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STUDY OF VARIOUS CUTANEOUS CHANGES AND DISEASES ASSOCIATED WITH PREGNANCY IN AND AROUND BARABANKI.

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ABSTRACT

Pregnancy induces hormonal, immunological, vascular, and metabolic changes that commonly manifest on the skin. Although most cutaneous alterations are physiological, pregnancy-specific and non-specific pathological dermatoses also occur and may cause considerable maternal morbidity, and regional data from North Indian populations remain scarce.This hospital-based cross-sectional study enrolled 160 pregnant women at a tertiary care centre to determine the prevalence and pattern of cutaneous changes and their association with trimester and gravidity. Demographic, obstetric, and dermatological data were recorded on a structured proforma; associations were tested using chi-square/Fisher's exact test ($p<0.05$ significant). Physiological pigmentary change was near-universal (93.8%), chiefly linea nigra (84.4%), followed by connective tissue change (78.8%) and vascular change (56.3%). Pathological dermatoses occurred in 62.5%, comprising pregnancy-specific dermatoses in 18.8% (atopic eruption of pregnancy 13.1%, polymorphic eruption of pregnancy 4.4%, intrahepatic cholestasis of pregnancy 1.3%) and non-specific dermatoses in 43.8%. Overall and non-specific pathological dermatoses were significantly associated with advancing trimester ($p=0.002$ and $p<0.001$), being most prevalent in the third trimester, whereas pregnancy-specific dermatoses were relatively more frequent earlier in gestation ($p=0.002$); gravidity showed no significant association. Cutaneous change in pregnancy is predominantly physiological, but a substantial pathological burden exists, particularly in the third trimester, supporting the integration of routine dermatological assessment into antenatal care.

INTRODUCTION

Pregnancy produces sweeping hormonal, vascular, immunological, and metabolic adaptations that affect the skin, hair, nails, and mucosae [1,2]. Elevated oestrogen, progesterone, and melanocyte-stimulating hormone drive physiological changes such as hyperpigmentation, striae gravidarum, and vascular dilatation, most of which are benign and self-limiting [1–3].

Beyond these adaptations, pregnancy may also unmask pregnancy-specific dermatoses—including polymorphic eruption of pregnancy, atopic eruption of pregnancy, intrahepatic cholestasis of pregnancy, and pemphigoid gestationis—as well as non-specific dermatoses such as infections and inflammatory conditions that are incidental to, or modified by, gestation [3,4]. A Th2-skewed immunological shift during pregnancy further modulates the course of several dermatoses, improving Th1-mediated diseases while occasionally worsening Th2-mediated ones [5].

Indian studies from southern and western regions have documented a high burden of physiological change alongside a smaller but clinically important proportion of specific dermatoses [6–10], yet comparable data from North Indian populations remain limited. Early differentiation between benign physiological change and clinically significant pathology is essential to avoid misdiagnosis, unnecessary treatment, and maternal anxiety.

This study was undertaken to determine the prevalence, pattern, and trimester/gravidity-related distribution of cutaneous changes among pregnant women attending a tertiary care centre in Barabanki, Uttar Pradesh, thereby contributing regional epidemiological data to the Indian literature on pregnancy dermatoses.

MATERIALS AND METHODS

This hospital-based cross-sectional observational study was conducted jointly by the Departments of Dermatology, Venereology and Leprosy and Obstetrics and Gynaecology of a tertiary care teaching hospital, over a period of 18 months. One hundred and sixty consenting pregnant women attending the antenatal clinic or referred for dermatological evaluation were enrolled by consecutive sampling after applying pre-defined inclusion and exclusion criteria; women with pre-existing chronic dermatoses, systemic illness known to cause skin change, or those on long-term medications affecting the skin were excluded.

The minimum sample size was calculated as 151 ($Z=1.96$, anticipated prevalence 89%, allowable error 5%); 160 women were finally enrolled to allow for subgroup analysis. Each participant underwent a detailed history and a systematic dermatological examination of the scalp, face, trunk, extremities, mucosae, nails, and genital area under natural light, supplemented by relevant laboratory investigations (complete blood count, liver and renal function tests, KOH microscopy) where clinically indicated.

Findings were recorded on a pretested structured proforma and categorised into physiological changes, pregnancy-specific dermatoses, and non-specific pathological dermatoses. Participants were further stratified by trimester (first, ≤12 weeks; second, 13–28 weeks; third, >28 weeks) and gravidity (primigravida versus multigravida).

Data were analysed using SPSS version 23.0; categorical variables were summarised as frequencies and percentages and compared using the chi-square test or Fisher's exact test as appropriate, with $p<0.05$ considered statistically significant. The study was approved by the Institutional Ethics Committee, and written informed consent was obtained from all participants in accordance with ICMR (2017) guidelines.

RESULTS

The mean age of participants was 27.27 ±4.88 years (median 27; range 18–40 years), with 76.3% aged 21–30 years. Multigravida women constituted 60.6% of the cohort, and 72.5% presented in

the third trimester; trimester and gravidity were not significantly associated (χ^2=0.073, p=0.964).

Physiological pigmentary change was the most prevalent finding (93.8%), with linea nigra in 84.4%, neck pigmentation in 30.6%, flexural pigmentation in 28.1%, and chloasma in 7.5%. Connective tissue change, chiefly abdominal striae distensae, was seen in 78.8% (whitish striae 34.4%, purplish striae 21.9%). Vascular change occurred in 56.3%, predominantly peripheral pitting oedema (55.0%). Glandular, hair, oral, and nail changes were comparatively infrequent (Table 1).

Table – 1: Demographic and Physiological Characteristics (n=160)

Characteristic / Change	n	%
Age 21–30 years	122	76.3
Multigravida	97	60.6
Third trimester	116	72.5
Pigmentary change (linea nigra)	150 (135)	93.8 (84.4)
Connective tissue change (abdominal striae)	126 (126)	78.8 (78.8)
Vascular change (peripheral pitting oedema)	90 (88)	56.3 (55.0)

Source: Primary Clinical Data Collected At Knsmims, Barabanki.

Pathological dermatoses were present in 62.5% of women overall, comprising pregnancy-specific dermatoses in 18.8% and non-specific dermatoses in 43.8%. Among pregnancy-specific dermatoses, atopic eruption of pregnancy was the commonest (13.1%), followed by polymorphic eruption of pregnancy (4.4%) and intrahepatic cholestasis of pregnancy (1.3%). Non-specific dermatoses were led by infections/infestations (14.4%) and inflammatory dermatoses (13.8%); autoimmune disorders were not observed. No participant had pathological dermatoses in isolation without an accompanying physiological change (Table 2).

Table 2: Association of Pathological Dermatoses with Trimester and Gravidity

Association	χ^2 / Fisher's p	Trimester with highest prevalence	Significance
Overall pathological dermatoses vs trimester	χ^2=12.333, p=0.002	Third (70.7%)	Significant
Non-specific dermatoses vs trimester	χ^2=47.203, p<0.001	Third (60.3%)	Significant
Pregnancy-specific dermatoses vs trimester	Fisher's p=0.002	1st/2nd (35%/37.5%)	Significant
Overall pathological dermatoses vs gravidity	χ^2=0.211, p=0.646	—	Not significant
Pregnancy-specific dermatoses vs gravidity	Fisher's p=0.537	—	Not significant
Non-specific dermatoses vs gravidity	χ^2=0.034, p=0.854	—	Not significant

Source: Primary Clinical Data Collected at KNSMIMS, Barabanki.

Overall, 62.5% of participants required active treatment, while the remaining 37.5% were managed conservatively with reassurance and counselling.

DISCUSSION

This study demonstrates that cutaneous change is virtually universal during pregnancy, with pigmentary alteration and striae distensae representing the dominant physiological adaptations—findings that closely parallel the 91–92% pigmentary and 72–78% striae prevalence reported from South and Western Indian cohorts [6,9,10]. The predominance of peripheral pitting oedema among vascular changes, rather than spider angiomas or palmar erythema as emphasised in some earlier series [8], likely reflects the pronounced third-trimester representation of the present cohort, when plasma volume expansion peaks.

Pathological dermatoses affected almost two-thirds of participants, a proportion driven mainly by non-specific infectious and inflammatory conditions rather than pregnancy-specific disease. Atopic eruption of pregnancy emerged as the leading pregnancy-specific dermatosis in this cohort, in contrast to other Indian studies that have reported polymorphic eruption of pregnancy or prurigo of pregnancy as most common [7,9], suggesting regional or population-level variation in the spectrum of specific dermatoses. Intrahepatic cholestasis of pregnancy, though rare (1.3%), warrants vigilant screening given its associated fetal risk.

The significant third-trimester clustering of overall and non-specific pathological dermatoses is consistent with cumulative hormonal load, mechanical stretching, and greater antenatal healthcare contact in late gestation [6,8]. Conversely, pregnancy-specific dermatoses were relatively more frequent earlier in gestation in this cohort, a pattern that merits further confirmation in larger series. Gravidity did not significantly influence any dermatosis category, in contrast to some studies reporting a primigravida predisposition to specific dermatoses [8,10], indicating that parity alone may not be a reliable predictor of dermatologic risk in this population.

Strengths of this study include a reasonably powered sample spanning all trimesters, structured clinical categorisation, and statistically robust association testing. Limitations include the cross-sectional, single-centre design, referral bias inherent to a tertiary care setting, reliance on clinical rather than routine histopathological diagnosis, and dispropor-tionate third-trimester representation, which may limit generalisability and the detection of rare early-gestation dermatoses. Longitudinal, multicentric studies incorporating maternal –fetal outcome correlation and quality-of-life assessment are recommended to build on these findings.

CONCLUSIONS

Pregnancy is associated with a wide spectrum of cutaneous manifestations, most of which are physiological and hormonally mediated, led by pigmentary change and striae distensae. However, a substantial proportion of women develop pathological dermatoses, particularly non-specific infectious and inflammatory conditions, with a clear increase in prevalence in the third trimester. Incorporating structured dermatological evaluation into routine antenatal care may facilitate earlier recognition, appropriate counselling, and timely management, thereby improving maternal comfort and overall antenatal care quality.

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