

## “One year clinical study of dermatoses in pregnancy”

Kethireddi S. Divya<sup>1</sup>, Purnachandra Badabagni<sup>2\*</sup>, SubbaRao Dasika<sup>3</sup>, Ramachandra Bendapudi V<sup>4</sup>

<sup>1,2</sup>Associate Professor, <sup>3</sup>Professor, <sup>4</sup>Professor & HOD, Alluri Sitaramaraju Academy of Medical Sciences, Andhra Pradesh

**\*Corresponding Author:**

Email: sunpurna123@gmail.com

### Abstract

**Objectives:** To study frequency and pattern of physiological skin changes and skin disease effected by pregnancy and factors affecting them.

**Methods:** A total of 300 pregnant women were randomly selected from outpatient antenatal clinic and antenatal ward in ASRAM, Eluru appropriate investigations were done to confirm the diagnosis if required.

**Results:** Majority of the pregnant women were multipara, belonging to age group 21-25 years and most changes were observed in the third trimester of pregnancy. Pigmentation was the commonest physiological change. Striae were more common in multigravida, more on abdomen but the onset of striae was early on breast. Among specific dermatoses, atopic eruption of pregnancy was observed to be the most common. Infections and infestations constituted a major part of affected dermatoses.

**Conclusions:** In this study various pregnancy dermatoses were studied. It is imperative to recognize these changes to differentiate benign conditions from those associated with potential fetal and maternal risks and to know when the treatment should be initiated.

**Keywords:** Pregnancy, physiological changes, specific dermatoses

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investigations were conducted and were tabulated in the proforma.

### Results

A total of 300 patients were included in the study, out of these 204(68%) were multiparous. Majority belonged to age group of 21-25 years 132(47%). Most of them presented in the third trimester 188(62.7%).

Pregnancy dermatoses were divided into three categories:

- Physiological skin changes
- Specific dermatoses of pregnancy
- Skin changes affected by pregnancy
- Physiological skin changes were seen in all cases (100%). Specific dermatoses were seen in 12 cases, other dermatoses affected by pregnancy were seen in 63 cases.

### Physiological skin changes

Among physiological skin changes most common were pigmentary changes including development of secondary areola, linea nigra, melasma followed by striae (Table 1).

### Introduction

Pregnancy represents a unique and intriguing immunologic state, in which the maternal immune response is extensively altered to allow genetically different fetal tissues to attach to the mother without activating acute rejection<sup>1</sup>.

These changes, whether physiologic or pathologic, affect almost every organ of pregnant women including the skin & its appendages. These alterations are seen, not only as normal cutaneous changes of pregnancy, but also influence certain pre-existing skin diseases<sup>2</sup> during pregnancy apart from being implicated as a cause of pregnancy specific dermatoses.

The present study is an attempt to provide a framework for approach to all types of dermatoses occurring in pregnant women. In this study, we have attempted to study the frequency and pattern of various dermatoses affecting the pregnant women.

### Methods

Patients visiting antenatal O.P. and antenatal ward for a period of 1 year, Feb 2013 - Jan 2014, at different stages of pregnancy were included in the study. A detailed proforma was prepared to record various physiological and pathological cutaneous changes during the course of pregnancy and relevant

**Table 1: Physiological changes**

Physiological changes	Primi	%ge in primi N=96	Multi	%ge in multi N=204	Total (%ge for N=300)
Pigmentary changes					
• Breast	87	90.6	204	100	291 (97)
• Linea nigra	72	75	204	100	276 (92)
• Melasma	27	28.1	69	33.8	96 (32)
Striae distensae					
• Abdomen	36	65.6	112	79.4	225 (75)
• Breast	42	43.7	153	75	195 (65)
• Other sites	12	12.5	87	42.6	99 (33)
Hair changes					
• Increased hair loss	-	-	6	2.9	6 (2)
• Improved hair growth	3	3.1	9	7.8	12 (4)
Glandular changes					
• Montgomery tubercles	-	-	12	5.8	12 (4)
• Hyperhidrosis	3	3.1	-	-	3 (1)
Vascular changes					
• Pedal edema	9	9.3	12	5.8	21 (7)
• Palmar erythema	18	18.7	6	2.9	24 (8)
• Varicose veins	-	-	3	1.4	3 (1)

**Specific dermatoses of pregnancy**

Specific dermatoses of pregnancy are skin changes which appear to be specifically related to pregnancy and puerperium distinct from physiological events and not due to exacerbations of a pre-existing condition. They are classified as

**Well defined eruptions**

- Herpes gestationis
- Polymorphic eruption of pregnancy
- Recurrent cholestasis of pregnancy (pruritus gravidarum)
- Prurigo of pregnancy
- Pruritic folliculitis of pregnancy

**Less well defined eruptions**

- Impetigo herpeticiformis
- Papular dermatitis of pregnancy
- Linear IgM dermatoses
- Autoimmune progesterone dermatitis
- Prurigo annularis

Rudolph CM et al were able to demonstrate conspicuous overlap<sup>3</sup> presentation in histopathology between female patients with atopic dermatitis, prurigo of pregnancy and pruritic folliculitis of pregnancy, thus leading to group them together under the term atopic eruption of pregnancy<sup>4</sup>. This results in a new classification of specific dermatoses of pregnancy as follows: pemphigoid gestationis, polymorphic eruption of pregnancy, intrahepatic cholestasis of pregnancy, and atopic eruption of pregnancy<sup>4</sup>.

Out of 300 pregnant women 12 had specific dermatoses of pregnancy (Table 2) Atopic eruption of

pregnancy was noted to be the most common pregnancy specific dermatoses occurring in 8 of the examined pregnant women with maximum number of pregnant women, 6(50%) presented under the age group of 20-24 years in our study. 7(58.33%) were multipara and 5 cases (41.66%) are primiparas, all cases of PUPPP were observed in primiparas

Among the 7 multigravidas observed with specific dermatoses of pregnancy, majority 5(71.4%) had no history of similar complaints in the previous pregnancies. 2 cases (28.3%) had history of similar complaints in the previous pregnancies, 1 case each of prurigo of pregnancy and pruritic folliculitis.

**Table 2: Specific dermatoses of pregnancy**

Pregnancy Specific Dermatoses	Number of cases	%ge for total cases
Atopic eruption of pregnancy:	8	2.66%
Prurigo of pregnancy	6	2%
Pruritic folliculitis of pregnancy	2	0.66%
PUPPP	4	1.33%
Intrahepatic cholestasis of pregnancy	-	-
Pemphigoid gestationis	-	-
Total	12	4%

**Dermatoses affected by pregnancy**

Infections and infestations 39/63(61.9%) of skin were the commonest dermatological afflictions

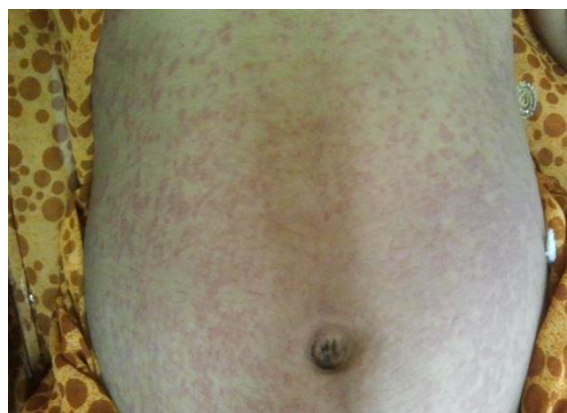
observed during the present study. Fungal infections 25/39 cases (64.1%) were most common among the infections and infestations. Vaginal candidiasis 10/39 (25.6%) was most common among the fungal infections. All the cases of vaginal discharge were observed during the 3<sup>rd</sup> trimester of pregnancy. 6 cases (60%) were primi and 4 cases (40%) were multigravida. In 10 patients of vaginal discharge, some are symptomatic 6(60%), some are asymptomatic 4(40%). KOH smear and culture were done in all cases, culture is positive in all cases of vaginal discharge. Even though there is KOH preparation negativity, culture positivity was found among 2 cases (20%). Acne and atopic dermatitis were found to get exacerbated in 3 cases each.

**Table 3: Dermatoses affected by pregnancy**

Dermatoses	Number of cases	Exacerbated/ Improved/ New onset/ No change
Inflammatory dermatoses		
• Acne	3	Exacerbated
• Atopic Dermatitis	3	Exacerbated
• Eczemas	2	New onset
• Pompholyx	2	New onset
• Lichen planus	1	No change
• PMLE	1	New onset
Infections and infestations Fungal		
• Candidal vaginitis	10	New onset
• Tinea versicolor	8	New onset
• Tinea corporis/cruris	6	New onset
• Pityrosporum folliculitis	1	New onset
Parasitic		
• Scabies	3	New onset
• Cutaneous larva migrans	1	New onset
Bacterial		
• Furunculosis	2	New onset
• Hansen's	1	New onset
Viral		
• Varicella	1	New onset
• Herpes labialis	1	New onset
STD		
• Molluscum contagiosum	2	New onset
• Genital warts	2	New onset
• Herpes genitalis	1	New onset
Tumours		
• Acrochordons	3	Exacerbated
• Neurofibromatosis	1	No change
Other dermatoses		
• Lamellar ichthyosis	1	Exacerbated

• Drug reaction	2	New onset
• Insect bite reaction	2	New onset
• Miliaria	2	Exacerbated
• Keratolysis exfoliativa	1	New onset
Total	63	

### Pruritic urticarial papules and plaques of pregnancy



**Neurofibromatosis**



**TINEA Corporis**

## Discussion

Many of the symptoms and signs are so common that they are not usually considered as being abnormal, but regarded as physiological and sometimes provide contributory evidence of pregnancy.

### Physiological changes in pregnancy Pigmentary changes

In our study, 92.6% of cases had hyperpigmentation, the most common being secondary areola formation (97%), followed by linea nigra in 92% of cases. Other sites of increased localized pigmentation were seen over scar pigmentation, buttocks, axillae, neck etc.

Melasma was seen in 96/300 (32%) of our cases. Of these 27 (28.1%) were primiparous and 69 (33.8%) were multiparous. Rathore SP et al<sup>5</sup> reported melasma in 50.8% of cases.

Malar type was the most commonly seen pattern followed by centrofacial pattern. The onset in 59 (61.4%) cases was in the third trimester, 25 (26%) cases were in the second trimester.

There is history of melasma in previous pregnancies in 28(40.5% of multiparas) cases of multipara indicating that melasma is an on-going process. Similarly, in a patient with gravida 4, melasma gradually increased with every pregnancy. It is always desirable to plan treatment for melasma after completing the pregnancies in spite of patient being desirous of treatment because intensity of melasma increases with successive pregnancies. There is history of remission in between the pregnancies in 21(30.4%) cases of multiparous women with melasma.

### Striae gravidarum

Striae were more common in multigravidas. In our study in 225 (75%) of cases, striae were seen on abdomen, 195 (65%) were seen on Breast, and in 99 (33%) other sites. Striae were most commonly observed

on abdomen and more frequently in multipara than primies<sup>6</sup>.

Onset was more common during the second trimester over breast and in third trimester over abdomen i.e., the onset of striae was early on the breast than abdomen. This is because size of the breasts increase in early weeks due to marked hypertrophy and proliferation of the lobules, the ducts and the alveoli present in the peripheral lobules as a consequence of oestrogen and progesterone effect, whereas distension of abdomen occurs late in the 3<sup>rd</sup> trimester when fetus starts gaining weight. The striae on the other sites like thigh, upper arm, buttocks were more common in patients with high body mass index.

### Hair changes

In our present study 18 (6%) cases were observed with hair changes of which 6 (2%) cases had hair loss and 12 (4%) case had improvement in hair growth.

During pregnancy conversion of hair from the active phase of hair growth to the resting phase of hair growth is decreased resulting in thickening of scalp hair<sup>7</sup>, but in the present study 6 women reported hair loss whose haemoglobin levels were less than 10g/dl. So loss of hair during pregnancy can be an indicator of low haemoglobin levels during pregnancy.

### Glandular changes

Increased appearance of Montgomery's tubercles is well known during pregnancy in 30-50% of pregnant women. In our study, Montgomery's tubercles were seen in 12 (4%) cases.

### Vascular changes

Vascular effects such as palmar erythema, pedal oedema and varicose veins were observed in a total of 48 out of 300 patients (i.e. 16%) of which, palmar erythema 24(8%) was the most frequent, followed by pedal edema 21(7%).

### Specific dermatoses of pregnancy

The incidence of these specific disorders of pregnancy is 0.5 to 3.0%<sup>8</sup>. They are almost always associated with pruritus and an eruption of variable severity. In our study of 300 pregnant women, 12(4%) cases of specific dermatoses of pregnancy were seen.

### Atopic eruption of pregnancy

In the present study AEP 8/12 (66.66%) was observed to be the most common specific dermatoses of pregnancy. 6 cases of prurigo of pregnancy and 2 cases of pruritic folliculitis of pregnancy were observed.

During the second trimester 4 cases of prurigo of pregnancy presented and 2 cases during third trimester, lesions were predominantly present over the anterior abdomen. 5 were multiparous and 1 was primiparous. One patient gave similar history of pruritic papules during her previous pregnancy which subsided within

two weeks of her delivery. No adverse fetal outcome was present in previous pregnancy.

Pruritic folliculitis of pregnancy (PF) was diagnosed in 2 cases of multigravidas during the second trimester. They presented with extremely pruritic, follicular papules and pustules. The lesions involved the upper limbs, trunk and legs. Lesions were folliculocentric. Biopsy was nonspecific. Lesions were sterile on culture sensitivity. The eruption lasted for one week after delivery. Fetal outcome was favourable.

### Pruritic urticarial papules and plaques of pregnancy

Pruritic urticarial papules and plaques of pregnancy (PUPPP) was diagnosed in 4 cases. All 4 cases are primigravidas. All 4 of them had onset of skin lesions during their third trimester. The eruption began as erythematous papules along the striae over the abdomen with periumbilical sparing. No specific laboratory abnormalities were found in these women.

Histopathology was nonspecific showing hyperplasia of epidermis with focal keratosis and mild acanthosis. Papillary and reticular dermis shows perivascular, periadnexal lymphohistiocytic infiltrates and variable number of eosinophils and plasma cells.

Treatment: There is no curative treatment for PUPPP (apart from delivery). Symptoms can be controlled using: Emollients (moisturizers) applied liberally and frequently as required. Topical steroids applied thinly twice daily to the red itchy patches. Antihistamines - conventional antihistamine tablets appear safe in late pregnancy (though they may make the baby drowsy on delivery). Rarely a short course of oral prednisolone may be necessary. UVB can be effective.

PUPPP commonly seen in primiparous stand out as a primary troublesome entity among various dermatoses seen in pregnancy with a little difficulty in management and it subsides completely after delivery.

### Skin diseases affected by pregnancy

In the present study out of 300 patients studied, 63 patients with skin changes affected by pregnancy were observed. The percentage of dermatoses modified during pregnancy was 21% out of 300 patients. Infections and infestations constituted a major part of dermatoses (61.9%). Similar observations were made by Kumari et al<sup>9</sup>. Over all the incidence of infections were higher among primies than multipara in our study.

In the present study, fungal group of diseases was found to be the majority 25/63 (39.68%), 10 cases presented with candidal vaginitis, 8 with tinea versicolor, 6 with tinea corporis/ cruris and 1 case of pityrosporum folliculitis.

Vaginal candidiasis was observed in 10/300 (3.33%) patients in our study. In a study conducted by Shivakumar V et al<sup>10</sup> in 170 pregnant women vaginal candidiasis was present in 21.78% of pregnant women. In a study conducted by SM Ibrahim et al<sup>11</sup> in 400

pregnant women the prevalence of abnormal vaginal discharge in pregnancy was 31.5% out of which candida constituted 41%. Candidial vaginitis occurs more frequently during pregnancy, as altered hormonal status favours the infection. In our study all cases of vaginal candidiasis were observed in 3<sup>rd</sup> trimester with 6 cases (60%) in primiparous and 4 cases (40%) in multiparous. Culture for candidiasis was positive in all cases 10(100%) of candidiasis and KOH smear was positive in 8(80%) cases.

Acne vulgaris accounted for 3 out of 63 cases it often flares up in the third trimester, when sebaceous gland activity increases<sup>5</sup>. Kumari et al<sup>9</sup> reported 12 patients out of 607 cases studied.

### Conclusions

In this study various the physiological events of pregnancy, concomitant dermatoses modified by pregnancy and pathological skin conditions that are virtually pregnancy specific were studied. It is imperative to recognize these changes to differentiate benign conditions from specific dermatoses of pregnancy which are associated with potential fetal and maternal risks and to know when the treatment should be initiated, so that every pregnant woman can set aside her worries and experience the joy of motherhood.

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