

## Original Research Article

# Clinical evaluation of pathological dermatoses induced in pregnancy

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### ABSTRACT

**Background:** Pregnancy can present with various dermatoses which is divided into physiological and pathological dermatoses. These dermatoses have various effects on pregnancy and patient's life. The objective was to study the various pathological dermatoses.

**Methods:** A total of 1425 pregnant females attending dermatology, obstetrics and gynaecology Out Patient Department of Era's Lucknow Medical College and Hospital were included, out of this 275 presented with pathological dermatoses. Detailed history, examination and investigations were done. Data was analysed using Statistical Package for Social Sciences version 21.0 (test).

**Results:** Pathological dermatoses was seen in 275 pregnant females ranged between 18 to 45 years. Infections or infestations and STDs (53.5%) were the most common dermatological conditions followed by pregnancy specific dermatoses (24.7%), acne and folliculitis (7.6%), non-specific itching (5.8%) and other conditions (10.9%).

**Conclusions:** Pregnant females suffer from number of pregnancy dermatoses. A knowledge of the profile of dermatoses during pregnancy is essential to plan preventive measures, care of the mother and the child.

**Keywords:** Pregnancy, Pregnancy specific dermatoses, Infections, Pruritus

### INTRODUCTION

Pregnancy is characterized by endocrinal, metabolic and immunologic alterations which make the woman vulnerable to specific dermatoses, or a change in the course of coexisting skin diseases.<sup>1</sup> Specific dermatoses, Itching, skin infections, autoimmune skin diseases, skin tumors and inflammatory skin disorders may occur in pregnancy. Specific dermatoses of pregnancy are polymorphic eruption of pregnancy (PEP), pemphigoid gestationosis (PG), atopic eruption of pregnancy (AEP) and intrahepatic cholestasis of pregnancy (IHCP). These dermatoses are marked by severe pruritus and skin eruptions. IHCP is a reversible form of hormonally triggered cholestasis that typically develops in genetically predisposed individuals in late pregnancy. Reduced cell-

mediated immunity during normal pregnancy probably accounts for the increased frequency and severity of certain infections such as candidiasis, herpes simplex and varicella zoster. Candida infection, genital warts and herpes simplex virus (HSV) can all be transmitted to the baby during childbirth. Pruritus gravidarum (itching in pregnancy) occurs in up to one-fifth of all pregnancies.<sup>2</sup>

The objectives of the study to identify and classify dermatoses occurring during pregnancy and to determine the prevalence of various dermatoses of pregnancy. Dermatoses during pregnancy can increase morbidity and mortality in the mother and the newborn. A knowledge of the profile of dermatoses during pregnancy is essential to plan preventive measures, care of the mother and the

child. Data of dermatoses during pregnancy varies from country to country and also varies in the same country.

## METHODS

A cross-sectional observational study was conducted in the Department of Dermatology, in collaboration with Department of Obstetrics and Gynaecology, Era's Lucknow Medical College and Hospital (ELMC&H), Lucknow from January 2018 to October 2019. All the pregnant females with pathological dermatoses were included in the study and with only physiological changes were excluded. In every case detailed dermatological and obstetric clinical history was noted. Informed consent was obtained before the interview and clinical examination. Thorough general physical and cutaneous examination including mucosa, scalp, nails and external genitalia was done whenever required. Routine and dermatological investigations like skin biopsy, Tzanck smear, slit skin smear, KOH mount for fungal infections, dermatoscopy, trichoscopy, woods lamp examination, wet mount was done when and where required. The data was analyzed using statistical package for social sciences version 21.0.

## RESULTS

A total of 1425 pregnant females were examined out of which only 275 presented with only pathological changes. Age of women ranged from 18 to 45 years, 54.5% were in the age group of 18 to 25 years.

**Table 1: Distribution of cases according to age (n=275).**

S. no.	Age group (in years)	No. of women	Percentage (%)
1.	18-25	150	54.5
2.	26-30	86	31.3
3.	31-35	35	12.7
4.	36-40	3	1.1
5.	41-45	1	0.4

Mean age of women was  $25.97 \pm 4.34$  years. Most of the pregnant females belonged to rural areas (69.5%), housewives (92.7%), third trimester (54.9%), multipara (59.3%), were from joint families (65.1%) and belonged to upper-middle socioeconomic strata (90.2%). Mean monthly family income of women was Rs  $10544 \pm 6053$  and mean body weight was  $61.05 \pm 11.94$  kg.

**Table 2: General and obstetric profile of patients enrolled in the study (n=275).**

S. no.	Characteristic	Statistic
		N (%)
1.	Mean age $\pm$ SD (range) in years	25.97 $\pm$ 4.34 (18-45)
2.	Place of residence	
	Rural	191 (69.5)
	Urban	84 (30.5)
3.	Occupation	
	Govt. job	1 (0.4)
	Private job	11 (4.0)
	Teacher	4 (1.5)
	Labourers or skilled workers	4 (1.5)
	Housewife	255 (92.7)
4.	Gestational age (trimester)	
	First	45 (16.4)
	Second	79 (28.7)
	Third	151 (54.9)
5.	Obstetric history	
	Primipara	112 (40.7)
	Multipara	163 (59.3)
6.	Mean monthly family income $\pm$ SD (range) in Indian Rupee	10544 $\pm$ 6053 (3000-45000)
7.	Family type	
	Joint	179 (65.1)
	Nuclear	96 (34.9)
8.	Socioeconomic status	
	Lower	5 (1.8)
	Middle	20 (7.3)
	Upper middle	248 (90.2)
	Upper	2 (0.7)
9.	Mean body weight $\pm$ SD (in kg)	61.05 $\pm$ 11.94

**Table 3: Profile of different dermatological conditions diagnosed.\***

S. no.	Dermatoses	No. of women	Percentage (%)
1.	Pregnancy specific dermatoses	68	24.7
2.	Non-specific (Itching)	16	5.8
3.	Infections/Infestations and STDs	147	53.5
	Others	51	18.5
	Conditions present in >10 patients: (acne and folliculitis)	21	7.6
4.	Conditions present in <10 patients (urticaria-8, erythema nodosum-4, vitiligo-4, eczema-3, miliaria-3, p. rosea-2, psoriasis-2, SLE-1, perinosis-1, lichen planus-1, ecchymosis-1)	30	10.9

\*Some patients had more than two skin conditions.

**Table 4: Distribution of cases according to specific dermatoses and non-specific itching.**

S. no.	Dermatoses	No. of women	Percentage (%)
1.	AEP	16	5.8
2.	PEP	4	1.5
3.	Pemphigoid gestationis (PG)	0	0
4.	IHCP	48	17.5
5.	Non-specific itching (itching)	16	5.8

**Table 5: Association of specific dermatoses with gestational age.**

S. no.	Dermatoses	First trimester (n=45)		Second trimester (n=79)		Third trimester (n=151)		Statistical significance	
		No.	%	No.	%	No.	%	$\chi^2$	P value
1.	AEP	4	8.9	3	3.8	9	6.0	1.37	0.504
2.	PEP	0	0	0	0	4	2.6	3.33	0.189
3.	IHCP	0	0	4	5.1	44	29.1	32.24	<0.001
4.	Non-specific itching (itching)	1	2.2	2	2.5	13	8.6	4.766	0.092

Infections/infestations and sexually transmitted diseases (STDs) (n=147; 53.5%) were the most common dermatological conditions followed by pregnancy specific dermatoses (n=68; 24.7%), acne and folliculitis (n=21; 7.6%), pruritus gravidarum (n=16; 5.8%) and other conditions (n=30; 10.9%). Among other conditions, there were 8 cases of urticaria, 4 cases each of erythema nodosum and vitiligo, 3 cases each of eczema and miliaria, 2 cases each of pityriasis rosea and psoriasis and one case each of SLE, perinosis, lichen planus and ecchymosis respectively (Table 3).

Pregnancy specific dermatosis were diagnosed in 68 (24.7%) women. Most common pregnancy specific dermatosis was ICP (n=48; 17.5%) followed by AEP (n=16; 5.8%) and PEP (n=4; 1.5%) respectively. There was no case of PG. A total of 16 (5.8%) cases had non-specific itching (Table 4).

For AEP, proportion in first trimester was maximum (8.9%) and for ICP proportion of positive cases was maximum in third trimester.



**Figure 1: AEP.**

The proportion of acne (2.7%) and folliculitis (3.1%) was higher in multigravida.

Tinea corporis cruris (n=47; 17.1%), candidiasis (n=39; 14.2%) and scabies (n=46; 13.1%) were the major skin conditions associated with infections/infestations.

**Table 6: Association of acne and folliculitis with parity.**

S. no.	Condition	Primigravida (n=112)		Multigravida (n=163)		Statistical significance	
		No.	%	No.	%	$\chi^2$	P value
1.	Acne (n=16)	3	2.7	11	6.7	2.276	0.131
2.	Folliculitis (n=7)	2	1.8	5	3.1	0.440	0.507

**Table 7: Distribution of infections or infestations and STDs.**

S. no.	Condition	No. of women	Percentage (%)
1.	Tinea corporis cruris	47	17.1
2.	Tinea vesicolor	6	2.2
3.	Leprosy	2	0.7
4.	Scabies	36	13.1
5.	Candidiasis	39	14.2
6.	Syphilis	1	0.4
7.	Trichomoniasis	1	0.4
8.	Herpes simplex (herpes labialis)	2	0.7
9.	Chicken pox	3	1.1
10.	Warts (condyloma accuminata)	7	2.5
11.	Varicella (herpes zoster)	1	0.4
12.	Molluscum contagiosum	2	0.7

**Table 8: Association of infections or infestations and STD conditions with gestational age.**

S. no.	Condition	Total	First trimester (n=45)		Second trimester (n=79)		Third trimester (n=151)		Statistical significance	
			No.	%	No.	%	No.	%	$\chi^2$	P value
1.	Tinea corporis cruris	47	10	22.2	16	20.3	21	14.0	2.397	0.302
2.	Tinea vesicolor	6	1	2.2	2	2.5	3	2.0	0.073	0.964
3.	Leprosy	2	1	2.2	1	1.3	0	0	2.817	0.245
4.	Scabies	36	8	17.8	13	16.5	15	9.9	2.978	0.226
5.	Candidiasis	39	10	22.2	10	12.7	19	12.6	2.858	0.240
6.	Syphilis	1	1	2.2	0	0	0	0	5.130	0.077
7.	Trichomoniasis	1	1	2.2	0	0	0	0	5.130	0.077
8.	Herpes simplex (herpes labialis)	2	2	4.4	0	0	0	0	10.30	0.006
9.	Chicken pox	3	0	0	2	2.5	1	0.7	2.273	0.321
10.	Warts (condyloma accuminata)	7	0	0	6	7.6	1	0.7	11.45	0.003
11.	Varicella (herpes zoster)	1	0	0	1	1.3	0	0	2.390	0.288
12.	Molluscum contagiosum	2	0	0	2	2.5	0	0	4.998	0.082



**Figure 2: Tinea corporis.**

Among less represented infections or infestations and STD conditions, herpes simplex (n=2) showed a significant association with first trimester and warts showed a significant association with second trimester (Table 8).

**DISCUSSION**

Skin changes are quite common during pregnancy. However, they may be physiological as well as pathological in nature. While physiological changes are

transitory in nature and seem to be related with progression of pregnancy and are generally hormone-dependent. However, pathological changes can be either flaring up of pre-existing skin conditions or pregnancy-specific dermatoses.<sup>3,4</sup>

These pathological skin changes are important from the point of view of their impact on physical as well as psychological well-being. Moreover, some of these changes have an influence over the pregnancy outcome too.<sup>5,6</sup>

The age of women ranged from 18 to 45 years with a mean age of 25.97±4.34 years. Similar to findings of present study, Masood et al in a study conducted in Pakistan reported the age range of women as 17 to 35 years and mean age as 27.3 years. Though, in another study from Pakistan, the age of pregnant women was reported to range from 20 to 55 years with a mean age of 32±6.8 years.<sup>7,8</sup>

In present study maximum number of women presented during the third trimester of pregnancy (54.9%) followed by second trimester (28.7%) and third trimester (16.4%) respectively. Chander et al and Sharath Kumar et al in their study reported the dominance of women in second trimester of pregnancy (76%).<sup>9,10</sup>

Masood et al and Sharath Kumar et al on the other hand, similar to present study reported the dominance of third trimester.<sup>7,10</sup>

The prevalence of pregnancy specific dermatoses was 4.7% in our study as compared to the study by Chander et al, they found the prevalence of pregnancy specific dermatoses to be 4.9% only. Whereas Masood et al too reported the prevalence of pregnancy specific dermatoses to be 6.5%.<sup>9,7</sup>

However, Sharath Kumar et al in a study among 300 pregnant women with skin and mucosal symptoms reported the prevalence of specific dermatoses of pregnancy as 18% which close to present study that is 24.7%. However, Chaudhary et al too similar to our study reported the prevalence of specific dermatoses of pregnancy in 21.77% cases in a screened population of pregnant women presenting with dermatological disorders.<sup>10,11</sup>

In present study, most common pregnancy specific dermatosis was ICP (n=48; 17.5%) followed by AEP (n=16; 5.8%) and PEP (n=4; 1.5%) respectively. Chander et al also found ICP to be the most common pregnancy specific dermatoses (54.2%).<sup>9</sup>

In our study, among 147 (53.5) cases recognized as infections/infestations and STDs, the three commonest were tinea corporis cruris (n=47; 17.1%), candidiasis (n=39; 14.2%) and scabies (n=46; 13.1%) comprising a total of 89.8% of total burden of infections/infestations

and STDs. Kannambal and Tharini in their study reported STDs or infections in 30.8% cases and found Tinea versicolor to be most common (n=53) followed by candidiasis (n=40) and dermatophytes (n=26).<sup>12</sup>

## CONCLUSION

The findings of present study showed that infections/infestations and STDs are the mainstay of dermatological disorders during pregnancy while a sizeable proportion of women also have pregnancy specific dermatoses. Late pregnancy, i.e. second and third trimester were the most opportune times for clinical manifestation of disease, however, parity seemed to have little impact on the prevalence of different types of dermatological disorders. Rural residence and unprivileged socioeconomic classes emerged as some of the modifiable risk factors for dermatological disorders, especially infections/infestations and STDs. The findings of study suggest that the skin changes during later part of pregnancy should not be considered as the physiological changes only but should be given due attention. Preventive strategies in view of the identification of modifiable risk factors need to be formulated.

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