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## Original Research Article

# A clinical study of skin disorders in pregnancy

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### ABSTRACT

**Background:** Various physiological adaptation of pregnancy related, immunological, metabolic, endocrine and vascular changes occurs during pregnancy which make the pregnant women susceptible to changes of skin and appendages to study the various cutaneous changes of pregnancy.

**Methods:** This study was an observational cross-sectional study conducted in Obstetrics and Gynaecology Department at Umaid Hospital and Skin Department at MDM Hospital, Jodhpur. Total number of 200 pregnant females were included in this study after informed consent and ethical committee clearance in duration of 6 months. Detailed medical and obstetric history of patients were obtained, and physical and dermatological examination were performed. Relevant systemic examination and appropriate investigations were done to confirm diagnosis if required.

**Results:** Most of patients show cutaneous changes, among them physiological changes were most common 196 (98%). The most common physiological change was hyperpigmentation, which was seen in 189 (94.49%) cases followed by striae distensae (76.5%), glandular changes (11.5%) and vascular (9%). Tinea cruris was noted in 04 cases (2%) while scabies was present in 10 females (5%). 15 (7.5%) cases of contact dermatitis were noticed, and psoriasis was found in 3 (1.5%) pregnant females. Herpes genitalis was seen in 1 case (0.5%). The most common Specific dermatoses was pruritic urticarial papules and plaques of pregnancy 10, (5%) followed by pruritic folliculitis 4 (2%), eczema 4 (2%) and intrahepatic cholestasis of pregnancy 2 (1%).

**Conclusions:** Pregnant women are prone to various cutaneous manifestation during pregnancy. A detailed history and awareness of clinical presentation is helpful for confirmation of diagnosis and most appropriate laboratory evaluation is helpful to diminish the maternal and foetal morbidity.

**Keywords:** Atopic eruptions of pregnancy, Intrahepatic cholestasis of pregnancy, Polymorphic eruptions, Pregnancy specific dermatoses

### INTRODUCTION

Various physiological adaptation of pregnancy related, immunological, metabolic, endocrine and vascular changes occurs during pregnancy which make the pregnant women susceptible to changes of skin and appendages.<sup>1</sup> These changes can be categorised in three categories. First include various benign skin conditions due to physiological and hormonal changes like striae gravidarum, melasma, nail and vascular changes.

Pre-existing skin conditions which flare-up during pregnancy included in second category. Third category have several pregnancy specific dermatoses.<sup>2</sup> Pregnancy-specific dermatoses is a heterogeneous group of pruritic skin diseases unique to pregnancy. Ambrus-Rudolph proposed the latest classification of pregnancy-specific dermatoses in 2006 and includes pemphigoid gestationis (PG), polymorphic eruption of pregnancy (PEP), intrahepatic cholestasis of pregnancy (ICP), and atopic eruption of pregnancy (AEP).<sup>3</sup> Most of these skin

dermatoses are benign and resolve in postpartum period, a few can risk the fetal life and require antenatal surveillance. These dermatoses having the possibility to reoccur in new pregnancy. Due to variable clinical presentation and lack of definitive diagnostic tests the diagnosis of pregnancy-specific disorders can be challenging.<sup>4</sup>

The risk factors, exogenous or endogenous, which are able to stimulate, emergence, relapse or worsening of these problems are: hormones (progesterone, estrogen), genetic predisposition, sun exposure, autoimmunity, age (<20 years), liver diseases, anemia, infections, psycho-effective status of the pregnant women.

## METHODS

Present study was observational cross-sectional study conducted in Obstetrics and Gynaecology Department at Umaid Hospital and Skin Department at Mathura Das Mathur Hospital, Jodhpur. Total number of 200 pregnant females were included in this study after informed consent and ethical committee clearance in duration of 6 months.

Detailed history of patients including chief complaints of itching and skin lesion, onset in relation to duration of pregnancy, yellowish discoloration, vaginal discharge, duration of pregnancy and obstetric score [GPLA (G: Gravida, P: Parity, L: Live births, A: Abortions)] were noted.

Detailed examinations (general physical examination and systemic examination and dermatological examination) were performed to look for physiological changes and specific dermatoses with their morphology, distribution pattern. The diagnosis was based mainly on clinical grounds; skin biopsy was done for confirmation in doubtful cases only.

Relevant diagnostic investigations with routine blood and urine and screening for human immunodeficiency virus and venereal disease were done.

## RESULTS

A total of 200 patients of age group 18-40 years were analyzed in this study. 127 (63.5%) females were primigravida, 73 (36.5%) were multigravida. Predominantly they presented in the second trimester of pregnancy (122, 61%).

The most common presenting complaint was pruritus (43, 21.5%), followed by presence of skin lesions (12, 6%). Other presenting symptoms were vaginal discharge and genital lesions. Most of cases showed physiological changes (Table 1) (196, 98%) except some primigravida in the first trimester of pregnancy. The most common physiological change was hyperpigmentation, which was seen in 189 (94.49%) cases (Table 1). Linea Nigra was

the most common pattern of hyperpigmentation, seen in 177 cases (88.5%) followed by secondary areola (107; 53.5%), pigmentation of neck (68; 34%), and melasma (24; 12%).

There were 153 (76.5%) cases with striae Distensae. Vascular changes were seen in 18 (9%) cases and glandular changes seen in 23 (11.5%) cases.

**Table 1: Distribution physiological changes in pregnancy.**

Physiological changes	N (%)
Pigmentation	189 (94.49)
Linea nigra	177 (88.5)
Secondary areola	107 (53.5)
Melasma	24 (12)
Pigmentation of neck	68 (34)
Striae distensae	153 (76.5)
Glandular changes	23 (11.5)
Vascular changes	18 (9)
Nonpitting edema of feet	8 (4)
Palmar erythema	5 (2.5)
Varicosities of legs	1 (0.5)

**Table 2: Distribution of pregnancy associated dermatological disorders.**

Specific dermatoses of pregnancy	N (%)
Scabies	10 (5)
Herpes genitalis	1 (0.5)
Contact dermatitis	15 (7.5)
Psoriasis	3 (1.5)
Tinea cruris	4 (2)

**Table 3: Distribution of pregnancy specific dermatoses.**

Specific dermatoses of pregnancy	N (%)
Atopic eruption of pregnancy	8 (4)
Eczema	4 (2)
Pruritic folliculitis	4 (2)
Polymorphic eruption pregnancy	10 (5)
Intrahepatic cholestasis of pregnancy	2 (1)

Tinea cruris was noted in 04 cases (2%) while scabies was present in 10 females (5%). 15 (7.5%) cases of contact dermatitis were noticed, and psoriasis was found in 3 (1.5%) pregnant females. Herpes genitalis was seen in 1 case (0.5%).

Specific dermatoses were noticed in 10% cases (Table 3). The most common Specific dermatoses was pruritic urticarial papules and plaques of pregnancy (PUPPP), found in 10 cases (5%).

Other dermatoses were pruritic folliculitis 4 (2%), eczema 4 (2%) and intrahepatic cholestasis of pregnancy 2 (1%).

**Table 4: Correlation with other studies.**

	Kumar et al	Raj et al	Puri and Puri	Kumar S and Madhavamuthy	Present Study
Linea Nigra	91.4%		-	57.02%	88.5%
Secondary areola	78.4%	98.2%	-	81.76%	53.5%
Melasma	2.5%	8.8%	14%	10.58%	12%
Striae Distensae	79.7%	75.4%	62%	66.47%	76.5%
Glandular Changes	37.89%	-	-	-	11.5%
Nonpitting edema of feet	9.7%	-	-	-	4%
Varicosities of legs	0.33%	0.5-3%	-	-	0.5%
Palmar erythema	-	33.3%	-	-	2.5%
Fungal Infection	2.6%	2.9%	16%	-	2%
Scabies	-	4.2%	-	17.64%	5%
Contact dermatitis	-	-	-	-	7.5%
Psoriasis	0.16%	-	-	-	1.5%
Herpes genitalis	0.32%	-	-	1.17%	0.5%
Polymorphic eruption pregnancy	63.6%	1.2%	22%	2.35%	5%
Pruritic folliculitis	4.5%	-	2%	-	2%
Eczema	1.1%	0.9%	-	-	2%
Intrahepatic cholestasis of pregnancy	22.7%	0.02 to 2.4%	1%	3.52%	1%

## DISCUSSION

Pregnancy is characterized by various metabolic, immunologic, and hormonal readjustments. These complex endocrinologic, immunologic, metabolic and vascular changes influence the skin in various ways.<sup>5</sup> Physiological cutaneous changes usually seen in most of the pregnant females. The most common physiological changes are pigment alterations, stretch marks, vascular changes.<sup>6</sup> In this study, 196 (98%) women experienced physiological changes which were comparable with a study by Kumari et al, where physiological changes were noticed in all women (100%).<sup>7</sup> But our result did not correlate with study by Raj et al where only 9.7% experienced some skin changes.<sup>8</sup> In this study most common physiological change was hyperpigmentation observed in 189 (94.49%) of the cases. Linea Nigra was the most common pattern of hyperpigmentation, seen in 177 cases (88.5%) followed by secondary areola (107; 53.5%).

These results were comparable with Kumari et al where linea nigra, and secondary areola noticed in 91.4% and 78.4% of their cases, respectively.<sup>7</sup> In this study, most of pigment changes were experienced in third trimester followed by second trimester because of increase production of estrogen and progesterone, which are strong melanogenic stimulants starts to function only after 8 weeks of gestation. The incidence of melasma in our study was 12%. Incidence of melasma in study the of Wong and Ellis was 50-70%.<sup>9</sup> Muzzaffar et al found melasma in 46.4% patients.<sup>10</sup> These results are not correlate with our study. But comparable with Indian study, done by Raj et al where observed melasma in 8.5% cases and Kumari et al with an incidence of 2.5%.<sup>7,8</sup> This

difference may be because of discrepancy in skin texture between indian women and foreign women. In this study 153 (76.5%) cases with striae Distensae. Incidence of striae Distensae was more common in multigravida (72%) than in primigravida (28%). These results were comparable with result of Raj et al.<sup>8</sup> where incidence of striae distensae was 75% in pregnant women.

In this study Vascular changes were seen in 18 (9%) cases and Glandular changes seen in 23 (11.5%) cases. In our study incidence of non-pitting edema was 4%, of varicosities of legs was 0.5%, of palmar erythema was 2.5%. Muzaffar et al noticed palmar erythema in 12% of pregnant female.<sup>10</sup> In the present study Tinea cruris was noted in 04 cases (2%) while scabies was present in 10 females (5%). 15 (7.5%) cases of Contact dermatitis were noticed, and psoriasis was found in 3 (1.5%) pregnant females. Herpes genitalis was seen in 1case (0.5%).

In this study the most common Specific dermatoses was pruritic urticarial papules and plaques of pregnancy (PUPPP) found in 10 cases (5%). In study of Panicker VV the most common specific dermatoses were also pruritic urticarial papules and plaques of pregnancy (1.3%). In the study by Shivakumar et al 2.35% experienced pruritic urticarial papules and plaques of pregnancy.<sup>11</sup> Polymorphic eruption of pregnancy also known as pruritic urticarial papules and plaques of pregnancy. This is a benign, self-limiting inflammatory disorder that usually affects primigravida in the third trimester of pregnancy or immediately in the postpartum period.<sup>12-14</sup>

This is characterised by intensely pruritic urticarial rash with erythematous, edematous papules, and plaques

usually initiated from abdomen with Sparing of the umbilical region which is a characteristic finding. Foetal outcome and maternal prognosis is excellent in most cases.<sup>15</sup> Incidence of Atopic Eruption of Pregnancy (AEP) was 4% in this study. Among AEP pruritic folliculitis was reported in 4 (2%), eczema in 4 (2%). The incidence of Atopic Eruption of Pregnancy (AEP) in the study conducted by Ambros-Rudolph et al was 0.5-3.0%.<sup>16</sup> AEP is most common and heterogeneous group of pruritic conditions during pregnancy.<sup>3,13</sup> AEP may be experienced first time during pregnancy or may have an exacerbation of pre-existing atopic dermatitis. AEP is not associated with fetal risks. In our study intrahepatic cholestasis of pregnancy was noticed in 2 (1%) cases. In a recent Indian study by Puri and Puri incidence of intrahepatic cholestasis was (1%).<sup>16</sup> There is higher risk of premature birth (20-60%) in ICP followed by intrapartum fetal distress (20-30%) and stillbirth (1-2%). severe or prolonged ICP, may lead vitamin K deficiency and coagulopathy in patients and their children.<sup>2</sup>

## CONCLUSION

Pruritus and skin changes are common during pregnancy and are usually benign and self-limiting. However, some are symptomatic and pregnancy-specific dermatoses. They can be associated with severe fetal outcomes such as fetal distress, stillbirth, and premature birth. A detailed history and awareness of clinical presentation helpful for confirmation of diagnosis and most appropriate laboratory evaluation is helpful to diminish the maternal and foetal morbidity.

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