification includes four major entities: atopic eruption of pregnancy (AEP), polymorphic eruption of pregnancy (PEP) is also called as pruritic urticarial papules and plaques of pregnancy (PUPP)], pemphigoid gestationis (PG), and intrahepatic cholestasis of pregnancy (ICP). These conditions commonly present with intense pruritus and characteristic skin lesions.

Atopic eruption of pregnancy is the most common pregnancy dermatosis and usually presents during early gestation with eczematous lesions and papules predominantly involving limbs and trunk. Polymorphic eruption of pregnancy, also known as pruritic urticarial papules and plaques of pregnancy, typically occurs during the third trimester and is associated with stretch marks of the abdomen.

Pemphigoid gestationis is a rare autoimmune blistering disorder characterized by periumbilical pruritic plaques and vesicles that may progress to bullous lesions. It is associated with increased risk of preterm delivery and fetal growth restriction. Intrahepatic cholestasis of pregnancy is characterized by generalized pruritus without primary skin lesions and is associated with increased risk of fetal distress and stillbirth.

The incidence of pregnancy dermatoses varies globally depending on ethnicity, parity, and socioeconomic factors. Studies have reported that most pregnancy-specific dermatoses occur during the third trimester and are more common in primigravida women.

Early identification of pregnancy dermatoses is crucial as certain conditions may have serious fetal consequences. Dermatological examination plays a vital role in diagnosis and monitoring. Hence, this study aims to evaluate the clinical spectrum and frequency of dermatoses of pregnancy and their maternal and fetal outcomes.

MATERIALS AND METHODS

This is a hospital-based, cross-sectional and observational study was Department of Dermatology and Obstetrics at a tertiary care hospital from September 2024 to August 2025.

Study Population

Pregnant women attending antenatal clinics with dermatological complaints.

Sample Size

Sample size was calculated using prevalence rate of pregnancy dermatoses estimated at 30%, with 95% confidence interval and 8% margin of error. A total of 150 patients were included.

Inclusion Criteria

- Pregnant women of any gestational age
- Presence of dermatological manifestations during pregnancy
- Willingness to participate in study

Exclusion Criteria

- Dermatological disorders present before pregnancy
- Drug-induced skin reactions
- Chronic liver or autoimmune diseases
- Infectious dermatoses unrelated to pregnancy

Methodology

All patients underwent detailed evaluation including:

1. Clinical Assessment

- Detailed history including onset, duration, pruritus severity
- Obstetric history including parity and gestational age
- Family history of atopy or autoimmune disease

2. Dermatological Examination

- Type of skin lesion
- Distribution pattern
- Presence of mucosal involvement

3. Laboratory Investigations

- Complete blood count
- Liver function test
- Serum bile acids
- Skin biopsy (in suspected pemphigoid gestationis)
- Immunofluorescence study when indicated

4. Obstetric Evaluation

- Fetal growth monitoring
- Ultrasonography
- Non-stress test

Statistical Analysis

Data were analyzed using SPSS software version 25. Frequency and percentages were calculated. Chi-square test was used to determine association between dermatosis type and obstetric outcomes. P-value <0.05 was considered statistically significant.

RESULTS

Table 1: Age Distribution

Age Group	Number	Percentage
<20 years	18	12%
20–30 years	92	61.3%
>30 years	40	26.7%

Majority of patients were in reproductive age group 20–30 years.

Table 2: Trimester of Onset

Trimester	Number	Percentage
First	28	18.7%
Second	46	30.7%
Third	76	50.6%

Most dermatoses occurred during third trimester.

Table 3: Types of Pregnancy Dermatoses

Dermatosis	Number	Percentage
Atopic eruption	32	21.3%
Polymorphic eruption	28	18.7%
Intrahepatic cholestasis	14	9.3%
Pemphigoid gestationis	7	4.7%

In table 3, Atopic eruption of pregnancy is common one when compared to polymorphic eruption of pregnancy.

Table 4: Clinical Manifestations

Manifestation	Number	Percentage
Pruritus	110	73.3%
Papules/Plaques	72	48%
Vesicles/Bullae	10	6.7%
Excoriations	58	38.7%

Pruritus was the most frequent presenting symptom.

Table 5: Parity Distribution

Parity	Number	Percentage
Primigravida	90	60%
Multigravida	60	40%

Pregnancy dermatoses were more common in primigravida women.

Table 6: Maternal and Fetal Outcomes

Condition	Preterm Delivery	Fetal Distress
ICP	28.6%	21.4%
PG	14.3%	14.3%
PEP	3.1%	0%
AEP	2.8%	0%

ICP showed highest risk of adverse fetal outcomes.

DISCUSSION

Dermatoses of pregnancy represent an important group of dermatological disorders that may significantly affect maternal comfort and fetal health. The present study demonstrated that Atopic eruption of pregnancy was the most common dermatosis. Previous studies have similarly reported Atopic eruption of pregnancy as the most frequent pregnancy dermatosis, particularly in primigravida women and during third trimester.

Atopic eruption of pregnancy was the most common dermatosis observed in the present study. It usually presents early in pregnancy with eczematous lesions. Research suggests that hormonal and immunological changes during pregnancy predispose individuals with atopic tendency to develop skin lesions.

Polymorphic eruption of pregnancy is believed to occur due to rapid abdominal distension leading to connective tissue damage and inflammatory response. It commonly originates in abdominal striae and spreads to thighs and buttocks. Studies indicate that PEP is benign and rarely affects fetal outcome.

Intrahepatic cholestasis of pregnancy was observed in 9.3% of cases. This condition presents with severe pruritus without primary skin lesions. ICP is associated with elevated bile acids and carries significant risk of fetal complications including stillbirth and preterm labor. Early diagnosis and treatment with ursodeoxycholic acid improves fetal outcomes.

Pemphigoid gestationis is a rare autoimmune blistering disorder caused by circulating antibodies against basement membrane proteins. It commonly begins around the umbilical region and progresses to blister formation. Studies indicate recurrence in subsequent pregnancies and association with premature delivery.

The present study demonstrated higher incidence of dermatoses among primigravida women, which is consistent with previous literature. Hormonal adaptation and immune modulation during first pregnancy may contribute to increased susceptibility.

Pruritus was the most common presenting symptom across all dermatoses. Severe pruritus significantly affects quality of life and may cause sleep disturbances and psychological stress.

Overall, early dermatological consultation during pregnancy facilitates prompt diagnosis and treatment. Multidisciplinary collaboration between dermatologists and obstetricians is essential to optimize maternal and fetal outcomes.

CONCLUSION

Dermatoses of pregnancy constitute a significant group of pregnancy-related dermatological disorders. Atopic eruption are the most common conditions, whereas intrahepatic cholestasis and pemphigoid gestationis are associated with fetal complications. Early diagnosis and multidisciplinary management are crucial for favorable maternal and neonatal outcomes. Routine dermatological screening during antenatal care can help in early detection and treatment.

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