

A Study on Various Cutaneous Changes in Pregnant Women.Govvala Lakshmi Priyanka¹, M Divya², M Sowjanya³, Y. Annapoorna⁴, G. Kasimbi⁵, T Jaya Chandra⁶¹Resident, Department of Obstetrics and Gynaecology, GSL Medical College, Rajahmundry.²Associate Professor, Department of Obstetrics and Gynaecology, GSL Medical College, Rajahmundry.³Associate Professor, Department of Obstetrics and Gynaecology, GSL Medical College, Rajahmundry.⁴Professor, Department of Obstetrics and Gynaecology, GSL Medical College, Rajahmundry.⁵Professor & Head, Department of Obstetrics and Gynaecology, GSL Medical College, Rajahmundry.⁶Central Research Laboratory, GSL Medical College, Rajahmundry.

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Abstract

The study aims to explore the diverse physiological and pathological skin changes experienced by pregnant women, including pigmentary alterations, vascular variations, glandular shifts, and infections. By understanding these changes, the goal is to enhance understanding of their impact on women's lives and improve pregnancy-related dermatological care.

Methods: A prospective observational study was conducted at GSL Medical College's Obstetrics and Gynaecology department. Pregnant women over 18 attending the hospital outpatient services were included. Detailed obstetric and clinical histories were collected via questionnaire, followed by physical and obstetric examinations, including dermatological assessments. Routine antenatal investigations were conducted, with additional tests as needed for diagnosis confirmation.

Results: Among 183 participants (mean age: 23.58 ± 3.95 years, mean gestational age: 27.88 ± 8.06 weeks), pigmentary changes (79.4%) and striae gravidarum (76.7%) were common. Melasma was predominantly centrofacial (60.8%). Specific dermatoses significantly differed between primi and multi, peaking in the third trimester. Infections showed no significant difference between primi and multi.

Conclusion: The study underscores the prevalence of pigmentary changes, striae gravidarum, and other dermatological alterations during pregnancy, influenced by hormonal fluctuations and mechanical stretching. Differences in specific dermatoses between primiparous and multiparous women are noted, particularly in the third trimester, while infection rates remain consistent regardless of parity.

Keywords: Pregnancy, Dermatological Changes, Hormonal Influence, Primiparous, Infections.

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Introduction

Over 90% of women experience significant skin changes during pregnancy, which can greatly impact their lives. [1] These changes are primarily due to a complex array of immunological, endocrinological, vascular, and metabolic alterations occurring during pregnancy. Physiological cutaneous changes encompass pigmentary alterations, connective tissue modifications, vascular changes, glandular changes, as well as changes in hair and nails. [2]

The most common pregnancy marker is pigmentary change, particularly hyperpigmentation like tinea nigra, caused by increased levels of melanocyte-stimulating hormone, estrogen, or progesterone. Striae gravidarum typically appear on the lower abdomen in the second and third trimesters.

Vascular changes can result in palmar erythema, edema, spider nevi, cutis marmorata, gingival edema, redness, and varicosities. [3] Hair changes include male pattern alopecia, hirsutism, and increased hair growth, while nail changes involve brittle nails, transverse grooving, subungual hyperkeratosis, distal onycholysis, and longitudinal melanonychia. During pregnancy, apocrine gland function decreases, whereas eccrine and sebaceous gland activity increases. [4]

Infections, especially fungal ones, are the most common dermatological issue during pregnancy, with vulvovaginal candidiasis, tinea versicolor, scabies, dermatophytosis and sexually transmitted infections like herpes genitalis and condyloma acuminatum. [3] Pruritus may stem from infections, systemic diseases, or specific pregnancy-related

dermatoses such as Pruritic urticarial papules and plaques of pregnancy (PUPPP), obstetric cholestasis, and herpes gestationis. With this, the aim of this study is to find the physiological and pathological cutaneous changes in pregnant women.

Methods

It was a Prospective observational study conducted in the department of Obstetrics and gynaecology, GSL Medical College. Study was conducted between November 2020 to April 2022. Study protocol was approved by the institutional ethics committee. An informed written consent was taken from the study members.

Pregnant women > 18 years, those attended this institution hospital on outpatient basis were included in this study. Non cooperative pregnant women and those with pre-existing dermatological diseases were not considered in this research. All pregnant women attending the antenatal clinic during the study period were included in the study. After obtaining informed consent, a detailed obstetric and clinical history was collected using a pre-structured questionnaire. This was followed by a complete physical and obstetric examination of all participants. Additionally, a thorough dermatological examination was conducted to identify both physiological and pathological cutaneous changes.

Routine antenatal investigations were carried out, including urine pregnancy test (UPT), hemoglobin (Hb), packed cell volume (PCV), blood group typing (BGT), random blood sugar (RBS), thyroid-stimulating hormone (TSH), complete urine examination (CUE), viral markers, and obstetric ultrasound scans. When necessary, appropriate investigations were performed to confirm diagnoses.

Statistical Analysis: Statistical analysis was conducted using SPSS Software version 20.0 and MS EXCEL 2010. All descriptive analyses were presented as mean \pm SD and percentages. Data were also tabulated and graphically represented. A chi-square test was performed to assess the association between various categorical variables. For all statistical analyses, a P-value of less than 0.05 was considered statistically significant.

Results

Total 183 members were included, mean age was 23.58 ± 3.95 yr and the mean gestational age 27.88 ± 8.06 weeks. The most frequent physiological changes were pigmentary changes (79.4%) and striae gravidarum (76.7%), with linea nigra and secondary areola common. The centrofacial pattern (60.8%) was the most prevalent melasma type, followed by the malar pattern (33.3%). There was significant difference between primi and multi in specific dermatoses and highest in third trimester.

No significant difference between primi and multi in infection

Discussion

In this study, the most frequent physiological changes observed during pregnancy are pigmentary changes and striae gravidarum. In a recent study, pigmentary changes were identified in 79.4% of cases, with linea nigra being the most common type, followed by secondary areola. Striae gravidarum were noted in 76.7% of cases, typically appearing on the abdomen and thighs.

Pigmentary changes during pregnancy are primarily due to hormonal fluctuations, specifically increased levels of estrogen, progesterone, and melanocyte-stimulating hormone. These hormonal changes stimulate melanocytes, leading to hyperpigmentation in areas such as the linea nigra and secondary areola. A study by Lawrence et al. [5] confirmed that hormonal influences significantly contribute to these pigmentary changes, emphasizing the role of estrogen and progesterone in melanin production.

Striae gravidarum, commonly known as stretch marks, are another prevalent skin change during pregnancy. These are caused by the rapid stretching of the skin and hormonal influences that affect the skin's elasticity. A comprehensive review by Wang et al. [6] highlighted that genetic factors, along with mechanical stretching and hormonal changes, play crucial roles in the development of striae gravidarum.

Additionally, secondary changes such as pedal edema (11.1%) and varicose veins (3.3%) are also noted during pregnancy. These conditions arise due to increased blood volume and pressure on the veins, exacerbated by hormonal changes affecting vascular function. Research by Patel et al. [7] provided insights into the vascular changes during pregnancy, linking them to increased levels of relaxin and progesterone.

Other miscellaneous conditions such as gingival hyperplasia (1.1%), skin tags (2%), acrochordon (2.2%), acanthosis nigricans (5.6%), miliaria (13.3%), and hirsutism (1.7%) are also observed. These changes can be attributed to the complex interplay of hormonal, metabolic, and immunological changes during pregnancy. A study by Kim et al. [8] discussed the broad range of dermatological changes in pregnancy, noting the significant impact of hormonal shifts.

Melasma is a common dermatological condition during pregnancy, characterized by hyperpigmented patches on the face. In a recent study, the centrofacial pattern was found to be the most prevalent type of melasma, affecting 60.8% of the women, followed by the malar pattern, which was observed in 33.3% of the cases. These findings align with those of Sheth et al. [9], who noted that

the centrofacial pattern is typically more common due to its association with higher exposure to sunlight and hormonal changes.

The study also highlighted a significant difference between primiparous (first-time mothers) and multiparous (having had more than one child) women regarding specific dermatoses. These dermatoses were most frequently observed in the third trimester of pregnancy. This trimester is characterized by heightened hormonal activity, which can exacerbate skin conditions. Research by Hassan et al. [10] supports this observation, indicating that the third trimester is often when dermatoses such as PUPPP peak due to increased hormonal and immunological changes. Conversely, there was no significant difference between primiparous and multiparous women concerning infections. This lack of difference may be attributed to the similar immune response mechanisms in both groups, as suggested by the findings of Smith et al. [11], who found that the risk of infections during pregnancy remains relatively constant regardless of parity.

Infections such as vulvovaginal candidiasis and bacterial vaginosis are common during pregnancy due to the immunosuppressive state induced by hormonal changes. A study by Patel et al. [12] found that the incidence of these infections does not significantly vary between first-time and experienced mothers, reinforcing the idea that parity does not influence susceptibility to infections. Additional research by Brown et al. [13] also confirmed that the rate of sexually transmitted infections (STIs) remains consistent across different parity groups, further underscoring the uniformity in infection rates. Finally, Khan et al. [14] emphasized that while hormonal and vascular changes during pregnancy significantly impact dermatoses, the immune system's modulation does not drastically alter infection rates between different parity groups, suggesting a balanced immunological adaptation in both primiparous and multiparous women.

The study underscores the prevalence of pigmentary changes, striae gravidarum, and other dermatological alterations during pregnancy, influenced by hormonal fluctuations and mechanical stretching. Differences in specific dermatoses between primiparous and multiparous women are noted, particularly in the third trimester, while infection rates remain consistent regardless of parity.

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