

Clinical study of Pregnancy specific dermatoses- An observational study at tertiary care centre of Western Rajasthan

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Abstract

Introduction: The present study entitled “clinical study of Pregnancy Specific Dermatoses” has been undertaken to study the epidemiology and clinical spectrum of specific dermatoses among the pregnant women of Western Rajasthan region. Any pregnant women complaining of severe pruritus or skin eruptions needs meticulous observation, evaluation and not to be ignored. Few specific dermatoses like intrahepatic cholestasis of pregnancy and pemphigoid gestationalis are associated with increased risk of prematurity, intrapartum fetal distress, preterm delivery and still births. Hence the awareness, recognition of these skin conditions, familiarity with their treatment, antepartum surveillance, early diagnosis and prompt treatment is essential for improving maternal and fetal prognosis. **Methodology:** Study was conducted in the department of obstetrics and gynaecology along with collaboration of department of dermatology, Dr. S.N. Medical College, Umaid Hospital, Jodhpur, Rajasthan for a period of 6 months from July 2018 to Dec. 2018. A total of 9679 pregnant women were screened, we observed 164 pregnant women with various skin disorders, out of which 67 cases were having specific dermatoses of pregnancy that delivered at our tertiary care centre. **Results and Conclusion:** Specific dermatoses of pregnancy were observed in 67 cases out of 164 pregnant women (40.85%). Prurigo of pregnancy was the most common accounting for 49.12% of the cases with specific dermatoses followed by pruritic urticarial plaques and papules of pregnancy (43.93%) and pruritus gravidarum (6.06%). Only 2 cases of Pemphigoid gestationalis was observed in this study.

Keywords: Prurigo of pregnancy (PP), pruritic urticarial papules and plaques of pregnancy (PUPP), intrahepatic cholestasis of pregnancy, pemphigoid gestationalis, dermatoses

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Introduction

For many women, pregnancy brings glowing skin, rosy cheeks and shiny hair. Others however experience skin changes that aren't so attractive, including acne, dark spots and stretch marks. The journey to motherhood is a time of great change and adjustment for all mothers and the arrival of a new baby brings joy along with challenges. Pregnancy related skin changes believed to be produced by the hormonal changes are called physiological skin changes that may be pathologic when severe, and not be primarily of hormonal origin.[1] Dermatoses unique to pregnancy are rare but important to recognize because they may be intensely pruritic or painful to the mother and they may pose significant risks to the patient and her fetus, like Intrahepatic cholestasis of pregnancy, Impetigo herpeticiformis, and Pemphigoid gestationalis are associated with increased risk of prematurity, intrapartum fetal distress (22%-33%), premature delivery (19%-60%) and still births (1%-2%).[2-5] The most recent rationalized classification has been proposed by Ambros Rudolph et al [6] in 2006 after their retrospective two-center study on 505 pregnant patients and presented four main conditions:

1. Atopic Eruption of Pregnancy (AEP)/Prurigo of Pregnancy (PP)
2. Polymorphic eruption of Pregnancy/Pruritic urticarial papules and plaques of pregnancy (PUPP)
3. Pemphigoid Gestationalis

4. Intrahepatic Cholestasis of Pregnancy

1. Prurigo of pregnancy (PP)

It is the most common dermatosis in pregnancy, accounting for 50% of patients, usually starts early in 75% before the third trimester and due to its atopic background, tends to recur in subsequent pregnancies. [6]

PP is a benign pruritic disorder of pregnancy which includes eczematous or papular lesions in patients with a personal or family history of atopy / elevated IgE levels after excluding the other dermatoses.

Pathogenesis

It is thought to be triggered by pregnancy-specific immunological changes; reduced cellular immunity and reduced production of Th1 cytokines (IL-2, interferon gamma, IL-12) stands in contrast to the dominant humoral immunity and increased secretion of Th2 cytokines (IL-4, IL-10).[7]

Clinical features

80% will experience atopic skin changes for the first time ever or after a long remission (e.g., since childhood). Two-thirds patients present with widespread eczematous changes (E-type AEP) often affecting typical atopic sites such as face, neck, upper chest, and the flexural surfaces of the extremities, whereas one-third have papular lesions (P-type AEP)[6] disseminated on trunk and limbs, as well as typical prurigo nodules, mostly located on the shins and arms.

Prognosis and fetal outcome-Maternal prognosis is good even in severe cases because skin lesions usually respond quickly to therapy, recurrence in subsequent pregnancies is common. Fetal prognosis is unaffected.

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Fig 1(a): PP



Fig 1(b); PP

2. Pruritic urticarial papules and plaques of pregnancy

PUPPP is a benign, self-limited pruritic inflammatory disorder that usually affects primigravidae in the last weeks of pregnancy or immediately postpartum (15%)[7] and associated with excessive maternal weight gain and multiple pregnancies.[8,9]

Clinical features

PUPPP typically starts on the abdomen, within striae distensae, at the time of greatest abdominal distension favours connective tissue damage due to overstretching develop an antigenic character, thus triggering the inflammatory process with severely pruritic urticarial

papules that coalesce into plaques, spreading to the buttocks and proximal thighs, often remains located to these sites but can quickly generalize in severe cases and sparing the umbilical region. The rash usually resolves within 4 to 6 weeks. [8]

Prognosis and treatment

Maternal and fetal prognosis is excellent and there is no cutaneous involvement of the newborn. Symptomatic treatment with topical corticosteroids with or without antihistamines is usually sufficient to control pruritus and skin lesions.[9]



Fig 2(a): Multiple Pruritic Papules



Fig 2(b): Over Striae Distensae (PUPP)

3. Intrahepatic cholestasis of pregnancy

IHC is a reversible form of triggered cholestasis that typically develops in genetically predisposed individuals in late pregnancy, runs in families and tends to recur in subsequent pregnancies (45–70%).[10,11]

Pathogenesis

There is a defect in the excretion of bile salts resulting in elevated serum bile acids in the serum leads to severe pruritus in the mother and toxic bile acids can pass into fetal circulation may have deleterious effects on the fetus due to acute placental anoxia and cardiac depression. Recently, mutations of certain genes encoding for transport proteins necessary for bile excretion (e.g., the ABCB4 [MDR 3] gene) have been identified in some IHC patients. [12]

Clinical features and prognosis-It presents with sudden onset of severe pruritus that may start on the palms and soles usually involve the shins and lower arms can be present on the buttocks and abdomen but quickly becomes generalized that persists throughout pregnancy. Secondary skin lesions develop due to scratching that range from subtle excoriations to severe prurigo nodules. The prognosis for the mother is generally good. After delivery, pruritus disappears spontaneously within days to weeks but may recur with subsequent pregnancies but there is significantly impaired fetal prognosis as it carries increased risk of prematurity (19–60%), intrapartum fetal

distress (22–33%), and stillbirths (1–2%), which correlate with higher bile acid levels, in particular if in excess of 40 $\mu\text{mol/l}$. [10, 13]

Diagnosis and treatment-The most sensitive indicator for its diagnosis is a rise of serum bile acid levels (11 $\mu\text{mol/l}$), whereas routine liver function tests (including transaminases) may be normal in up to 30%. [10,5] Ursodeoxycholic acid (UDCA) is the only treatment.

4. Pemphigoid gestationalis (PG)

It is a rare autoimmune bullous disorder that presents mainly in late pregnancy or the immediate postpartum period and the disease shows a correlation with the haplotypes HLA-DR3 and DR4.[14]

Pathogenesis

Circulating complement-fixing IgG antibodies of the subclass IgG1 (formerly known as “herpes gestationalis factor”) bind to a 180-kDa protein, BP-180 or bullous pemphigoid antigen 2, in the hemidesmosomes of the basal membrane zone (BMZ), leading to tissue damage and blister formation.[15]

Clinical features-PG presents with intense pruritus that may occasionally precede the appearance of skin lesions. Initially, (pre-bullous stage) erythematous urticarial papules and plaques develop typically on the abdomen, but may spread to the entire skin surface. Its natural course is characterized by exacerbations and remissions during pregnancy, with frequent improvement in later period

followed by a flare-up at the time of delivery (75% of patients). After delivery, the lesions usually resolve within weeks to months but may recur with menstruation and hormonal contraception.

Diagnosis and treatment

Direct immunofluorescence of perilesional skin, the gold standard in the diagnosis of PG, shows linear C3 deposition along the BMZ in 100% of cases. Treatment depends on the stage and severity of the disease and aims to control pruritus and to prevent blister formation. In cases of mild pre- blistering, topical corticosteroids with or

without oral antihistamines may be sufficient. [14, 15] While others require systemic corticosteroids prednisolone, usually started at a dose of 1 mg/kg/day) that are considered safe in pregnancy. [16,17]

Prognosis

Fetal prognosis is generally good; there is an increase in small-for-date babies but not in prematurity or stillbirths. Due to a passive transfer of antibodies from the mother to the fetus, 10% of newborns develop mild skin lesions that resolve spontaneously within days to weeks. [14]



Fig 3(a): Pre-bullous stage



Fig 3(b): Bullous stage

Materials and methods

The Prospective observational study was conducted in the Dept. of obstetrics and gynaecology along with collaboration of Department of Dermatology, Dr. S. N. Medical College, Umaid Hospital, Jodhpur, Rajasthan for a period of 6 months from July 2018 to December 2018. A total of 9679 pregnant women were screened, and found 164 pregnant women with various skin disorders in pregnancy and delivered at our tertiary care centre, out of which 67 cases had specific dermatoses. This study excludes physiological skin changes during pregnancy and nonspecific dermatoses of pregnancy. After taking an informed consent and ethical committee clearance, a detailed obstetric, medical and family history was taken along with

chief complaints, duration of illness, onset of disease, morphology and distribution of the primary lesions, evolution of the disease, secondary changes if associated, maternal and fetal outcome were recorded. Specific enquiry was made for the past or family history of dermatoses related to pregnancy. If any preexisting skin disease present, evidence of exacerbation or remission must be recorded. Routine investigation like complete haemogram, urine test, renal and liver function tests, HBsAg, VDRL and ELISA for HIV for all cases. Bedside laboratory procedures like Tzanck smear, KOH mount and Gram's stain will be carried out. To confirm diagnosis skin biopsy and DIF will be done if required after taking consent.

Results

Table 1: Specific dermatoses of pregnancy

Type of pregnancy specific dermatoses	No. of patients	Percentage among specific dermatoses	Percentage among all pregnant patients with dermatoses
Prurigo of pregnancy	32	48.48	20.12
Intrahepatic cholestasis of pregnancy	04	6.06	2.43
PUPP	29	43.93	17.68
Pemphigoid gestationalis	02	1.51	0.60

Out of 164 patients, 67 (40.25%) had specific dermatoses of pregnancy. Prurigo of pregnancy was the most common in 33 patients (49.25%) followed by pruritic urticarial plaques and papules

of pregnancy in 29 patients (43.93%), IHCP seen in 4 cases (6.06%) and pemphigoid gestationalis observed in 2 (1.20%) cases.

Table 2: Comparison of specific dermatoses of pregnancy with respect to maternal and gestation age

Type of pregnancy specific dermatoses	Mean age(years)	Gestational age(weeks)	Duration of illness (in days)
Prurigo of pregnancy	23.56±3.30	27.30±7.25	27.93±21.72
Intrahepatic cholestasis of pregnancy	23.00±3.55	30.50±1.91	32.75±31.53
PUPP	23.58±3.92	35.28±2.68	22.03±21.47
Pemphigoid gestationalis	23.0±0.00	37.00±0.00	25.0±0.00

Table 2 showing that all 4 specific dermatoses of pregnancy occur between 28-34 weeks of gestation and duration of illness was between 25-28 days.

Table 3: Obstetric history and specific dermatoses of pregnancy

Characteristic	Category	No. (%)			
		ICP	PG	PUPP	PP
Gravida	Primi	03	01	24	21
	Multi	01	01	05	11
Gestational age	1 st	-	-	-	-
	2 nd	-	-	-	16
	3 rd	04	02	29	16
Similar lesions in previous pregnancy	Present	01	01	02	7
	Absent	03	01	27	25

Table 4: Mode of delivery in Pregnancy specific dermatoses

Type of pregnancy specific dermatoses	Vaginal (n=141)	LSCS (n=23)
Prurigo of pregnancy	28	04
Intrahepatic cholestasis of pregnancy	03	01
Polymorphic eruption of pregnancy	27	02
Pemphigoid gestationis	02	00

Table no.4 showing that out of 67 cases having specific dermatosis of pregnancy, the most common mode of delivery was vaginal that is around 60 cases. While 7 had undergone caesarean section on account of fetal distress, failed induction and previous caesarean in labour not willing for vaginal birth after caesarean etc.

Discussion

Specific dermatoses of pregnancy are almost always associated with an eruption of variable severity and pruritus. It includes conditions that occur exclusively during pregnancy and result directly from the state of gestation or the products of conception.

Table 5: Incidence of specific dermatoses of pregnancy in various Indian studies

Specific dermatoses (%)	Raj et al(1992)	Kumari et al (2007)	Shivakumar et al (2010)	Kannabal et al (2017)	Present study
	16.3%	3.6%	14.86%	14%	40.85%

In a study by Kannabal et al[18] specific dermatoses of pregnancy was observed in 14% of the cases while Raj S et al[19] reported specific dermatoses in 16.3% of cases. Fernandes LB et al[20] reported specific pregnancy dermatoses in 8.72% of cases. Our study has comparatively higher incidence of dermatoses in pregnancy due to the fact that the present study excluded the physiological

manifestations, nonspecific dermatoses and other studies included all dermatological manifestation. Also, the increased awareness among pregnant women regarding any cutaneous lesions or even generalized pruritis that makes them to approach to dermatologist or consultant obstetrician. In most instances, the skin problems during pregnancy needs only reassurance.

Table 6: Incidence of different types of pregnancy specific dermatoses in various Indian studies.

Specific dermatoses	Raj et al(1992)	Kumari et al (2007)	Shivakumar et al (2010)	Kannabal et al (2017)	Present study
1.PP	1.8	10.16	9.41	1.85	19.11
2.PUPP	1.6	2.30	2.35	1.6	17.68
3.IHC	10.4	0.82	3.52	0.4	2.43
4.PG	-	-	-	-	0.60

Prurigo of pregnancy

Prurigo of pregnancy was observed in 32 cases accounting for 48.48% of the total cases of pregnancy specific dermatoses and in all cases predominantly involved the limbs while Indradevi R et al[21] reported prurigo of pregnancy in 29.4% of the total cases of pregnancy specific dermatoses and Shivakumar et al[22] observed

prurigo of pregnancy in 9.41 percent cases in their study. Hasan et al[23] found in their study that prurigo of pregnancy was responsible for 50% of total cases of pregnancy specific dermatoses.

PUPP-Classically, this disease occurs in primigravida[24] and we also observed that majority of cases were primigravida.

Incidence of PUPP	Primigravida(n)	Multigravida(n)
29(17.68%)	24	5

Indradevi R et al[21] and Kumari et al[25] reported PUPP as most common pregnancy specific dermatoses in their study while we found PUPP as second most common type of pregnancy specific dermatoses.

Pruritus gravidarum (IHC)-As shown in table no.1, 2, 3 pruritus gravidarum was observed in 4 (6.06%) cases of total specific dermatoses cases. Out of 4 cases, 1 case had undergone LSCS on account of IUGR and fetal hypoxia and rest 3 cases were delivered vaginally uneventfully. Indradevi R et al[21] reported 4.78% cases of pruritus gravidarum in their study.

Pemphigoid gestationis-There were 2 cases of pemphigoid gestationis and least common pregnancy specific dermatoses in the present study. Indradevi R et al[21] also found similar result in their study.

Conclusion

Specific dermatoses of pregnancy were observed in 67 cases out of 164 pregnant women (40.85%). Prurigo of pregnancy was the most common accounting for 49.12% of the cases with specific dermatoses followed by pruritic urticarial plaques and papules of pregnancy (43.93%) and pruritus gravidarum (6.06%) while only 2 cases of Pemphigoid gestationis was observed in this study. Dermatitis of pregnancy have little effect on maternal and fetal outcome except in some special case like intrahepatic cholestatic of pregnancy that carries risk of preterm deliveries, still births but in our present study, 4 cases were seen and all were delivered uneventfully. Most common mode of delivery was vaginal.

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