Hospital based cross sectional study of skin changes and skin disorders among pregnant women at a tertiary care hospital

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Abstract

Background: Pregnancy may alter the course of pre-existing skin disorders and lesions occurring during pregnancy and may show alterations in their course and may have a negative effect on the pregnancy outcome. In pregnancy endocrinal changes may be associated with higher levels of estrogen, progesterone, placental hormones and activity of the fetal adrenal glands

Objectives: To study clinical profile of skin changes and disorders associated with pregnancy

Methods: Hospital based prospective study was carried out among 60 pregnant women with skin disorders. Detailed history was elicited regarding the skin changes and associated symptoms with regards to the onset, duration, progress and recurrence. Dermatological examination of lesions was carried out. Follow up of the patients was done to observe the course of the disease and outcome of the pregnancy.

Results: Majority belonged 21-30 years (60%). Majority (55%) had onset of skin changes during third trimester. Most common physiological change seen was striae in 46.7%. Specific dermatoses of pregnancy were seen in 15%. Infections were most common seen in 45%. 6.7% of the women complained of eczema. 88.3% had skin disorders associated with pruritus. Among them most common was Dermatophyte infection in 25%. Pruritic urticarial papules and plaques of pregnancy and Prurigo gestations were most common specific dermatoses of pregnancy seen in four cases each (6.7%).

Conclusion: Non-physiological skin disorders among pregnant women constituted major portion. Infections and infestations were major risk factors for skin disorders in pregnancy but their course was not altered by pregnancy. Majority of pregnant women responded well to treatment

Key words: skin disorders, pregnancy, infections, hyperpigmentation, treatment, risk factors

Introduction

Pregnancy is a unique physiological state in which various metabolic endocrinal and environmental changes occur which produces transient and adaptations, alterations in the skin and mucous membranes. These changes may be physiological or pathological. They may be recurrent and specific to pregnancy, which may regress and progress and may end when pregnancy ends[1].

Pregnancy may alter the course of pre existing skin disorders and lesions occurring during pregnancy and may show alterations in their course and may have a negative effect on the pregnancy outcome. In pregnancy the endocrinal changes may be associated with higher levels of estrogen, progesterone, placental hormones and activity of the fetal adrenal glands[2].

Pigmentation is one of the physiological changes that is seen in the pregnancy. In this the nipple, areola and external genitalia become hyperpigmented during pregnancy. The most noticeable pigmentary change is the development of chloasma gravidarum or melasma, which occurs in 50-70% of the cases. Mild to moderate hirsutism may be seen in pregnancy. In terms of connective tissues, the most common change seen is striae gravidarum in 90% of the cases. Molluscum fibrosum gravidarum appears on the

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lateral portion of the neck and axillae and persists after delivery. Spider angiomas, palmar erythema and granuloma gravidarum are the vascular abnormalities associated with pregnancy[3].

Pemphigoid gestations is an extremely pruritic, recurrent, bullous dermatoses of pregnancy. Pruritic urticarial papules and plaques of pregnancy is a very common, intensely pruritic dermatoses that usually occurs late in the third trimester and typically affects primigravida. Recurrent cholestasis of pregnancy occurs late in pregnancy and is manifested by severe generalized pruritis followed by appearance of clinical jaundice. Impetigo herpetiformis is an extremely rare and often serious form of pustular psoriasis. Its onset is in third trimester of pregnancy[4].

Prurigo gestations is a pruritic dermatosis occurring in second half of pregnancy. Onset of eruption of is in fourth to ninth month and consists of 3-5 mm excoriated erythematous papules. Papular dermatitis of pregnancy is a rare controversial eruption, which may recur in subsequent pregnancies. Autoimmune progesterone dermatitis of pregnancy is characterized by development of acneiform eruptions on the extremities and buttocks associated with arthritis and positive progesterone intradermal test. Linear IGM dermatoses of pregnancy are a pruritic dermatosis of pregnancy beginning in last trimester of pregnancy and resembles pruritic folliculitis of pregnancy or PUPPP[5].

Infections like candidiasis, trichomoniasis occur with increased frequency during pregnancy due to reduced cell mediated immunity. Certain pre existing lesions undergo change of course favorably or adversely. Leprosy is adversely affected by pregnancy. Reactions are common with increased drug resistance. Certain conditions like SLE cause increased fetal loss. Psoriasis is said to undergo remission during pregnancy [6].

The present study was undertaken to study the clinical profile of skin changes and disorders associated with pregnancy.

Materials and Methods

Hospital based prospective study was conducted in department of Dermatology, Venereology and Leprosy in SVS Medical College and teaching hospital, Mahabubnagar, Telangana, India from April 2008 to October 2009. A total of 60 pregnant women both primigravida and multigravida in all three trimesters of the pregnancy with skin disorders were included in the present study

Institution Ethics Committee permission was taken. Informed consent was taken from all pregnant women as per inclusion criteria with skin disorders. They were also given appropriate treatment and follow up as per the diagnosis of the skin disorder.

Methodology:

The study included all pregnant women attending the Dermatology, Venerology and Leprosy departmental OPD with complaints of cutaneous diseases. The cases included both primigravida and multigravida during all three trimesters.

A detailed history was elicited from each patient regarding the skin changes and associated symptoms with regards to the onset, duration, progress and recurrence. Past history of similar complaints or any other skin disorders during previous pregnancies and non pregnant period, menstrual history, consumption of drugs especially hormonal preparations and history of any other disorder was asked for. Obstetric history, personal and family history was elicited.

Each patient was examined with regards to pallor, edema, icterus, cyanosis, lymphadenopathy or any systemic abnormality. Dermatological examination of lesions was carried out with respect to the morphology, configuration and distribution. Special investigations like skin biopsy, smear, culture was carried out wherever necessary. Informed consent was taken from each of the patients undergoing above investigations. Consent was also taken for clinical photographs. Follow up of the patients was done to observe the course of the disease and outcome of the pregnancy.

Statistical analysis:

The data was entered in the Microsoft Excel worksheet and analyzed using proportions. Appropriate statistical test was used wherever necessary. P value less than 0.05 was considered as statistically significant.

Results:

Table 1: Distribution of pregnant women as per gravidity

Gravidity	Number	%
Primigravida	32	53.3
Multigravida	28	46.7
Total	60	100

Table 1 shows distribution of pregnant women as per gravidity. Primigravida women (53.3%) were more than the multigravida women (46.7%)

Table 2: Age wise distribution of pregnant women

Age (years)	Number	%
16-20	16	26.7
21-25	36	60
26-30	06	10
31-35	02	3.3
Total	60	100

Table 2 shows age wise distribution of pregnant women. Majority of women belonged to the age group of 21-30 years (60%) followed by 26.7% in the age group of 16-20 years.

Table 3: Distribution of pregnant women as per trimester

Trimester	Number	%
1	04	6.7
2	15	25
3	41	68.3
Total	60	100

Table 3 shows distribution of pregnant women as per trimester. Majority of women (68.3%) were in the third trimester of pregnancy.

Table 4: Distribution of pregnant women as per onset of skin changes

Trimester	Number	%
1	8	13.3
2	19	31.7
3	33	55
Total	60	100

Table 4 shows distribution of pregnant women as per onset of skin changes. Majority of women (55%) had onset of the skin changes during third trimester compared to 31.7% of women having it in the second trimester while only eight cases (13.3%) had onset of the skin changes in the first trimester.

Table 5: Distribution of pregnant women as per various physiological changes

Physiological changes	Number	%
Chloasma	06	10
Hyperpigmentation	18	30
Striae	28	46.7
Total	60	100

Table 5 shows distribution of pregnant women as per various physiological changes. The most common physiological change seen among the pregnant women was striae in 46.7% of the cases while hyperpigmentation was seen in 30% of the cases followed by chloasma in 10% of the cases.

Table 6: Distribution of pregnant women as per skin disorders present

Skin disorders	Number	%
Specific dermatoses of pregnancy	9	15
Infections	27	45
Infestations	7	11.7
Eczema	4	6.7
Erythema multiforme	1	1.7
Neurofibromatosis	1	1.7
Acne	2	3.3
Others	9	15
Total	60	100

Table 6 shows distribution of pregnant women as per skin disorders present. Specific dermatoses of pregnancy were seen in 15% of the cases. Infections were the most common seen in 45% of the cases and infestations were seen in 11.7% of the cases. 6.7% of the women complained of eczema.

Table 7: Skin disorders associated with pruritus in the present study

Cause of pruritus	Number	%
Specific dermatoses of pregnancy	9	15
Dermatophyte infection	15	25
Tinea versicolor	4	6.7
Scabies	7	11.7
Eczema	4	6.7
Candidiasis	1	1.7
Urticaria	3	5
PMLE	2	3.3
Pityriasis rosea	1	1.7
Viral infection	7	11.7
Total	53	88.3

Table 7 shows skin disorders associated with pruritus in the present study. 53 cases (88.3%) had skin disorders associated with pruritus. Among them most common was Dermatophyte infection seen in 25% of the cases followed by Specific dermatoses of pregnancy in 15% of the cases.

Table 8: Specific dermatoses of pregnancy encountered in the present study

Type of disorder	Number	%
Pruritic urticarial papules and plaques of pregnancy (PUPPP)	4	6.7
Recurrent cholestasis of pregnancy	1	1.7
Prurigo gestations	4	6.7
Total	9	15

Table 8 shows specific dermatoses of pregnancy

encountered in the present study. Pruritic urticarial papules and plaques of pregnancy and Prurigo gestations was the most common specific dermatoses of pregnancy seen in four cases each (6.7%).

Discussion:

In the present study pruritus was the most common symptom (88.3%). Fungal infections and scabies accounted for 45% of pruritus and specific dermatoses in 15% of the cases. In a study by Raj S et al[7] fungal infections and scabies accounted for 65% of the pruritus and specific dermatoses accounted for 16.3%. These findings emphasize need for a careful search for these infections in pregnant females. Winton GB et al[8] reported that up to 2% of pregnant women itch without any cause. There was no pruritus without cause in the present study. It has been observed in the previous studies[9, 10, 11 & 12] also that pruritus was the most common presenting complaint but the majority of the causes were specific dermatoses of pregnancy unlike the present study.

In the present study, among the physiological changes striae (46.6%), hyperpigmentation (30%), and chloasma (10%) were the only positive findings. Hassan I et al[12] observed that among the physiological skin changes, 80% were due to linea nigra.

The incidence of hyperpigmentation reported in the literature[4] is 90% which is much higher than what we found (30%). Only one patient presented with the complaint of chloasma and only nine patients were observed to have chloasma. This probably is due to the dark complexion of the patients which makes it difficult to appreciate the pigmentation. None of the patients complained of pigmentation around the nipples, along the abdomen and genitals as they considered it tobe a normal change due to pregnancy and these were noted only on examination of the patients.

All of our patients developed striae in the second and third trimester of pregnancy. The incidence of striae in our study was 46.7%. In literature, the reported incidence of striae was 90%.[4,7] Multigravidas had persistent striae in between pregnancies. Only one patient came to the OPD with the complaint of striae probably due to realization in most patients attending the antenatal clinic that it is a physiological change and need not be referred to and shown at the dermatology department.

The specific dermatoses of the pregnancy were observed in 9 (15%) of patients. Roger D et al[9] reported an incidence of 3% which is lower than what we found. But Chaudhary R et al[13] reported an incidence of 21.8% (81 out of 372) for specific dermatoses of pregnancy. Hassan I et al[12] found it to be 4.9% of the cases. The higher incidence in the present study may be due to the small sample size of the study and inclusion of only those patients who presented to us with skin complaints.

One patient (1.7%) was observed to have prurigo gravidarum. She was a primigravida and had onset of pruritus in the third trimester. The skin lesions observed were excoriated papules and linear scratch marks mainly on the arms, lower limbs and trunk. She delivered 36 weeks and the baby weight was 2.5 kg. The pruritus disappeared in five days after delivery. In the literature, the incidence varies from less than 1% to 27.6% all over the world[14].

Two primigravida (3.3%) and two gravida-2 patients (3.3%) presented with pruritic urticarial papules and plaques of pregnancy. The onset of pruritus was in the third trimester at 32-38 weeks. The lesions presented as erythematous, edematous papules and plaques which started on the striae and around the umbilicus and then spread to the arms, forearms and legs. No facial or mucosal lesions were seen. One patient had early termination of pregnancy at 38 weeks as the lesions and the severe pruritus did not respond to treatment. The baby was normal and the lesions disappeared within 15 days. The other three patients were well controlled on topical steroid 2-3 times a day diluted with emollients. Literature[15,16] reports that the incidence of pruritic urticarial papules and plaques of pregnancy in single pregnancy is 0.5% while we found it as 6.7% and this can be attributed to small and specific sample size in the present study.

Prurigo gestations of Besnier was observed in four (6.7%) of the cases. Among them two were primigravida and two were multigravida. All of them developed the lesions in the third trimester. The skin lesions presented as excoriated papules on the extensors surfaces of the arms and legs. No facial or mucosal lesions were seen. The patients delivered normally and the babies were healthy. The lesions disappeared in four weeks after delivery. The commonest cause of pruritus in our study was dermatophyte infections (25%) which is much higher than that reported by Raj S et al[7]. A high incidence in this study can be attributed to the low socio-economic status and poor hygiene in the patients. All the patients responded well to topical imidazole creams within three weeks. Only one patient with extensive infection needed oral terbinafine treatment for three weeks.

The viral infections seen in the present study were condylomata acuminate (5%); herpes simplex virus

infection (5%); molluscum contagiosum (1.7%) and varicella (1.7%). Xu F et al[17] reported 72% of seroprevalence of herpes simplex virus among pregnant women. Gibbs RSSR[18] reported that the incidence of varicella among pregnant women is 0.7 per 1000. Out of three patients with condylomata acuminate, one patient also had vaginal candidiasis. All the patients were treated with cryotherapy for 3-4 sittings at weekly intervals and there was complete resolution of lesions after fourth sitting. Vaginal clotrimazole pessary was given for the treatment of candidiasis. All the patients were delivered by cesarean section to prevent fetal transmission. One patient presented with herpes labialis with erythema multiforme. Triggering of erythema multiforme in pregnancy is known. However, there was no case of erythema multiforme occurring primarily due to pregnancy in our study. Viral infections are known to exacerbate in pregnancy. The case of herpes labialis also showed widespread lesions of herpes. The other two patients of herpes genitals, however, did not show exacerbation and were treated with valacyclovir and they responded within five days. One of the patients had a history of recurrent herpes and was given a suppressive dose of valacyclovir. One patient presented with molluscum contagiosum which appeared after pregnancy. The number and size of lesions was similar to a non-pregnant woman. The lesions were enucleated and there was no recurrence of lesions during the remaining pregnancy period. One primigravida presented in the third trimester of pregnancy with varicella. The lesions were comparable to adult varicella lesions and there was no exacerbation due to pregnancy. She was treated with valacyclovir 1gm TDS for seven days with antibiotics and antipyretics. The lesions started subsiding after six days and the lesions healed completely after three weeks. The delivery was normal and the child was healthy.

One primigravida presented with soft nodules on the back, right shoulder, forearms and knees and small and large brown macules in the axilla, abdomen and chest with history of increase in lesions after pregnancy. She was diagnosed as neurofibromatosis and was counseled about the complications during pregnancy and risk of transmission to the fetus. She was lost to follow up

Of the four cases of eczema, three were asteotic eczema and one case of chronic eczema. Roger D et al[9] noted a high prevalence of eczema in pregnancy. But the cause for high prevalence was not known.

It was found in a retrospective study of 91 women with pregnancy and pre existing psoriasis, that 26.4% had worsening of psoriasis and improvement was seen in 56% of the cases while there was no effect in remaining cases[19]. In another study, 47 pregnant women with psoriasis were compared with 27 women with psoriasis but were non pregnant and it was found that 55% improved, 23% had worsening of symptoms and remaining had unchanged clinical course[[20]. Thus, there is a mixed effect of pregnancy on pre existing psoriasis.

There is limited data about the effect of pregnancy on lichen sclerosus as it is a chronic and relapsing disease. The results from studies which are very few, give mixed findings. Like psoriasis, same study shows worsening in some cases while improvement in some cases[21].

Pregnant women are likely to suffer from neuroendocrine and immune system disorders if they are affected by pemphigus. The condition of the mother may enter remission or in some cases it may get exaggerated while some may remain stable. The condition may get aggravated during first or second trimester and is relived during third trimester. In one study, two cases of pemphigus diagnosed before pregnancy and eight cases diagnosed during pregnancy developed exacerbations[22, 23].

It has been found that more than 70% of pregnant women with rheumatoid arthritis had shown improvement. Regarding other auto-immune disorder like effect of pregnancy on scleroderma the data is limited. If the mother has highly specific autoantibody profiles, it may lead to effect on the fetus like demise of the fetus, neonatal lupus syndrome[24].

Conclusion:

Non-physiological skin disorders among the pregnant women constituted the major portion. Infections and infestations were the major risk factors for skin disorders in pregnancy but their course was not altered by the pregnancy. Majority of pregnant women responded well to the treatment.

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