



A CLINICAL OBSERVATIONAL STUDY OF SKIN CHANGES SEEN IN PREGNANCY.

Dermatology

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ABSTRACT

Pregnancy is a state of significant metabolic, endocrinological, immunological and vascular changes which lead to varied cutaneous changes. The cutaneous manifestations could be physiological changes, pregnancy specific dermatoses and skin conditions that are affected by pregnancy. The aim of this study was to find the incidence of pregnancy dermatoses and characterize the various cutaneous manifestations seen in pregnant women.

Methods: It was a cross-sectional descriptive study done over 2-year period from September 2016 to September 2018. All pregnant women presenting to the dermatology outpatient with complaints of skin disorders were recruited for the study. Informed consent was taken and the detailed examination findings recorded. **Results:** A total of 200 pregnant women were included in the study. Mean age was 25.5 years. Majority of participants were primigravida 130(65%). Most common presenting complaint (126 cases, 63%) was itching. Majority of participants (113) presented in the third trimester. Physiological skin changes pertaining to pregnancy was noted in 91(45.5%) participants, 156(78%) had pregnancy non-specific dermatoses and 39(19.5%) had pregnancy specific dermatoses. Hyperpigmentation and striae gravidarum were seen in 24% pregnant women. Among the pregnancy-nonspecific dermatoses infections was the most common condition (76 cases, 38%). Fungal infections constituted the majority, followed by viral and bacterial infections. STI were seen in 5 patients. Polymorphic eruption of pregnancy was the most common pregnancy specific dermatoses seen in 38 (19%) women. Thirty-three of these patients were primi in their 3rd trimester, 5 were in 2nd trimester. Atopic eruption of pregnancy was seen only in 1(0.5%) participant. **Conclusion:** Hyperpigmentation and striae gravidarum are the most common physiological changes seen in pregnancy. Pregnancy predisposes to a wide variety of infections of which fungal infections are most common, followed by viral. Polymorphic eruption of pregnancy is the most common pregnancy specific dermatoses.

KEYWORDS

Pregnancy dermatoses, Polymorphic eruption, physiological dermatoses.

INTRODUCTION

Pregnancy is a unique state with variety of metabolic, endocrine, immunological and vascular changes which lead to diverse cutaneous changes. (1) The skin changes are classified as physiological changes, skin conditions affected by pregnancy, and specific dermatoses of pregnancy. Physiological changes seen in pregnancy include hyperpigmentation, vascular changes, and changes of glands and of other cutaneous appendages such as hair and nails.(1,2) The pre-existing skin diseases could improve or worsen under the hormonal effects or the change in immune status. Specific dermatoses of pregnancy can be classified into those that don't affect the fetus such as polymorphic eruption of pregnancy and atopic eruption of pregnancy and those with significant effects on pregnancy outcome such as intrahepatic cholestasis of pregnancy, pustular psoriasis of pregnancy and pemphigoid gestationis. (1,3) The aim of this study was to find the incidence of pregnancy dermatoses and characterize the various cutaneous manifestations seen in pregnant women.

Methodology:

It was a cross-sectional descriptive study done over a period of 2 years from September 2016 to September 2018. The study was approved by the institutional ethics committee. All pregnant women presenting to the dermatology outpatient department with complaints of skin disorders were recruited for the study. Informed consent was taken and the detailed examination findings recorded. The data was analysed by simple statistics with frequency tables and percentages.

Results:

A total of 200 pregnant women were included in the study. The mean age of the study participants was 25.55 ± 3.49 years. Majority (85%) of the patients were in the age group of 21 to 30 years. Primigravida constituted 65% of the patients, while 35% were multigravida. Majority of the antenatal mothers 113(56.5%) were in their third trimester and 63(31.5%) were reported to be in second trimester and only 24(12%) were in the first trimester of pregnancy.

The most common skin complaint was itching seen in 136 (68%) of the antenatal mothers, followed by fluid filled lesions seen in 11 (5.5%), wheals in 4 (2%) patients, swelling in 3 (1.5%) patients and pigmentation and vaginal discharge in 2(1%) patients each.

Among the 200 participants, the incidence of specific dermatoses of pregnancy was found to be 19.5%. Among the mothers with pregnancy dermatoses, most of them 38 (19%) were found to have polymorphic eruption of pregnancy and one (0.5%) case had folliculitis of pregnancy.(Figure 1) Among the 38 polymorphic eruption of pregnancy cases, 32 of them were primigravida and 6 were multigravida. Among the 32 primigravida, 28 (14%) cases were in their third trimester and remaining 4 (2%) were in second trimester. Common physiological skin changes observed in the antenatal mothers were increased pigmentation 48(24%) and striae gravidarum 48 (24%) (Figures 2 and 3). Melasma was seen in 2 (1%) mothers (Figure 4). Varicose veins, non pitting edema, pregnancy epulis and skin tags were noted in 2 (1%), 2(1%), 1(0.5%) and 1(0.5%) participants respectively.

Table no. 1 The frequency distribution of physiological changes seen among the study participants (n= 104/200)

Conditions	Cases (n=104)	Percentage
Melasma	2	1.0
Increased pigmentation	48	24
Striae gravidarum	48	24
Varicose veins	2	1
Non pitting edema	2	1
Pregnancy epulis	1	0.5
Skin tag	1	0.5

The skin conditions affected by pregnancy seen among the study participants were infections in 76 (38%) mothers, eczema in 31 (15.5%) cases, inflammatory dermatoses in 35 (17.5%) mothers, papulosquamous diseases in 5 (2.5%), autoimmune disease in 1 mother. The dermatoses in 6 other study participants were clubbed under miscellaneous skin conditions. The list of various dermatoses seen is listed in Tables 2 and 3.

Table no. 2 Frequency distribution of the various cutaneous infections seen among the study population

Infectious dermatoses	Number of cases	Percentage
Fungal infections		
Dermatophyte infections	38	19

Pityriasis versicolor	9	4.5
Candidal vaginitis	2	1
Viral infections		
Herpes labialis	2	1.0
Herpes genitalis	3	1.5
Warts	2	1.0
Varicella	5	2.5
HFMD	1	0.5
Bacterial infections		
Folliculitis	4	2.0
Furunculosis	4	2.0
Cellulitis	1	0.5
Impetigo	1	0.5
Parasitic infestations		
Scabies	2	1
Pediculosis	2	1

Table no. 3 The distribution of various pregnancy-non-specific and non-infectious dermatoses seen in the study population

Clinical diagnosis	Number of cases	Percentage
Inflammatory dermatoses		
Urticaria	4	2.0
Acne	12	6
Hidradenitis suppurativa	1	0.5
Angioedema	1	0.5
PMLE	2	1.0
Miliaria rubra	17	8.5
Eczema		
Allergic contact dermatitis	2	1
Perioral dermatitis	1	0.5
Paedrous dermatitis	1	0.5
Seborrheic dermatitis	16	8
Varicose eczema	1	0.5
Discoid eczema	3	1.5
Lichen simplex chronicus	2	1.0
Frictional eczema	2	1.0
Microbial eczema	1	0.5
Hand eczema	1	0.5
Irritant contact dermatitis	1	0.5
Papulosquamous		
Psoriasis	1	0.5
Pityriasis rosea	4	2.0
Miscellaneous		
Acanthosis nigricans	3	1.5
Sebaceous hyperplasia	1	0.5
Acneiform eruptions	2	1.0

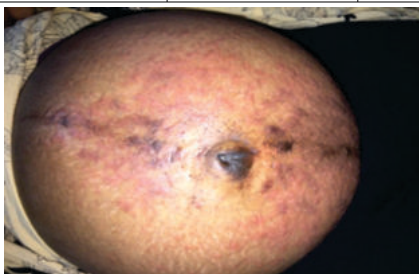


Figure 1: Polymorphic eruption of pregnancy.

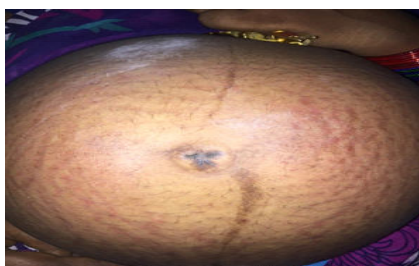


Figure 2: Linea nigra in pregnancy



Figure 3 : Striae gravidarum in pregnancy



Figure 4: Melasma of pregnancy

DISCUSSION

Pregnancy is associated with significant cutaneous changes, ranging from benign physiological changes, pre-existing skin conditions to dermatoses seen exclusively during pregnancy.

Physiological changes of pregnancy are said to occur in 100% of pregnant women.(3) The most common change seen is hyperpigmentation, seen as pigmentation of areola, axillae, linea nigra, and melasma. Pigmentary changes are reported in 90% pregnant women.(3,4) In this study pigmentation was the presenting complaint in only 2% patients however it was noted on examination in 24% of study population. Melasma was seen in 1% of this study population, however it has been reported more frequently in other studies from Indian population, ranging from 10% to as high as 64%.(4,5) The higher incidence of melasma are probably result of regional photoexposure and genetic predisposition. Estrogen, progesterone and melanocyte stimulating hormone (MSH) have variable role in causing hyperpigmentation.(3)

The other common physiological change seen in this study was striae gravidarum in 24% of study participants. Other Indian studies have reported much higher incidence of striae gravidarum in the order of 75 – 79%. (6,7) Striae gravidarum is more often noticed in multigravidae and in 3rd trimester.(4,6) Race and family history are predictors of development of striae distensae, suggesting a genetic role.(2) Vascular changes in pregnancy can range from mild palmar erythema, gingival hyperemia, spider angiomas to varicose veins, pyogenic granulomas and epulis. (2) Mild vascular changes are clinically silent and easily missed. In the present study varicose veins and epulis were seen in 2 cases each. Varicose veins have been noticed in as high as 40% pregnant women in European studies, however, incidence in Indian studies is 0.35 to 2%.(4,7)

The immune system undergoes remarkable changes during pregnancy primarily to protect the fetus from any immune attack. The cell mediated immunity is reduced and T-cells shift from Th1 to Th2 profile. There is reduced NK cell and neutrophil function. High estrogen levels are probably responsible for these effects.(1,3) As a consequence of this altered immune status there is a higher risk of fungal and viral infections in pregnant women. In this study we found 38% patients had infections of which fungal were most common (24.4%). This could be a reflection of current epidemic of dermatophytosis in India made more conducive by the local environmental conditions in this part of the country. Other studies from India have reported fungal infections in the order of 0.3% to 21% thus representing a wide regional variation.(5,6) Pregnant women are particularly prone for vaginal candidiasis, which can have significant effects on the neonate including congenital candidiasis and neonatal candidiasis. Vaginal candidiasis can be seen in over 50% of pregnant

women, however, in this study the incidence was low 1%. The incidence of vaginal candidiasis in pregnancy reported range from 2%, to 11%, to as high as 20% in other Indian studies. (5,7,8))

Sexually transmitted infections can have significant bearing on pregnancy outcome. There is a wide variation in the incidence of reported STIs in pregnancy, ranging from 0.5% to as high as 34% and 43% of cases. (8,9,10) In this study we found 5 cases of STI, 3 of herpes genitalis and 2 of genital warts, the frequency being similar to other reports from India. (11,12) Primary herpes genitalis in pregnancy can lead to neonatal herpes in 50% cases and reactivation of herpes genitalis close to the delivery can result in more than 5% neonates being affected. (3) Condyloma acuminata grow rapidly during pregnancy and are difficult to treat due to limited therapeutic options. Large warts occluding the introitus might prevent a normal vaginal mode of delivery. Other STIs such as syphilis and HIV were not reported in the present study.

Pregnancy specific dermatoses (PSD) include those that do not significantly affect the outcome of pregnancy such as polymorphous eruption of pregnancy and atopic eruption of pregnancy, and those with serious prognostic implications such as pustular psoriasis, intrahepatic cholestasis (pruritus gravidarum) and herpes gestationis. (13,14) The incidence of pregnancy specific dermatoses is 0.3 to 5%. (1,13) The highest incidence of PSD from a study in India has been 34%. (9) Polymorphic eruption of pregnancy (PEP) was seen in 38 patients in this study. Most of these cases were primi in 3rd trimester. The incidence and distribution of PEP in this study is similar to that reported in literature. (4,14) Atopic eruption of pregnancy, with folliculitic lesions, was seen in one patient. Atopic eruptions of pregnancy was found to be the most common PSD in a two studies from north India, constituting 21% to 53% of PSD. (5,10) Pruritus is the most common cutaneous complaint among pregnant women. (15,16) Pruritus of PSD is most often PEP or Atopic eruption. Pruritus associated with vesicular and crusted lesions should raise the suspicion of pemphigoid gestationis (PG). PG is extremely rare with incidence of 1 in 10,000 to 1 in 50,000. (3,15) It was not seen in this study. Pruritus without skin lesions, associated with excoriations is a feature of intrahepatic cholestasis of pregnancy, associated with increased levels of bile acid. ICP can have detrimental effects on fetus if not diagnosed early. (15,16)

CONCLUSION:

Physiological skin changes are seen in more than 50% of the pregnant women, hyperpigmentation being the most common change. Infections are the most common group of skin conditions affected by pregnancy. The most frequently observed pregnancy specific dermatoses is polymorphic eruption of pregnancy. The more serious pregnancy specific dermatosis of pregnancy that can significantly affect fetal outcome are fortunately rare in incidence. Polymorphic eruption of pregnancy is common in primi gravidae and during third trimester. Adeptness of the dermatologist at diagnosing and treating the specific dermatoses of pregnancy and also the dermatoses affected by pregnancy is of vital importance for a healthy mother and baby.

REFERENCES:

1. Wizinia LE, Pomeranz MK. Skin changes and diseases in pregnancy. In: Kang S, Amaigai M., editor. Fitzpatrick's Dermatology in General Medicine. 9th ed. USA: The McGraw-Hill Companies, Inc.; 2019. p. 1765-76.
2. Jones SV. Dermatoses of Pregnancy. In: Griffiths CEM, Barker J, Bleiker T, Chalmer R, Creamer D, Editors. Rook's Textbook of Dermatology. 9th ed. UK. John Wiley and Sons Ltd.; 2016. P115.1-115.15
3. Kroumpouzos, G., & Cohen, L. M. (2001). Dermatoses of pregnancy. *Journal of the American Academy of Dermatology*, 45(1), 1-22.
4. Kumari R, Jaisankar TJ, Thappa DM. A clinical study of skin changes in pregnancy. *Indian J Dermatol Venereol Leprol*. 2007 Mar-Apr;73(2):141
5. Hassan I, Bashir S, Taing S. A clinical study of the skin changes in pregnancy in Kashmir valley of north India: a hospital based study. *Indian J Dermatol*. 2015 Jan Feb;60(1):2832.
6. Kothamasu LS, Shetty V, Najmuddin F, Bhandary PR, Shetty NJ. A clinical study of Pregnancy-induced dermatoses. *Journal of Pakistan Association of Dermatologists*. 2016;26(1):12-20
7. Panicker VV, Riyaz N, Balachandran PK. A clinical study of cutaneous changes in pregnancy. *J Epidemiol Glob Health*. 2017 Mar;7(1):63-70.
8. Madhab V, Das D, Gupta B, Saha M. A Prospective Study on Dermatoses in Pregnancy in a Tertiary Care Hospital of Southern Assam. *J of Evolution of Med and Dental Sci*. 2015 Sep;4(71):12287-91.
9. Puri N, Puri A. A study on dermatoses of pregnancy. *Our Dermatol Online*. 2013;4:5660.
10. Chaudhary R, Mahakal N, Chauhan A, Modi K. Dermatological Disorders in Pregnancy: A Cross Sectional Study. *Int J Sci Stud* 2015;3(8):118-122
11. Sachdeva S. The dermatoses of pregnancy. *Indian J Dermatol*. 2008;53(3):103-5.
12. Vora RV, Gupta R, Mehta MJ, Chaudhari AH, Pilani AP, Patel N. Pregnancy and skin. *J Family Med Prim Care*. 2014 Oct-Dec;3(4):318-24.
13. Kroumpouzos G, Cohen LM. Specific dermatoses of pregnancy: An evidenced-based systematic review. *Am J Obstet Gynecol*. 2003;188:1083-92

14. Ambros-Rudolph CM, Mulleggr RR, Vaughan-Jones SA. The specific dermatoses of pregnancy revisited and reclassified: results of a retrospective two-center study on 505 pregnant patients. *J Am Acad Dermatol*. 2006;54:395-404.
15. Roger D, Vaillant L, Fignon A, Pierre F, Bacq Y, Brechot JF, et al. Specific pruritic diseases of pregnancy. A prospective study of 3192 pregnant women. *Arch Dermatol*. 1994; 130:734-9
16. Das S, Chakraborty S, Das S, Choudhury J, Ghosal L. Dermatoses in pregnancy: Specific dermatoses vis-a-vis others, in a tertiary hospital in Kolkata. *J of Pakistan Assoc of Dermatologists*. 2014;24:46-50.