ORIGINAL RESEARCH ARTICLE
pISSN 0976 3325 | eISSN 2229 6816
Open Access Article
www.njcmindia.org
DOI: 10.5455/njcm.20201218045901

Clinical Spectrum of Pregnancy Related Dermatoses in a Tertiary Care Hospital in Western India

Pooja Agarwal[1], Snehal V Chaudhari[2], Ashish Jagati[3], Santoshdev P Rathod[4], Sabha Talib Neazee[5]

Financial Support: None declared
Conflict of Interest: None declared
Copy Right: The Journal retains the copyrights of this article. However, reproduction is permissible with due acknowledgement of the source.

How to cite this article:
Agarwal P, Chaudhari SV, Jagati A, Rathod SP, Neazee ST. Clinical Spectrum of Pregnancy Related Dermatoses in a Tertiary Care Hospital in Western India. Natl J Community Med 2020;11(12):450-455

Author's Affiliation:
[1]Assistant Professor; [2]Senior resident; [3]Associate Professor; [4]Professor; [5]Post graduate resident, Department of Dermatology, Smt SCL General Hospital, Smt NHL MMC, Ahmedabad

Correspondence
Ashish Jagati
jagatiashish@gmail.com

Date of Submission: 18-12-2020
Date of Acceptance: 25-12-2020
Date of Publication: 31-12-2020

ABSTRACT

Introduction: Pregnancy is characterized by altered endocrine, metabolic, and immunologic milieus resulting in multiple cutaneous changes, both physiologic and pathologic. This research was undertaken to study physiological changes of pregnancy and prevalence of various pregnancy specific and non-specific dermatoses.

Methodology: A retrospective study was conducted at the dermatology out-patient department of a tertiary care center in western India and data of 308 pregnant patients presenting with dermatoses, in the age-group of 19-35 years was analyzed. Detailed history, clinical examination and necessary investigations were reviewed.

Results: Among 308 patients, 302(98.05%) presented with physiological skin changes of pregnancy, 118(38.31%) had pregnancy specific and 185(60.06%) had pregnancy non-specific dermatoses. The most common physiological change was pigmentary changes (n=294). Atopic eruption of pregnancy (n=79) was the most common pregnancy specific dermatoses followed by polymorphic eruption of pregnancy (n=38). In non-specific dermatoses, infectious diseases were more common (fungal, n=128; viral, n=25).

Conclusion: Pregnancy non-specific dermatoses were seen more commonly than pregnancy specific dermatoses. Lower socioeconomic strata and overcrowding may be the reasons behind large number of infectious dermatoses that we saw in our study.

Key words: Pregnancy, Atopic eruption of pregnancy, Polymorphic eruption of pregnancy, pregnancy non-specific dermatoses.

INTRODUCTION

Pregnancy is a state of major vascular, metabolic, hormonal and immunological changes in a woman's body, the effects of some of which may last life-long. These alterations in the body influence the skin of a pregnant woman in multiple ways and she may develop various physiological and pathological cutaneous changes. [1]

The physiological skin changes during pregnancy include changes in pigmentation, alterations in the connective tissue, improved lustre and growth of hair and nails. Increased pigmentation over face, necks and other flexures and linea nigra are seen as the most common physiological changes along with striae gravidarum. Pigmentary changes in pregnancy are the result of melanocytic stimulating effect of estrogen and progesterone.[2] Most of these physiological changes are transient and regress slowly in the postpartum period. However, some changes may remain for a long-term giving insight into past pregnancy.

Pathological changes include pregnancy specific and pregnancy non-specific dermatoses. Pregnancy-specific dermatoses is a heterogeneous group of skin diseases which result from the products of conception and hence are unique to preg-

nancy or early post-partum period. Classifications have been proposed by Holmes and Black in 1983 and Shornick in 1998.[3,4] Latest classification of pregnancy specific dermatoses has been proposed by Ambros-Rudolph in 2006 and it includes pemphigoid gestationis (PG), polymorphic eruption of pregnancy (PEP), intrahepatic cholestasis of pregnancy (ICP), and atopic eruption of pregnancy (AEP).[5] Though most of these dermatoses are benign and resolve in post-partum period, few are associated with increased risk of prematurity, intra partum foetal distress, premature delivery and still births.

Non-specific dermatoses which may afflict pregnant patients are myriad. They may range from infections and infestations to autoimmune, papulosqamous and vesicobullous diseases to name a few. New skin diseases may appear during pregnancy for the first time and continue even after delivery. On the other hand, pre-existing skin disorders may become aggravated, relieved or remain unchanged during pregnancy and the course is always unpredictable. Therefore, antenatal surveillance, recognition of skin conditions, early diagnosis and prompt treatment is essential for improving maternal and foetal prognosis.

The aim of this study was to study the cutaneous changes seen in pregnancy and find the prevalence of various pregnancy specific as well non-specific dermatoses which prompted the patients to seek dermatological care at our tertiary care center.

METHODOLOGY

It was a retrospective study and the data of pregnant females presenting to the outpatient department (OPD) of Dermatology of tertiary care centre in western India from March 2019 to August 2019 was analysed. All pregnant patients with skin diseases visiting the dermatology OPD or referred from the department of Obstetrics and gynaecology were included in this study irrespective of the gravidity and duration of pregnancy. Data of 308 pregnant patients between the ages of 19-35 years was reviewed and analyzed. Detailed history of all patients including their demographic data, onset and duration of symptoms, onset in relation to duration of pregnancy, history of any previous skin disease, past or family history of similar lesions and associated medical conditions was reviewed. In case of diseases present since before pregnancy, relevant questions regarding their course in pregnancy had been asked. Obstetric and menstrual history was noted in all females and any change in pattern of skin disease during menstruation was also noted if the disease was present before pregnancy. Thorough clinical examination had been performed to look for the physiological changes. Dermatoses were examined for their morphology, distribution pattern and severity. Necessary laboratory investigations like cytological examination (Tzanck smear, Gram stain and KOH mount), liver function tests with enzymes and blood sugar levels were done when indicated. Serum HIV and Rapid plasma regain tests were done in accordance with the antenatal care guidelines.

In this study, the dermatoses were classified as physiological changes of pregnancy, pregnancy specific and pregnancy non-specific dermatoses. Physiological changes of pregnancy included pigmentary changes (chloasma, linea nigra and pigmentation of neck, areola), striae distensae, non-pitting edema of feet and physiological vaginal discharge. Pregnancy specific dermatoses were sub-classified into atopic eruptions of pregnancy, pruritus gravidarum, polymorphic eruptions of pregnancy and intrahepatic cholestasis of pregnancy. Non-specific dermatoses included were infectious diseases like fungal and viral infections and other non-infectious dermatoses like acneiform eruptions, discoid eczema, urticaria and ichthyosis.

The data was analyzed to note the prevalence of various physiological changes, pregnancy specific and non- specific dermatoses in terms of frequency of occurrence, trimester wise occurrence and relation of the disease with previous pregnancies.

RESULT

A total of 308 pregnant patient of age group 19-35 years (mean age 24.7 years) were analyzed in this study in which primigravida were 122(39.62%) and multigravida 186(60.38%). Maximum patients were in 3rd trimester (57.8%) followed by 2nd trimester (32.14%) and lastly in 1st trimester (10.06%). Physiological changes were seen in 302 patients (98.05%) and they had associated other dermatoses also at the time of presentation. [Figure 1] The most common physiological change was pigmentary change seen in 294(95.45%) patients with linea nigra being the commonest pattern in 272(88.31%). Striae distensae were the next common physiological change in 235(76.29%) patients. [Table 1]

Table 1: Physiological skin changes in pregnancy

Pigmentary changes (n=294) (95.45%)	
Linea nigra	272 (88.31)
Chloasma	37 (12.01)
Pigmentation of neck, areola, flexures	104 (33.76)
Connective tissue changes	
Striae distensae	235 (76.29)
Vascular changes	
Peripheral edema	12 (3.89)
Physiological vaginal discharge	15 (4.87)

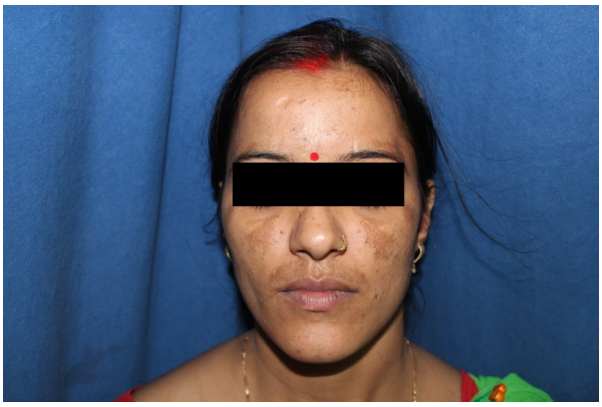

Figure 1: Chloasma (mask of pregnancy)

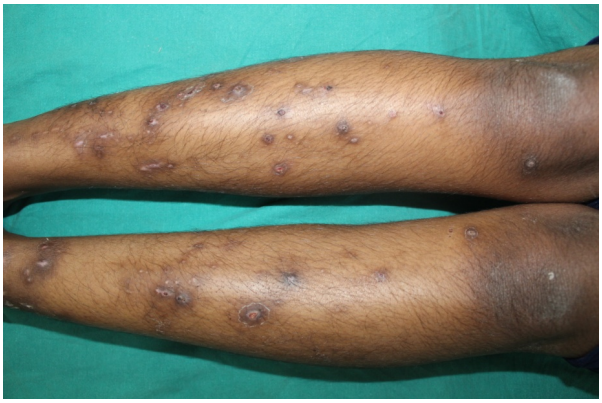

Figure 2: Pruritic folliculitis

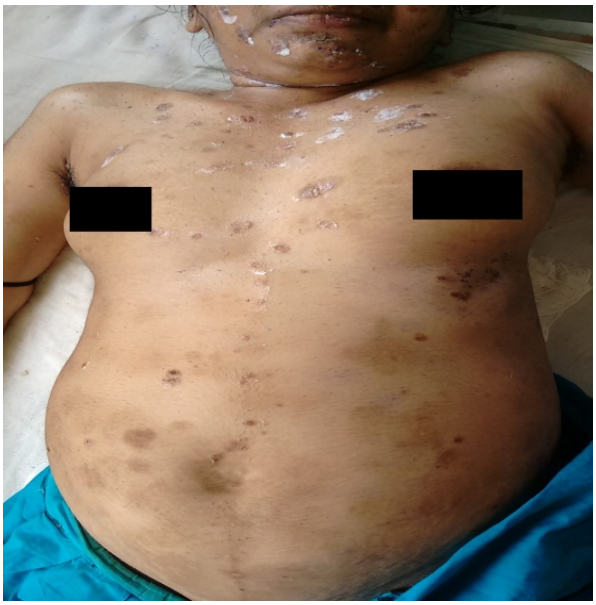

Figure 3: Pemphigoid gestationis

In this study 118 (38.31%) patients had pregnancy specific and 185 (60.06%) had pregnancy non-specific dermatoses. [Table 2] [Figure 2 and 3] Among the 118 patients of pregnancy specific dermatoses, atopic eruption of pregnancy (25.64%) was the most common followed by polymorphic eruption of pregnancy (12.33%). 1 patient with pemphigoid gestationis was seen and we did not come across any patient with intrahepatic cholestasis in our study. Among the 185 patients of pregnancy non-specific dermatoses, majority of patients had fungal infection (41.55%). Most of these patients had tinea infection affecting various parts of the body (33.11%) and 26 patients had vulvovaginal candidiasis (8.44%). Viral infections including molluscum contagiosum, warts and herpes genitalis were the next most common presenting non-specific dermatoses (8.1%).

Other non-infectious dermatoses (10.38%) included urticaria (n=15), acneiform eruptions (n=13), discoid eczema (n=3), and ichthyosis (n=1). All these patients with non-infectious dermatoses had history of similar lesions in past with no apparent worsening of the disease during the pregnancy.

Among the 79 patients of Atopic eruption of pregnancy, 52(65.82%) were primigravida and 27(34.17%) were multigravida. There was positive history of similar lesions in previous pregnancies in only 11 out of the 27 multigravida patients. Out of these 79 patients, 36(45.56%) were presented in 2nd trimester, 33(41.77%) in 3rd trimester and 10(12.65%) in 1st trimester. (Table 3)

Table 2: Distribution of dermatoses in patients

Dermatological disease	Patients (%)
Pregnancy specific Dermatoses (38.31%)	
Atopic eruption of pregnancy	79 (25.64)
Pemphigoid gestationis	1(0.32)
Polymorphic eruption of pregnancy	38(12.33)
Intrahepatic cholestasis or pregnancy	0
Total	**118**
Pregnancy non-specific dermatoses (60.06%)	
Tinea	102(33.11)
Vulvovaginal candidiasis	26 (8.44)
Molluscum contagiosum	10(3.24)
Genital warts	10 (3.24)
Herpes genitalis	5 (1.62)
Others (urticaria, discoid eczema, ichthyosis, acneiform eruptions)	32(10.38)
Total	**185**

Table 3: Incidence of pregnancy specific dermatoses according to trimester and gravida

Specific dermatoses of pregnancy	Trimester			Gravidity		Similar Past history (multigravida)
	First	Second	Third	Primi	Multi	
Atopic eruption of pregnancy (79)	10(12.65)	36(45.56)	33(41.77)	52(65.82)	27(34.17)	11(13.92)
Polymorphic eruption of pregnancy (38)	-	7(18.42)	31(81.57)	22(57.89)	16(42.1)	5(13.15)
Pemphigoid gestations (1)	-	1(100)	-	-	1(100)	1(100)
Intrahepatic cholestasis of pregnancy	-	-	-	-	-	-

Table 4: Comparison of various studies and present study

Point of comparison	Raj S et al[7] 1992	Shivakumar V et al[8] 1999	Kumari R et al[9] 2007	Rathore SP et al[10] 2011	Hassan I et al[11] 2015	Dabette KL et al[12] 2018	Meena M et al[13] 2018	Aditi S et al[1] 2019	Present study
No. of patients	114	170	607	2000	650	300	200	100	308
Age group(years)	16-30	11-20	-	18-40	17-39	26-30	18-40	18-33	19-35
Primigravida	-	86(50.58)	303(49.9)	106(53.35)	272(42)	155(51.6)	127(63.5)	32(32)	122(39.62)
Multigravida	-	84(49.41)	304(51.1)	933(46.65)	378(58)	145(48.3)	73(36.5)	68(68)	188(60.38)
1st trimester	-	19(11.71)	24(3.95)	243(12.15)	-	-		8(8)	31(10.06)
2nd trimester	-	46(27.5)	139(22.9)	680(34)	-	99(33)	122(61)	44(44)	99(32.14)
3rd trimester	-	105(61.76)	444(73.1)	1077(53.85)	-	201(67)		48(48)	178(57.8)
Physiological changes of pregnancy			**607(100)**	**175(87.55)**	**650(100)**		**196(98)**	**100(100)**	**302(98.05)**
Pigmentory change				1718(85.9)		67.3	189(94.5)		294(95.45)
Linea nigra			555(91.4)	1056(52.8)	520(80)	M (93.9) P(55.5)	177(88.5)	82(82)	272(88.3)
Chloasma	10(8.8)		15(2.5)	1016(50.8)	420(64)	M (35.7) P(25.8)	24(12)	40(40)	37(12.01)
Pigmentation of neck/flexures	58(50.9)		-	286(12.9)	-		68(34)	16(16)	104(33.76)
Striae distensae	86(75.4)		484(79.7)	1279(63.9)	252(38.7)	M(81.4) P(61.9)	153(76.5)	68(68)	235(76.29)
Physiological vaginal discharge	-		-		-	-	-	-	28(9.09)
Pregnancy specific dermatoses	**17(14.91)**	**26(15.29)**	**22(14.97)**		**32(4.9)**	**39(13)**	**20(10)**	**2(2)**	**118(38.31)**
Atopic eruption of pregnancy	14(12.28)		1(0.68)		16(2.46)	27(9)	16(8)		79(25.64)
Polymorphic eruption of pregnancy	2(1.75)	4(2.35)	14(9.52)		7(1.07)	9(3)	10(5)	2(2)	38(12.33)
Pemphigoid gestationis	-		1(0.68)		1(0.15)	-	-	-	1(0.32)
Intrahepatic cholestasis of pregnancy	1(0.88)	6(3.25)	5(3.40)		8(1.23)	3(1)	4(2)	-	-
Pregnancy non-specific dermatoses	**97(85.05)**	**144(84.70)**	**125(85.03)**		**48(7.3)**			**14(14)**	**185(60.06)**
Infectious					19(2.92)		15(7.5)	10(10)	153(49.67)
Non infectious					29(4.46)		18(9)	4(4)	32(10.38)

Out of 38 patients of polymorphic eruption of pregnancy, 22(57.89%) were primigravida and 16(42.1%) multigravida. 5 multigravida patients had history of similar lesions in previous pregnancies. Among these 38 patients 31(81.57%) presented in 3rd trimester and 7(18.42%) in 2nd trimester. We had only 1 patient of Pemphigoid gestationis who was multigravida and presented in 2nd trimester of pregnancy. She had history of similar lesions in last pregnancy also. (Table 3)

DISCUSSION

The complex interplay of endocrinologic, immunologic, metabolic and vascular changes influence the skin in various ways in pregnant females.[6] These dermatoses may sometimes add further burden on the psychological wellbeing of the pregnant female.

In our study multigravida patients (60.38%) were seen more commonly than primigravida patients(39.62%) which is different than other studies where primigravida patients were seen more frequently.[1,7-13](Table 4) We had lesser patients in first trimester(10.06%) and the number of patients increased with duration of pregnancy with maximum patients in third trimester(57.8%). This is similar to all the other studies.[1,7-13] The reason for this may be that patients in first trimester developed less cutaneous changes as compared to advanced pregnancy. Physiological cutaneous changes are usually seen in most of the patients and most commonly include pigmentary changes, striae and vascular changes. In our study of 308 patients, 302(98.05%) women experienced physiological changes which were comparable to existing Indian literature.[1,7-13] However in a study from northern India physiological changes were seen in only 87.55% patients.[10] They had studied 2000 antenatal females for physiological cutaneous changes and the large sample size may be the reason for decreased prevalence. Linea nigra is seen to be the most common physiological pigmentary change in our study (88.3%) as was seen by Kumari R et al(91.4%0),[9] Hasssan I et al(80%),[11] Aditi S et al(82%)[1] and Meena M et al(88.5%).[13] Chloasma or pregnancy mask is also seen very commonly and was seen in 12.01% patients similar to Meena M et al.[13] Other studies by Hassan I et al,[11] Rathore SP et al[10] and Aditi S et al[1] found higher incidence of

chloasma(64%,50.8% and 40% respectively). Connective tissue changes in form of striae distensae were seen in 235(76.29%) cases which were comparable to all other studies [1,7-10,12,13] except Hassan I et al[11] where a lower prevalence was seen(38.7%) . Amongst patients complaining of vaginal discharge, we found 28 patients to be having physiological discharge that is often seen in pregnancy. Their potassium hydroxide mount, gram stain and wet mount did not show any pathological organism and hence we labelled them as physiological discharge.

Specific dermatoses of pregnancy included pemphigoid gestationis (PG), polymorphic eruption of pregnancy (PEP), intrahepatic cholestasis of pregnancy (ICP), and atopic eruption of pregnancy (AEP). AEP is a benign pruritic disorder of pregnancy, which includes eczematous and/or papular lesions in patients with an atopic diathesis after exclusion of the other dermatoses of pregnancy. Intrahepatic cholestasis of pregnancy or pruritus gravidarum is caused by maternal intrahepatic bile secretory dysfunction. Pruritic urticarial papules and plaques of pregnancy (PUPPP) is benign self-limiting pruritic inflammatory disorder that usually affects primigravida in the last weeks of pregnancy or immediately postpartum and is also known as toxaemic rash or polymorphic eruption of pregnancy (PEP). Pemphigoid gestationis is an uncommon autoimmune vesico-bullous disorder presenting mainly in late pregnancy or the immediate postpartum period. It usually presents with intense pruritus that occasionally may precede skin lesions initially, erythematous urticarial papules and plaque over the abdomen typically involving the periumbilical region. In most cases it is self-limited and improves after delivery. In this study the most common pregnancy specific dermatoses of was Atopic eruption of pregnancy found in 79(25.64%) cases followed by polymorphic eruption of pregnancy found in 38(12.33%) cases. Atopic eruption of pregnancy has been found to be the most common pregnancy specific dermatoses by other authors as well.[1,7-13] In our study, we could not elicit history of atopic diathesis in any of the patients with AEP and the most common site for eruptions to start was extremities and rarely involved the trunk. Although we found AEP to be more in primigravida patients, 11 multigravida patients reported having similar lesions in previous pregnancy. Prevalence of PEP was less than AEP in our study which is different than the study by Kumari R et al and most common specific dermatoses of pregnancy was polymorphic eruption of pregnancy (9.52%) which may be explained by higher percentage of third trimester females in their study.[9]. Although it is said that PEP occurs more commonly in primigravidae patients during the third trimester and has a positive correlation with multiple gestations, we found 16 multigravida patients who had lesions typical of polymorphic eruptions of pregnancy. 5 of these reported similar lesions in previous pregnancy also. Aditi S et al had only two patients with pregnancy specific dermatoses in their study and both had PEP.[1] Pemphigoid gestationis is a rare disease and we came across only 1 patient in our study. Similarly Kumari R et al and Hassan I et al also found only 1 patient with pemphigoid gestationis in their studies.[9,11] Our patient had similar lesions in previous pregnancy which had improved with conservative management and subsided completely in the postpartum period to reappear in the present pregnancy. We did not have any patient with intrahepatic cholestasis of pregnancy which has been seen by Aditi S et al and Rathore SP et al.[1,10]

Non-specific dermatoses are present even outside the context of pregnancy and include a wide range of dermatoses, some flare up during pregnancy while some may show improvement. We found non-specific pregnancy dermatoses to be more common than specific dermatoses. Prevalence in our study (60.06%) was lower than Raj S et al,[7] Shivakumar V et al,[8] Kumari R et al,[9] but higher than Aditi S et al[1] and Hassan I et al.[11]As pregnancy is state of lowered immunity, infections may become more common. In our study infectious dermatoses were more common (49.67%) which in addition to the lowered immune status, could possibly be due to the strata of the population served by our hospital. Patients visiting our hospital belong mostly to lower socioeconomic class and hence overcrowding and hygiene are important factors affecting the spread of infections like tinea which was the most common fungal infection in our study. In our study 32% patients presented with non-infectious non-specific dermatoses. All the patients had complaint of lesions prior to onset of present pregnancy. But no one reported any worsening or improvement in the existing disease.

CONCLUSION

Most common skin diseases seen in pregnancy are the result of physiological changes and are benign and self -limiting. Amongst other dermatoses, non-specific dermatoses are usually seen more commonly than pregnancy specific dermatoses. Pruritus is a common presenting complain for the specific dermatoses and detailed history and clinical evaluation is needed to differentiate between the various pregnancy specific dermatoses. Some of the pregnancy specific dermatoses can be associated with severe foetal outcomes such as foetal distress, premature birth and stillbirth, hence vigilance should be maintained. Counselling should

always be done in addition to the standard treatment to further alleviate the psychological stress of these patients.

REFERENCES

1. Aditi Sharma, Himang Jharaik, Rajni Sharma, Shailja Chauhan and Dhaarna Wadhwa. Clinical study of pregnancy associated cutaneous changes. Int j Clin obstet Gynaecol 2019;3(4):71-75.
2. Vora RV, Gupta R, Mehta MJ, Chaudhari AH, Pilani AP, Patel N. Pregnancy and skin. J Family Med Prim Care. 2014;3(4):318-324.
3. Holmes RC, Black MM. The specific dermatoses of pregnancy. J Am Acad Dermatol 1983;8:405-12.
4. Shornick JK. Dermatoses of pregnancy. Semin Cutan Med Surg 1998;17:172-81.
5. Ambros-Rudolph CM, Mullegger RR, Vaughan-Jones SA, Kerl H, Black MM. 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(3):395-404.
6. Ambros-Rudolph CM. Dermatoses of pregnancy: clues to diagnosis, fetal risk and therapy. Ann Dermatol. 2011;23:265-75.
7. Raj S, Khopkar U, Kapasi A, Wadhwa S L. Skin in pregnancy. Indian J Dermatol Venereol Leprol 1992;58:84-8
8. Shivakumar V, Madhavamurthy P. Skin in pregnancy. Indian J Dermatol Venereol Leprol. 1999; 65:23-5.
9. Kumari R, Jaisankar T J, Thappa DM. A clinical study of skin changes in pregnancy. Indian J Dermatol Venereol Leprol 2007;73:141
10. Rathore SP, Gupta S, Gupta V. Pattern and prevalence of physiological cutaneous changes in pregnancy: A study of 2000 antenatal women. Indian J Dermatol Venereol Leprol 2011;77:402
11. 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;60:28-32
12. Dabette KL, Bijayanti DT, Hafi BN, Singh RL. Skin changes during pregnancy: A study from Northeast India. Indian Dermatol Online J 2018;9:455-7
13. Meena M, Gehlot H. A clinical study of skin disorders in pregnancy. Int J Reprod Contracept Obstet Gynecol 2018;7:715-8.