ORIGINAL ARTICLE

A Hospital-based Clinical Study of Various Cutaneous and Venereal Diseases in Pregnancy

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Abstract

Introduction: Pregnancy can affect the skin in numerous ways. Further, it can impact the clinical course and successional changes of long-standing skin diseases. Thus, classifying pregnancy dermatosis into physiological, general and specific categories may give a proper understanding of the diseases and their outcomes. **Objective:** To demonstrate the clinical aspect and frequency of various cutaneous and venereal diseases observed during pregnancy. **Materials and Methods:** This cross-sectional study was conducted in the Department of Dermatology, Venereology and Leprosy in Tamil Nadu for 2 years from November 2019 to October 2021. The study included 114 pregnant women who attended the outpatient department (OPD) as well as inpatients and referral cases from the Department of Obstetrics and Gynecology. All data were analysed using the Statistical Package for the Social Sciences (SPSS) version 20.0 and tabulated based on age, gravida, trimester and diseases. **Result:** Of 114 cases encountered, 21 (18.4%) were of specific dermatosis, 23 (20.2%) of infections, 56 (49.1%) of sexually transmitted infections and 14 (12.3%) of non-specific dermatosis. Incidence was higher in primigravida (68.4%) than in multigravida (31.6%). Here, the most frequent specific dermatosis of pregnancy reported was pruritic urticarial papules and plaques of pregnancy (PUPP) (10.5%). We also reported scabies (6.1%) and seropositive venereal disease research laboratory (VDRL) with TPHA+ (13.2%) as the most common infection and sexually transmitted infections (STIs), respectively. **Conclusion:** A prospective collaborative study of all skin and venereal diseases in pregnancy is required for better understanding, earlier diagnosis, more favourable outcome and optimal treatment.

Key Words: *Atopic eruption of pregnancy, impetigo herpetiformis, intrahepatic cholestasis of pregnancy, pemphigoid gestationis, pruritic urticarial papules and plaques of pregnancy*

Introduction

Pregnancy can affect the skin in numerous ways. Further, it can impact the clinical course and successional changes of long-standing skin diseases. Thus, classifying pregnancy dermatosis into physiological, general and specific categories may give a proper understanding of the diseases and their outcomes. The benign physiological changes in skin, hair, nail and vascular system are mostly correlated with hormones. During pregnancy, the suppressed cell-mediated immunity in the mother prevents foetal allogenic rejection and, in the process, weakens the maternal immune system against infection.[1] Intrauterine infection in early pregnancy can cause grave complications in the foetus. Dermatosis distinct during pregnancy includes atopic eruption of pregnancy (AEP), pruritic urticarial papules and plaques of pregnancy (PUPP) otherwise called polymorphic eruption of pregnancy, intrahepatic cholestasis of pregnancy (ICP), pemphigoid gestationis (PG) and impetigo herpetiformis.[2] All these diseases usually need only symptomatic management except for impetigo herpetiformis, PG and ICP. Furthermore, some dermatoses may first appear during pregnancy and run a chronic course even after delivery. Genodermatosis in the mother can be a concern; so, genetic counselling and antenatal screening in early pregnancy are fundamental. In this study, we focused on the vast skin conditions observed in pregnancy, including specific and non-specific dermatosis, and infections, including sexually transmitted infections (STIs).

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Materials and Methods

This cross-sectional study was conducted in the Department of Dermatology, Venereology and Leprosy in Tamil Nadu for 2 years from November 2019 to October 2021. We included all pregnant women who attended the outpatient department (OPD) as well as inpatients and referral cases from the Department of Obstetrics and Gynecology. One hundred and fourteen pregnant women who gave consent were included in the study. We collected an elaborate history of relevant data, such as obstetric history, duration of illness, associated symptoms, similar complaints in the family and spouse, history of atopy, pre-existing diseases, other comorbidities and finally contact history to rule out STIs. The patients were also thoroughly examined, and relevant findings were documented. Bedside clinical tests, such as potassium hydroxide (KOH) mount, skin scraping for scabies mite and Tzanck smear, were conducted in certain cases. We conducted STI screenings and routine investigations, including liver function tests, venereal disease research laboratory (VDRL), enzyme-linked immunosorbent assay (ELISA) for human immunodeficiency virus (HIV) and skin biopsy with special staining in cases where it was required. We conducted other specific tests, such as antinuclear antibody (ANA) in few cases to confirm a diagnosis. A multidisciplinary approach from other departments was helpful in certain non-specific dermatosis, such as neurofibromatosis (NF) type 1, systemic sclerosis, systemic lupus erythematosus (SLE) and Rowell syndrome. Due to financial restrictions, some patients refused mutation analysis; so, diagnosis of Pachyonychia Congenita type 1 and epidermolysis bullosa was reached on basis of family history and clinical examination. All data were analysed using the Statistical Package for the Social Sciences (SPSS) version 20.0 and tabulated based on age, gravida, trimester and diseases. Approval from ethical committee taken on 17/4/2019.

Table 1: Age group distribution in various dermatoses of pregnancy (*n*=114)

Age group	No. of cases	Percentage %
<20 years	9	7.9
21–25 years	55	48.2
26–30 years	41	36
>30 years	9	7.9

Result

The age group between 21 and 25 years (48.2%) was the most affected followed by 26–30 years (36%) [Table 1 and Chart 1]. The distribution based on dermatosis, trimester and gravida is shown in Tables 2-5. Of 114 cases encountered, 21 (18.4%) were of specific dermatosis, 23 (20.2%) of infections, 46 (40.4%) of STIs and 14 (12.3%) of non-specific dermatosis [Chart 2]. Here, the most frequent specific dermatosis of pregnancy is reported as PUPP (10.5%) followed by eczema of pregnancy (3.5%), ICP (2.6%) and prurigo

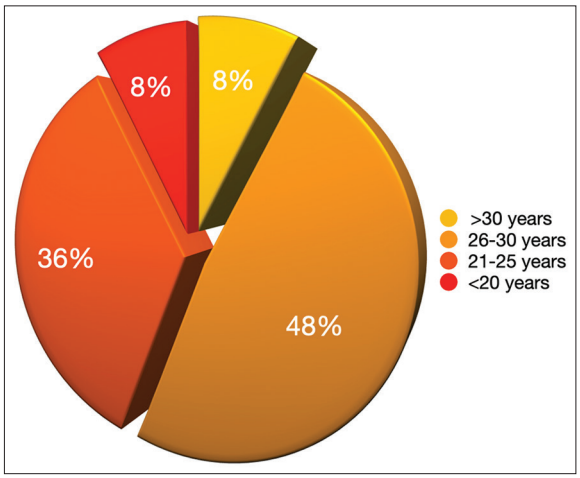

Chart 1: Age group distribution in various dermatoses of pregnancy (*n* = 114)

Table 2: Specific dermatosis of pregnancy with obstetric history (*n*=21)

Features	Group	No. (*n*=21)				Total
		Eczema of pregnancy	Prurigo of pregnancy	Polymorphic eruption of pregnancy/PUPP	Intrahepatic cholestasis of pregnancy/ICP	
No. of patients		4	2	12	3	21
% (N) Among specific dermatosis of pregnancy		19.04	9.5	57.1	14.2	99.84
% (N) Among all dermatosis of pregnancy (*n*=114)		3.5	1.6	10.5	2.6	18.2
Trimester	First	-	-	-	-	-
	Second	3 (75%)	2 (100%)	-	-	5
	Third	1 (25%)	-	12 (100%)	3 (100%)	16
Gravida	Primi	2 (50%)	-	12 (100%)	2 (66.7%)	16
	Multi	2 (50%)	2 (100%)	-	1 (33.3%)	5
A similar complaint in a previous pregnancy	Present	2 (50%)	1 (50%)	-	-	3
	Absent	2 (50%)	1	12 (100%)	3 (100%)	18
H/o atopy		1 (25%)	1 (50%)	-	-	2

of pregnancy (1.6%). Table 3 tallies up the various infections reported in the study, with scabies being the most common (6.1%). The details of STIs are totalized in Table 4 with seropositive VDRL with TPHA+ (13.2%) as the most common STI. The non-specific dermatosis reported in this study is summarized in Table 5 and Chart 3 which includes cases of systemic sclerosis, acute generalized exanthematous pustulosis and vulvar oedema. Fourteen patients (12.3%) of the total number of cases were hospitalized and treated of which five (4.4%) cases were of specific dermatosis of pregnancy. Figures 1-7 display the photos of various dermatosis observed duirng pregnancy.

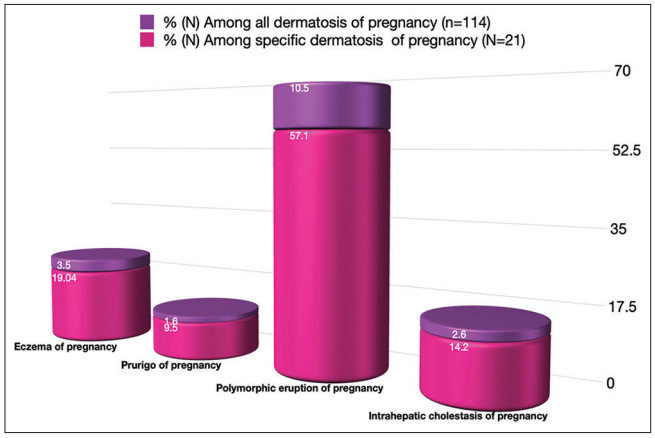

Chart 2: Frequency distribution of specific dermatosis of pregnancy (n = 21)

Discussion

In this study, we found the incidence of non-specific dermatosis including infections (81.6%), which was more than two-thirds of all the cases. The first classification of specific dermatosis of pregnancy includes polymorphic eruption of pregnancy, PG, prurigo of pregnancy and pruritic folliculitis of pregnancy. Now, it is revised by Ambros-Rudolph *et al.*[2] and includes AEP, PUPP otherwise called polymorphic eruption of pregnancy,

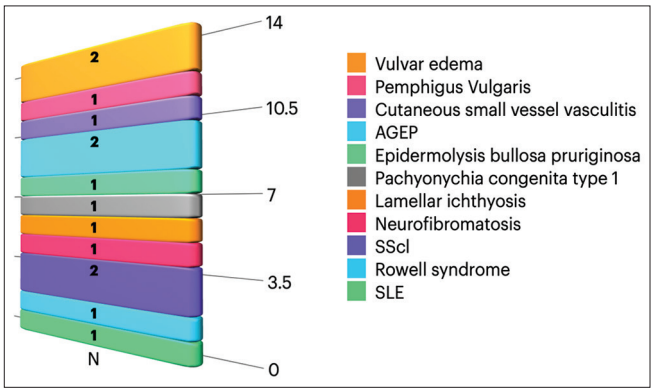

Chart 3: Frequency distribution of other non-specific dermatoses observed in pregnant women (n = 14)

Table 3: Infections observed in pregnant women in the study group (n=23)

Infections	No. of patients	Trimester			Gravida	
		First	Second	Third	Primi	Multi
Scabies	7	1	3	3	3	4
Tinea corporis	3	2	1	-	1	2
Tinea versicolor	1	-	1	-	1	-
Pediculosis capitis	2	-	1	1	1	1
Actinomycetoma	1	-	1	-	1	-
ENL	1	-	-	1	1	-
Lepromatous leprosy	1	-	1	-	1	-
Molluscum contagiosum	2	-	1	1	1	1
Herpes labialis	2	-	1	1	1	1
Varicella	3	-	3	-	2	1

Table 4: Sexually transmitted infections in pregnant women in the study group (n=56)

STI	No. of patients	Trimester			Gravida		Spouse H/O
		First	Second	Third	Primi	Multi	
Seropositive VDRL (with TPHA +)	15	2	5	8	10	5	6
Second syphilis + genital wart	1		1		1		
TPHA+ only	6	3	2	1	3	3	3
Genital wart	14	1	5	8	9	5	8
Genital wart + VVC	2		1	1	1	1	1
Herpes genitalis	6	1	3	2	4	2	4
Herpes genitalis + VVC	4		2	2	3	1	1
Vulvovaginal candidiasis	8	2	4	2	6	2	

Table 5: Other non-specific dermatoses observed in pregnant women in this study group (*n*=14)

Dermatosis	No. of patients	Trimester			Gravida		A similar complaint in past	Family H/O
		First	Second	Third	Primi	Multi		
SLE	1	-	1	-	1	-	-	-
Rowell syndrome	1	-	-	1	1	-	-	-
SScl	2	-	2	-	1	1	1	-
Neurofibromatosis 1	1	1	-	-	1	-	1	1
Lamellar ichthyosis	1	-	1	-	1	-	-	-
Pachyonychia congenita type 1	1	1	-	-	1	-	1	1
Epidermolysis bullosa pruriginosa	1	1	-	-	1	-	1	1
AGEP	2	1	1	-	2	-	-	-
Cutaneous small-vessel vasculitis	1	-	1	-	-	1	-	-
Pemphigus vulgaris	1	-	1	-	1	-	-	-
Vulvar oedema	2	-	2	-	2	-	-	-

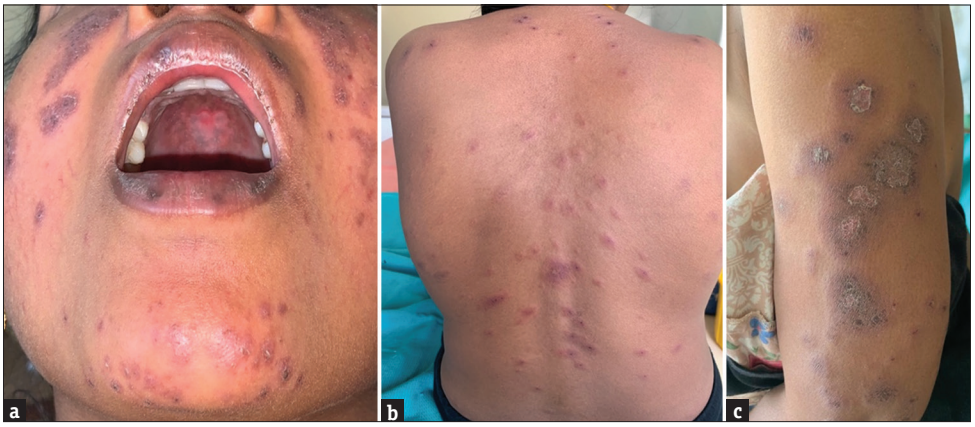

Figure 1: Rowell syndrome

Figure 2: Pachyonychia Congenita type 1

ICP and PG. AEP is further categorized into eczema of pregnancy, pruritic folliculitis of pregnancy and prurigo of pregnancy. In the study, we did not report any cases of PG and impetigo herpetiformis. Samdani reported in descending order polymorphic eruption of pregnancy (38.9%) as the most common type, followed by ICP (25.53%), PG (19.14%), prurigo of pregnancy (8.51%), pruritic folliculitis (4.25%) and impetigo herpetiformis (4.25%).[3] In contrast, Deora *et al.*[4] described prurigo of pregnancy (48.9%) as the most common type in their study followed by polymorphic eruption of pregnancy (43.93%), ICP (6.06%) and PG (1.5%). The incidence of different dermatoses varies in various studies and geographical areas; so, it is challenging to determine the frequent specific dermatosis occurring in pregnancy.

We reported all cases of polymorphic eruption of pregnancy (n = 12) in primigravida women during the third trimester of pregnancy, and these features are consistent with the available literature.[5] Multiple gestations and excessive weight gain during pregnancy are risk factors associated with this dermatosis.[6]

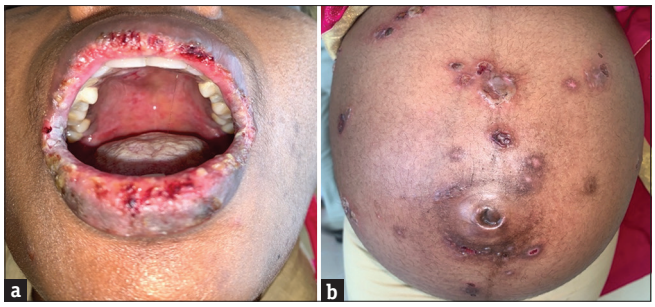

Figure 3: Pemphigus vulgaris

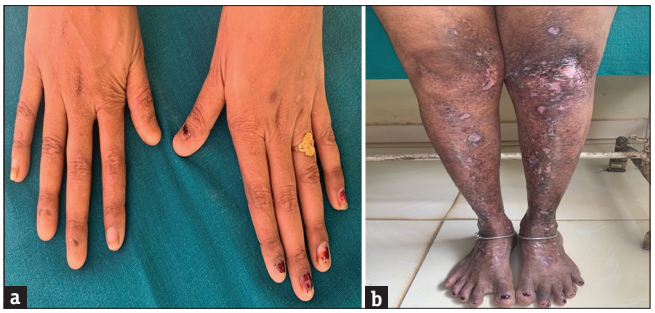

Figure 4: Epidermolysis bullosa pruriginosa

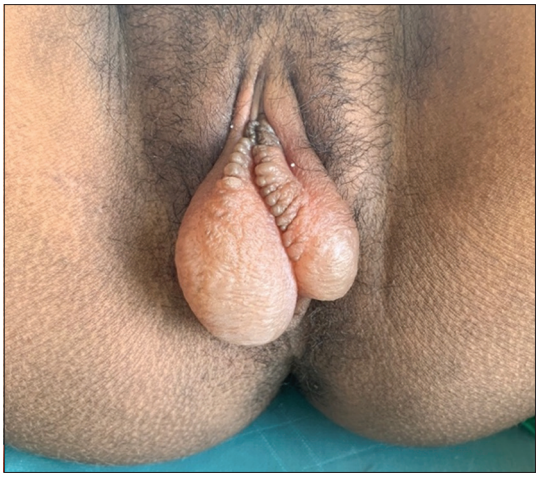

Figure 5: Vulvar oedema

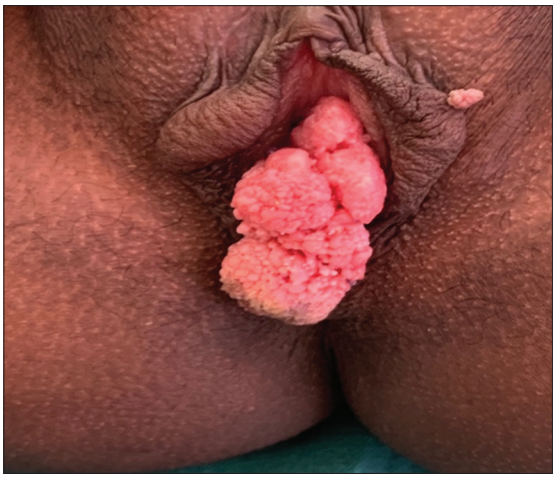

Figure 6: Genital wart

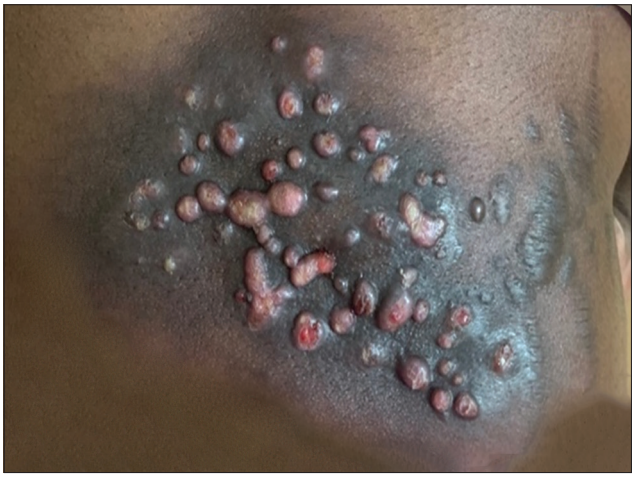

Figure 7: Actinomycetoma

Clinically, it presents as pruritic papules and plaques involving the trunk and extremities but spares the face, periumbilical region, palms and soles.[7] The prognosis is good, and treatment includes only symptomatic relief.

In this study, eczema of pregnancy (n = 4) was reported equally in primi and multigravida women with incidence more during the second trimester of pregnancy (75%). One case (25%) has a history of atopy, and 50% of cases reported recurrences in our study. It is usually reported in the first and second trimesters with subsequent relapse in the next pregnancy. The usual sites of involvement include the face, neck, trunk and flexural aspects of the extremities. It is a self-limiting condition with the possibility of developing atopy later in infants.[8]

We described ICP (n = 3) in both primi (66.7%) and multigravida (33.3%) women during the third trimesters (100%) of pregnancy. It is described as a familial condition characterized by dysfunction of maternal intrahepatic bile secretions.[9] Onset is during late pregnancy with the reappearance in successive pregnancies. Clinically, generalized excoriations with intensified pruritus are present with healed hyperpigmentation. The outcomes due to placental anorexia include prematurity, foetal distress and stillbirths.[10]

Prurigo of pregnancy (n = 2) was observed in multigravida women during the second trimester of our study. A history of atopy (50%) was reported in one case. The onset is variable unlike other specific dermatoses of pregnancy and recurs in following pregnancies. It is distinguished by eczematous lesions (E-type), the most common pattern and papular lesions (P-type).[2] No unfavourable outcomes were reported in the mother and foetus.

We reported infections (n = 76, 66.7%) as the most common non-specific dermatosis in pregnancy, including 56 (49.1%) cases of STI as summarized in Table 3. Shivakumar and Madhavamurthy also reported scabies (17.6%) and condyloma acuminata (4.7%) as the most common non-specific dermatosis and STI, respectively.[11] According to Chaudhary *et al.*,[12] genital warts (6%) were the common STI [Figure 6] followed by genital molluscum contagiosum (2.5%) and seropositive VDRL (2%). In contrast, Bilgili *et al.*[13] described urticaria and angioedema (30%) as the most common non-specific dermatosis followed by viral (11.1%) and bacterial infections (8.1%), whereas Ambros-Rudolph *et al.*[2] reported pityriasis rosea, acne and urticaria-like (30%) as the most common non-specific dermatosis. STI screening in early pregnancy including their partner should be conducted routinely. The increasing size of genital warts during pregnancy not only leads to obstruction during labour but also infects the foetus at the time of delivery. So, planning the mode of delivery also becomes crucial.[14]

Apart from infections, we also reported 14 (19.4%) cases of other non-specific dermatoses summarized in Table 5. In the literature, massive vulvar oedema has been associated with diabetes, multiple pregnancy [Figure 5], pre-eclampsia, hypoproteinaemia, tocolytic therapy, infections, congenital lymphatic anomalies, trauma and severe anaemia.[15,16] However, in this study, no underlying abnormalities were found and the two primigravida women in the second trimester of pregnancy recovered spontaneously without any sequelae. Here, we described two cases of acute generalized exanthematous pustulosis induced by labetalol and an unknown drug in primigravida women with no previous history of similar complaints. It is a rare self-limiting skin dermatosis characterized by sterile pustules on an erythematous base that spread from the intertriginous areas to the entire body and resolves by desquamation.[17]

The pemphigus vulgaris case in our study was a primigravida diagnosed for the first time during the second trimester of pregnancy [Figure 3]. According to previous studies, the disease may aggravate during the first and second trimesters and postpartum periods, and if presented, the first time during pregnancy can exacerbate after delivery.[18] It also has fatal foetal outcomes, such as spontaneous abortion, prematurity, stillbirth, intrauterine growth retardation and death.[19] Fortunately, in our case, her pregnancy was uneventful and delivered a healthy newborn at term.

In this study, we reported a separate case of SLE and Rowell syndrome in primigravida women in the second and third trimesters of their pregnancy [Figure 1], respectively, without any significant history. This chronic autoimmune disease has been associated with grave complications in both the mother and foetus.[20] So, a multidisciplinary approach at the earliest is needed for a better outcome.

Conclusion

Pregnant women are vulnerable to many specific and non-specific dermatological conditions as well as STIs which are highlighted in this study. A comprehensive history and clinical examination along with appropriate investigations are needed to confirm the diagnosis. Some diseases have a benign course, with few reoccurring in subsequent pregnancies, while others run a chronic course. Accordingly, treatments are strategized to keep down the morbidity in the mother and foetus. A prospective collaborative study of all skin changes in pregnancy is required for better understanding, earlier diagnosis, more favourable outcome and optimal treatment. The present is pregnant with the future, let us make the woman 9 months trouble-free.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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