

## Original Research Article

# Study of skin changes and associated diseases in pregnancy

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### ABSTRACT

**Background:** Pregnancy accounts for profound changes like endocrinal, vascular, metabolic etc. The body adjust to these changes by compensating. Most changes are temporary but some may be permanent. Skin also undergoes changes and can be a cause of anxiety. Hence identification and management and counselling of these changes are important. Objective was to study the skin changes and associated diseases in pregnancy.

**Methods:** A hospital based cross sectional study was carried out among 100 pregnant women who were selected as per eligibility criteria of the study over a period of one and half year. Those women having skin conditions were included in the present study.

**Results:** Among both primigravida as well as multigravida women the most common condition was linea nigra i.e. 80.4% and 93.9% respectively. Breast changes were seen in 12.2% of the multigravida women and none in primi. Only 18 women were found to develop the specific dermatoses of pregnancy. Among them the most common dermatoses was prurigo of pregnancy in 66.7% of the cases 5% had bacterial skin infections. 9% had viral skin infections. 16% had scabies. 14% had fungal skin infections and among them, Tinea versicolor was more common. 3% had angular stomatitis.

**Conclusions:** Dermatoses of pregnancy were common in the study sample. They need proper attention in order to treat, and manage properly and at the same time it needs psychological counselling to relieve anxiety among pregnant women.

**Keywords:** Pregnancy, Skin lesions, Dermatophytoses

### INTRODUCTION

Pregnancy accounts for profound changes like endocrinal, vascular, metabolic etc. The body adjust to these changes by compensating. Most changes are temporary but some may be permanent. Skin also undergoes changes and can be a cause of anxiety. Hence identification and management and counselling of these changes are important. Pregnancy can also modify the skin conditions that were already present.<sup>1,2</sup>

Development of skin changes like striae etc is common during pregnancy and they are physiological. During pregnancy there is increased activity of endocrine glands which leads to production and release of steroid hormones and proteins. These are found to be responsible for physiological skin changes among the pregnant women.<sup>3,4</sup>

Dermatoses specific to pregnancy i.e. some common dermatoses they occur during pregnancy are prurigo of pregnancy, pruritic urticarial papules, pemphigoid

gestationis, plaques of pregnancy, etc, of these disorders, only pemphigoid gestationis has a known cause.<sup>5,6</sup>

The natural course of skin infections and conditions is altered due to presence of the pregnancy. These conditions include candidiasis, pseudoxanthoma elasticum, herpes viral infections; connective tissue disorders, systemic lupus erythematosus, porphyria cutanea tarda; etc.<sup>7</sup>

These above mentioned conditions that occur during pregnancy can raise the attention of pregnant women. They become concerned about it. They may develop anxiety and even depression. They may think that these conditions can recur during next pregnancy. They are also worried about its effects on their foetus. Hence proper diagnosis of these conditions is of utmost importance.<sup>8</sup>

Present study was carried out to study the skin changes and associated diseases in pregnancy.

## METHODS

### Study design

Present study was hospital based cross sectional study.

### Sample size

Present study was carried out among a total of 100 pregnant cases with complaints regarding to skin and mucous membranes.

### Study period

Present study was carried out from January 2009 to July 2010.

### Study place

Present study was carried out at Kamineni Institute of Medical Sciences, Narketpally.

### Inclusion criteria

Inclusion criteria were pregnant women; having skin lesion; pregnant eligible women as per criteria willing to participate in the present study.

### Exclusion criteria

Exclusion criteria were pregnant women having any underlying medical diseases.

Pregnant women referred from antenatal outpatient department as well as inpatients were examined in detail for presence of any skin condition. All were diagnosed and treated, but only those were included in the present study that was eligible for the present study as per the

inclusion and exclusion criteria laid down for the present study.

Based on the extensive review of literature a pre designed, pre tested, semi structured study questionnaire was prepared for the present study.

Detailed history was taken which included age, occupation, gravida, trimester of pregnancy and recorded in the study questionnaire.

All women were examined for melasma, areola and nipple pigmentation, presence of linea nigra, thorough examination of genitalia, presence of naevi and freckles, and presence of pigmentary demarcation lines.

They were also examined for connective tissue changes in breast, abdomen and presence of striae.

Thorough examination was carried out as to presence of hair changes, skin tags, angiomas, palmar erythema, gum hyperplasia, pedal edema and vulvar edema.

Other dermatological disorders like bacterial skin infections like folliculitis, viral skin infections like Herpes simplex labialis, Herpes genitalis, Mollusum contagiosum, Varicella were looked into. Parasitic infections like scabies were studied. Fungal infections like tinea corporis, tinea versicolor were examined. Oral mucosa was examined for presence of angular stomatitis. Study subjects were also examined for presence of miliaria, urticaria, drug reactions etc.

Investigations like complete blood picture, complete urine examination, random blood sugar, liver function tests, HBsAg, VDRL, and HIV were done routinely. Whenever required, KOH mount and skin biopsy was performed.

The data was analyzed using proportions.

## RESULTS

**Table 1: Distribution of pregnant women as per general characteristics.**

General characteristics	Number	%	
Age	< 20	34	34
	21-25	45	45
	26-30	21	21
Occupation	Housewives	40	40
	Agricultural labourers	45	45
	Others (students, working, doctors)	15	15
Gravida	Primi	51	51
	Multi	49	49
Trimester	First	7	7
	Second	30	30
	Third	63	63

Maximum pregnant women were in the age range of 21-25 years i.e. 45% followed by <20 years i.e. 34%. Majority were agricultural labourers i.e. 45% followed by housewives i.e. 40%. Primigravida and multigravida were almost equal in number. Trimester-wise majority (63%) belonged to third trimester followed by 30% in the second trimester.

**Table 2: Distribution as per pigmentary changes (physiological).**

Pigmentation/condition	Primigravida		Multigravida	
	Number	%	Number	%
Melasma	12	23.5	18	36.7
Areola and nipple	30	58.9	38	77.6
Linea nigra	41	80.4	46	93.9
Genitalia	14	27.5	21	42.9
Naevi, Freckles	2	3.4	0	0
“Pigmentary demarcation lines”	2	3.4	0	0

Among both primigravida as well as multigravida women the most common condition was linea nigra i.e. 80.4% and 93.9% respectively. This was followed by pigmentation at areola and nipple i.e. 58.9% among primi and 77.6% among multi. Naevi, freckles and “Pigmentary demarcation lines” were not seen in multigravida women but in primi also only two cases each were affected.

**Table 3: Distribution as per connective tissue changes (physiological).**

Condition	Primigravida		Multigravida	
	Number	%	Number	%
Striae	0	0	28	58
Breast	0	0	6	12.2
Abdomen	32	62.7	49	100

**Table 4: Distribution as per other changes in pregnancy.**

Condition	Primigravida		Multigravida	
	Number	%	Number	%
Hair changes	1	1.9	2	4.08
Skin tags	0	0	2	4.08
Angiomas	1	1.9	0	0
“Palmar erythema”	4	7.8	3	6.1
Gum hyperplasia	6	11.8	1	2.04
Pedal edema	14	27.5	23	46.9
Vulvar edema	1	1.9	0	0

Striae were not seen in primi women but were present in 58% of the multigravida women. Breast changes were seen in 12.2% of the multigravida women and none in primi. Physiological connective tissue changes were seen

among 62.7% of primi women compared to 100% in multi.

The most common condition among primi as well as multi was pedal edema in 27.5% and 46.9% respectively. This was followed by palmar edema among 7.8% in primi and 6.1% in multi. Skin tags were not seen among primi. While angiomas and vulvar edema was not seen among multi.

**Table 5: Distribution as per specific dermatoses of pregnancy.**

Dermatoses	Number	%
“Pruritus of pregnancy”	04	22.2
“Prurigo of pregnancy”	12	66.7
“Polymorphic eruption of pregnancy”	02	11.1
<b>Total</b>	<b>18</b>	<b>18</b>

Only 18 women were found to develop the specific dermatoses of pregnancy. Among them the most common dermatoses was Prurigo of pregnancy in 66.7% of the cases followed by Pruritus of pregnancy in 22.2% of the cases.

**Table 6: Distribution of specific dermatoses as per gravida.**

Dermatoses	Primigravida		Multigravida	
	Number	%	Number	%
“Pruritus of pregnancy”	2	3.9	2	8.7
“Prurigo of pregnancy”	4	13.7	8	24.5
Polymorphic eruption of pregnancy (PUPPP)	1	1.9	1	2.04

The most common dermatoses were Prurigo of pregnancy among both the primi as well as multi in 13.7% and 24.5% respectively. This was followed by two cases each of Pruritus of pregnancy.

No cases of specific dermatoses of pregnancy were seen among the first trimester women. Maximum cases were seen during second trimester i.e. 10 (55.6%) followed by 8 (44.4%) cases in third trimester. Prurigo of pregnancy was the most common condition.

5% had bacterial skin infections. 9% had viral skin infections and among them Mollusum contagiosum was more common. 16% had scabies. 14% had fungal skin infections and among them, Tinea versicolor was more common. 3% had angular stomatitis.

**Table 7: Distribution of specific dermatoses as per trimester.**

Dermatoses	First trimester		Second trimester		Third trimester	
	Number	%	Number	%	Number	%
<b>Pruritus of pregnancy</b>	0	0	1	25	3	75
<b>Prurigo of pregnancy</b>	0	0	8	66.7	4	33.3
<b>Polymorphic eruption of pregnancy (PUPPP)</b>	0	0	1	50	1	50
<b>Total</b>	0	0	10	55.6	8	44.4

**Table 8: Other dermatological disorders observed in pregnancy.**

Dermatological disorders	Number	%	
<b>Bacterial</b>	Folliculitis	5	5
<b>Viral</b>	Herpes simplex labialis	2	2
	Herpes genitalis	2	2
	Mollusum contagiosum	3	3
	Varicella	2	2
<b>Parasitic</b>	Scabies	16	16
<b>Fungal</b>	Tinea corporis	6	6
	Tinea versicolor	8	8
<b>Oral mucosa</b>	Angular stomatitis	3	3
<b>Miscellaneous</b>	Acne vulgaris	13	13
	Miliaria	4	4
	Urticaria	2	2
	Drug reactions	1	1

**DISCUSSION**

Maximum pregnant women were in the age range of 21-25 years i.e. 45% followed by <20 years i.e. 34%. Similar finding were reported by Thappa et al<sup>9</sup> and Muzaffar et al.<sup>9,10</sup>

Majority were agricultural labourers i.e. 45% followed by housewives i.e. 40%. Primigravida and multigravida were almost equal in number. Similar finding were reported by Thappa et al and Shiva Kumar et al.<sup>9,11</sup>

Trimester-wise majority (63%) belonged to third trimester followed by 30% in the second trimester. These findings are similar to studies of Kumar et al and Thappa et al.<sup>9,11</sup>

Among both primigravida as well as multigravida women the most common condition was linea nigra i.e. 80.4% and 93.9% respectively. This was followed by pigmentation at areola and nipple i.e. 58.9% among primi and 77.6% among multi. Naevi freckles and Pigmentary demarcation lines were not seen in multigravida women but in primi also only two cases each were affected.

Striae were not seen in primi women but were present in 58% of the multigravida women. Other studies also reported similar observations.<sup>11,12</sup>

Breast changes were seen in 12.2% of the multigravida women and none in primi. Physiological connective

tissue changes were seen among 62.7% of primi women compared to 100% in multi. The most common condition among primi as well as multi was pedal edema in 27.5% and 46.9% respectively. This was followed by palmar edema among 7.8% in primi and 6.1% in multi. Thappa et al study<sup>9</sup> observed lesser proportion of gingival hyperplasia and pedal edema compared to the present study. This may be due to the fact that cases in the present study belonged to rural areas and were poorly nourished compared to that study population.

Skin tags were not seen among primi. While angiomas and vulvar edema was not seen among multi. Only 18 women were found to develop the specific dermatoses of pregnancy. Among them the most common dermatoses was Prurigo of pregnancy in 66.7% of the cases followed by Pruritus of pregnancy in 22.2% of the cases. Kumar et al also reported similar findings.<sup>11</sup>

The most common dermatoses were Prurigo of pregnancy among both the primi as well as multi in 13.7% and 24.5% respectively. This was followed by two cases each of Pruritus of pregnancy. No cases of specific dermatoses of pregnancy were seen among the first trimester women. Maximum cases were seen during second trimester i.e. 10 (55.6%) followed by 8 (44.4%) cases in third trimester. Prurigo of pregnancy was the most common condition. 5% had bacterial skin infections. 9% had viral skin infections and among them Mollusum contagiosum was more common. 16% had scabies. 14% had fungal skin infections and among them, Tinea versicolor was more common. 3% had angular stomatitis.

## CONCLUSION

Dermatoses of pregnancy were common in the study sample. They need proper attention in order to treat, and manage properly and at the same time it needs psychological counselling to relieve anxiety among pregnant women.

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