Descriptive Study of Pregnancy Dermatoses in Central Region of Gujarat

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ABSTRACT

BACKGROUND

The present study was conducted to evaluate the incidence, clinical presentation, course and prognosis of physiological changes of pregnancy i.e. to study the incidence of different dermatoses during pregnancy, cutaneous manifestations associated with pregnancy according to trimester and parity of pregnancy, specific dermatoses of pregnancy, the presence of same or other diseases in the past pregnancy, and observe the relative effect of pregnancy on already existing dermatoses or which are basically not related to pregnancy.

METHODS

A random hospital based descriptive study of 80 patients with pregnancy, who attended skin outpatient department (OPD) in GMERS Medical College, Himmatnagar, Gujarat, India, was done. Detailed history was taken, and each patient was examined thoroughly. General- and systemic-examination were done and whenever necessary, relevant investigations were done.

RESULTS

A total of 80 patients were included in the study. Of them 39 (48.7 %) were primipara and 41 (51.3 %) were multipara. Skin changes were grouped into physiological changes (all cases), specific dermatoses (17 cases) and other dermatoses (52 cases). Most common physiological changes were related to pigmentation followed by striae gravidarum. Physiological changes were observed in almost all the patients.

CONCLUSIONS

Pregnant women are prone to suffer from a wide range of dermatological problems apart from the specific dermatoses of pregnancy. Detailed history and awareness of clinical presentation facilitates the confirmation of diagnosis and will direct the most appropriate laboratory evaluation in an effort to minimize maternal and foetal morbidity.

KEYWORDS

Pregnancy Dermatoses, Specific Dermatoses, Physiological Changes

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BACKGROUND

The physiological changes that accompany puberty, pregnancy and menopause affect the structure and function of skin. At puberty, acne vulgaris, seborrheic dermatitis and apocrine disorders are seen in increased frequency. During menses, the conditions may become aggravated such as acne vulgaris, aphthosis and herpes simplex. During menopause, oral and cutaneous lesions seen more frequently are glossodynia, atrophic glossitis, keratoderma climacterium, poikiloderma, seborrheic dermatitis, rosacea, hirsutism, prurigo and seborrheic keratosis. Many of the cutaneous changes are so constantly present that they are rightly regarded as abnormal only when excessive in degree. Endocrine mechanisms are obviously responsible for many such manifestations such as pigmentation and various vascular phenomena but others such as prurigo, urticaria and herpes gestationis may be the result of partial failure of immune response.

The endocrine changes are evident soon after implantation of the fertilized ovum in the endometrium**.** The first hormone to be secreted is chorionic gonadotropin, which in turn activates corpus luteum to secrete oestrogen and progesterone. At 6 - 8 weeks, the functions of corpus luteum is transferred to placenta, which produces variety of hormones like human chorionic gonadotropin (hCG), human placental lactogen (hPL), human chorionic thyrotropin (HCT), human chorionic corticotropin (HCC), pregnancy specific B - 1 glycoprotein (PSBG), pregnancy associated plasma proteins (PAPP), oestrogens and progesterone. The concentration of human chorionic gonadotropin reaches maximum level at 60 - 70 days of pregnancy. The concentration falls between 100 - 130 days. Oestrogen production increases about 30 times normally towards the end of pregnancy. Progesterone concentration rises throughout pregnancy.

During pregnancy, the anterior pituitary gland is enlarged to about twice its normal size. Pituitary gonadotropins levels are low. Growth hormone level is elevated, this explains partly the weight gain observed during pregnancy. Thyroid gland enlarges slightly from the fourth month of pregnancy. Basal metabolic rate rises, and reaches a value of + 20 % to + 25 % during the last trimester. Total T3 and T4 levels are increased but free T3 and T4 levels remain unchanged. TSH remains normal or slightly increased. Slight enlargement of adrenal cortex and maternal parathyroid hyperplasia occurs during pregnancy.

Normal cutaneous changes occur with almost all pregnancies, to common skin diseases that are not associated with pregnancy, to eruptions that are specifically associated with pregnancy. More over pregnancy modifies the course of a number of pre-existing dermatological conditions.[2] Vascular changes result from distention, instability and proliferations of vessels and regress postpartum. Dusky hue of the vestibule and anterior vaginal wall visible at about 8th week of pregnancy, called Jacquemier's or Chadwick's sign. This discoloration is due to vascular congestion. There is increased pulsation, felt through the lateral fornices at 8th week and is called as Osiander's sign. Bluish discoloration of cervix is called Goodell's sign. It appears at 6th week of pregnancy. Other vascular changes are palmar erythema, oedema and vasomotor instability. Hyperemia of gums is seen in almost all pregnant women with varying degrees of severity and may be associated with gingivitis. It is called pregnancy epulis. It develops in third trimester of pregnancy and progressively resolves postpartum. Spider telangiectasis are seen in increased numbers in pregnancy. They may appear in first few months and tend to increase in late pregnancy which usually disappears within 6 weeks postpartum.

Objectives

- To study the incidence, clinical features, course and prognosis of physiological changes of pregnancy and specific dermatoses of pregnancy.
- To study the relative effect of pregnancy on other skin disorders.

METHODS

A random hospital based descriptive study was conducted in outpatient department (OPD) of Dermatology in GMERS Medical College, Himmatnagar, Gujarat, India. The patients who attended skin OPD with pregnancy between July 2001 to June 2003 were included in this study. Informed consent was taken before history taking and clinical examination. A total of 80 patients were enrolled in the study. A clinical survey of these patients was done to find out the physiological changes of pregnancy, specific dermatoses of pregnancy and diseases modified by pregnancy. Detailed history was taken and each and every patient was examined thoroughly. General and systemic examination was done. Patient's detailed history includes demographic data, chief complaints, onset in relation to duration of pregnancy, past or family history of similar lesions, exacerbating factors, associated medial or skin conditions etc. morphology of skin lesions and sites involved were studied.

Appropriate investigations were done. Laboratory procedures like potassium hydroxide (KOH) smear, Tzanck smear and Gram's stain were done. To confirm diagnosis, biopsy was taken and diagnosis was correlated histopathologically. In patients with generalized pruritus, liver function test (LFT) and serum glutamic oxaloacetic transaminase (SGOT) test were done to rule out hepatic dysfunction. Serum human immunodeficiency virus (HIV) test and venereal disease research laboratory (VDRL) test was done in sexually transmitted disease (STD) patients. Ziehl nelson stain for acid fast bacilli was done in leprosy. In suspected cases, biopsy was taken and ruled out histopathologically.

Statistical Analysis

All data was entered in Microsoft excel sheet and statistical calculations were performed using SPSS version. All continuous variables were analysed using independent sample test.

RESULTS

A total of 80 patients, of which 39 cases (48.7 %) cases were primipara and 41 cases were (51.3 %) multipara. 14 patients (17.5 %) were in first trimester, 26 cases (32.5 %) were in second trimester and 40 (50 %) cases were in third trimester. Physiological changes (table 1) were reported in almost all the cases, of which the pigmentary disorders were most common. Total cases of linea nigra were 66 (82.5 %) and cases of chloasma were 38 (45.6 %). Total number of striae gravidarum cases were 56 (70 %). 15 primipara and 41 multipara cases were having striae gravidarum in the present study. Most of the striae were erythematous or hypopigmented linear in nature arising from the lower part of abdomen going upwards. Some patients had striae also on thighs and buttocks. Striae once appeared will remain the same after delivery.

Chloasma was reported in 14 primipara and 24 multipara patients. Pigmentation was present on forehead, malar areas, upper lip and on chin. The pigmentation remained the same even after delivery in all the patients.

Physiological Changes	Number of Cases	% Of Total Cases
Linea nigra	66	82.5 %
Striae gravidarum	56	70 %
Chloasma	38	45.6 %

Table 1. Number and Percentage of Physiological Changes in the Present Study

Pre-Existing Dermatoses Found during the Present Study

There were 3 patients of acne vulgaris (3.7 %). Patients presented with papulopustular lesions on face, chest and back. Lesions worsen as pregnancy advances. The flare up of acne may be due to increased secretion of sebum in late pregnancies. 2 patients of chronic idiopathic urticaria (2.5 %) were seen in the study. Patients had urticaria before pregnancy too. Episodes of urticaria subsided after treatment. One patient of pre-existing lichen planus was found. Exacerbation or deterioration was not found. One patient presented with a discoid lupus erythematosus (DLE) scalp. No change was found in disease. Neurofibromatosis (1 case) was referred from the obstetric department. She was having neurofibromatosis for the last 13 years.

The diseases which are basically not related to pregnancy found in the present study were: Candidiasis (7 cases), scabies (6 cases), dermatitis (4 cases), miliaria (4 cases), trichomoniasis (3 cases), fungal infection (4 cases). One case of secondary syphilis and one of HIV positive patient was found in the present study. There were three patients of condyloma acuminata. All the patients were investigated for HIV and S. VDRL. It was found to be non-reactive.

Treatment was given in the form of cryotherapy. Two patients of herpes progenitalis were studied with pregnancy. Both the patients were investigated for HIV and S.VDRL. Both the patients had first episode and no recurrence was found until delivery.

Specific dermatoses found in the present study were (table 2): Pregnancy prurigo (7 cases), pregnancy pruritus (5 cases), Pruritic urticarial papules and plaques of pregnancy (PUPPP) (3 cases), and 1 patient of Herpes gestationis.

Disease Name	Number of Cases	% Of Total Cases
Prurigo	7	8.8 %
Pregnancy pruritus	5	6.2 %
PUPPP	4	5 %
Herpes gestationis	1	1.2 %

Table 2. Number and Percentage of Specific Dermatoses of Pregnancy in the Present Study

*pruritic urticarial plaques and papules of pregnancy

DISCUSSION

The physiological changes that may accompany puberty, pregnancy and menopause affect the structure and function of skin, incidence and pattern of skin response. Physiological changes include changes in pigmentation in the form of linea nigra, chloasma, and generalized pigmentation. The midline of abdominal skin becomes markedly pigmented assuming a brownish black colour to form linea nigra. In present study, linea nigra was the most common, seen in 82.5 % of the total cases. Pigmentary alterations were seen in up to 90 % of pregnant women in one study[3] which is nearly similar to our study. The second most common pigmentary change is chloasma. Irregular brownish patches of varying size appear on the face. It is in the symmetrical fashion, chiefly on the butterfly area of face, forehead and chin. In our study, the incidence of chloasma is 47.5 %. Muzaffar et al.[4] found 46 % cases of chloasma in one study.

There is also accentuation of pigmentation of areola and genital skin. This usually regresses after delivery. There is very little information about the nature of pigmentary changes, although Melanocyte stimulating hormone, a polypeptide similar to corticotropin, has been shown to be remarkably elevated from the second half of pregnancy. Oestrogen and progesterone have some melanocyte stimulating effects. Striae are visible results of limited intradermal rupture produced by stretching of skin beneath an intact epidermis. Studies in pregnant women suggest that production of striae is related to excessive adrenocortical activity. The common sites are breasts, abdomen and all or most of the pubertal sites. They are initially purplish-red in colour, raised and irregularly linear and may be irritable, when they are known as striae rubra. They gradually fade to white, and are called striae alba and then they gradually become inconspicuous and atrophic. (striae atrophicans). In present study, the incidence of striae gravidarum was 70 %. Raj et al.[5] described incidence of striae was 75 %, which is nearly close to present study. Increased endocrine and sebaceous function[6] and decreased apocrine function during pregnancy have been reported. The effect on acne vulgaris is unpredictable. We have seen 3 cases of acne vulgaris in our study. Acne worsens as pregnancy advances in the present study.

Pregnancy is a predisposing factor in several infections, perhaps in part of the immunosuppressive effect of high progesterone levels and presence of an alpha globulin associated immunosuppressive factor found in serum. The incidence of candidal vulvo-vaginitis was 10 - 20 times

higher in pregnancy and is more difficult to control. Infants born to infected mothers have a great chance of developing candidiasis. In the present study, 7 cases of candidiasis were found. KOH smear was done and visualisation of pseudohyphae strengthens the diagnosis. In present study, 3 cases of trichomoniasis were present. There is an association between infection with *T. vaginalis* and premature rupture of membrane and low birth weight. Hanging drop preparation of discharge studied under microscope and motile mitochondria was recognized.

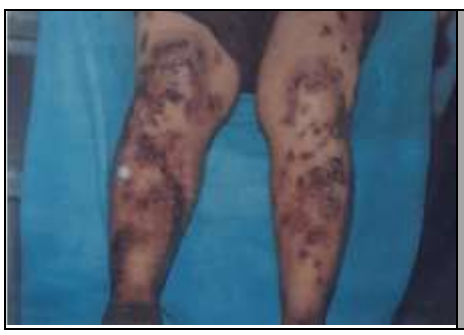

Figure 1. Herpes Gestationis

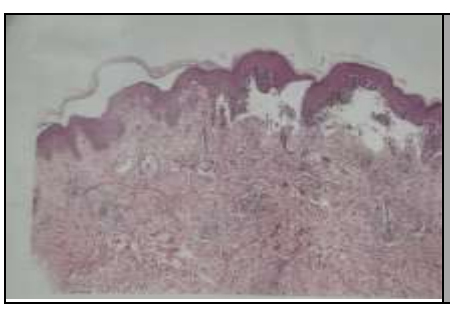

Figure 2. Histopathology of Herpes Gestationis

Name of Dermatoses	No. of Cases in Multiparous Patients	No. of Cases Having Dermatoses in Previous Pregnancy	Recurrence Rate
PUPPP	1	1	100 %
Herpes gestationis	1	1	100 %
Pregnancy prurigo	7	4	57.5 %
Pregnancy pruritus	2	1	50.0 %

Table 3. Percentage Analysis of Recurrence of Specific Dermatoses with Successive Pregnancies in Multiparous Patients

*pruritic urticarial plaques and papules of pregnancy

In the present study, one case of Discoid lupus erythematosus was found. No change was found in the disease course. In most patients, DLE remained stable or improved postpartum.[7] Lupus erythematosus is considered to be an autoimmune disease, but its precise pathogenesis is not known. In the present study, 4 cases of leprosy were found with pregnancy. With established leprosy, the disease worsens postpartum, due to depression of cell mediated immunity.[8] This worsening is particularly associated with deterioration of nerve function. None of the patients with excessive hair loss were found.

Most of the patients had diffuse loss of hair 3 - 4 months postpartum. Hair loss is slowed down in pregnancy but occurs precipitously after parturition. On the normal scalp, about 20 % of hair follicles are in telogen. Whereas in late pregnancy it may be less than 5 %, which is only about one third of normal. This suggests that the passage of follicles into catagen, followed by shedding of club hairs, is slowed down by pregnancy, but increased postpartum. A loss of about two to three times the normal rate gives rise to a transient alopecia about 4 - 6 months after parturition.

A case of secondary syphilis was detected by S.VDRL test. It was positive in 1 : 16 dilution. It was diagnosed during four months of amenorrhea. Treatment was given and she gave birth to a healthy child but the child's VDRL was positive in 1 : 8 titre. Recurrent cholestasis of pregnancy or pregnancy pruritus caused by an inherited susceptibility of the patient's liver cells to oestrogen. Incidence is 0.02 to 2.4 % of pregnancies. The first symptom is pruritus. It is more severe at night. First it is localized then becomes generalized. Pruritus precedes the onset of clinical jaundice by up to 4 weeks. Most cases occur in the third trimester. Numerous excoriations may be seen with icterus. Elevated hepatic transaminase and total serum bile salts are found. In present study, 5 (6.2 %) cases of pregnancy pruritus were found. The patients were usually in the 2nd or 3rd trimester. Out of 2 multiparous patients with pregnancy pruritus, 1 patient had similar complaints in past pregnancy (50 % chances of recurrence). The incidence of low birth weight is increased and post-partum haemorrhage (PPH) is more likely. Pruritus remits within a few days of postpartum. The disease tends to recur in subsequent pregnancy.

PUPPP classically occurs in primigravidas in the third trimester of pregnancy. Lesions are almost always present on the abdomen and in many cases begin specifically within periumbilical striae distensae. Other sites include buttocks, thighs, legs and upper inner arms.

Lesions consist of small erythematous papules which often coalesce to oedematous plaques. Urticarial lesions are rimmed by faint pallor. Pruritus is severe and interferes with sleep. In the present study, 4 patients (5 %) were found in which 2 patients were primipara and all the patients were in the third trimester. In multiparous patients, it was also found in the last pregnancy. Recurrence rate was 100 % in the present study. Condition resolved a few days postpartum. It is not associated with severe maternal complications or an increased risk of fetal morbidity or mortality.[9] Prurigo of pregnancy is a pruritic dermatosis that may occur in the 4th to 9th month of pregnancy. It is characterised by occurrence of small papules, most of which are excoriated, on the proximal limbs and upper trunk. The eruptions tend to resolve quickly after delivery.

It is uncommon to recur this disease in subsequent pregnancy and no known increased incidence of fetal morbidity and mortality are associated with it. 7 cases present (8.8 %) were found in the present study. All patients were presented in the 2nd or 3rd trimester. Condition resolved after delivery in all patients. 57.5 % was the recurrence rate of pregnancy prurigo in multiparous patients in present study. Herpes gestationis (HG) is a rare autoimmune pruritic polymorphic dermatosis of pregnancy (fig 1). It is a bullous disorder of unknown origin associated with tissue and peripheral blood eosinophilia which is recurrent disease with earlier onset. It begins in 2nd or 3rd trimester and was observed in those instances too. It is characterised by pruritic vesiculobullous, and urticarial plaques distributed over the abdomen, buttocks and extremities. It is an autoantibody mediated subepidermal bullous dermatoses**.** BP - 180, 180 Kda hemidesmosomal

glycoprotein is associated with it.[10] Some studies have shown that HG is associated with an increased risk of fetal morbidity and mortality. Whether treatment of maternal disease can improve, fetal outcome is not known. Patient was 4th gravida and at the time of 3rd delivery she had similar lesions. Recurrence rate was 100 % in the present study. Biopsy from the vesicular lesion was taken and it showed the subepidermal bullae. (fig. 2) In an Indian study, Shivkumar and Madhavamurthy[11] found 9.41 % cases of prurigo, 3.52 % of pregnancy pruritus and 2.35 % cases of PUPPP.

Table 3 shows recurrence rate of specific dermatoses associated with pregnancy in multiparous patients. 100 percent recurrence rate was found with PUPPP and herpes gestationis. 7 multiparous patients with pregnancy prurigo were found in the present study. Out of 7 patients, 4 patients had similar type of lesions in the past pregnancy. So, the recurrence rate was 57.5 %. Out of 2 patients with pregnancy pruritus, 1 patient had a similar complaint in the past pregnancy. So, the recurrence rate was 50%.

CONCLUSIONS

Almost all the patients have shown physiological changes related to pregnancy. Other dermatoses were found in 65 % of the cases and specific dermatoses of pregnancy were found in 18.52 % of the cases. Patients were followed up throughout the pregnancy period, and also after the delivery to observe the effect of dermatoses on pregnancy and the new-born child.

Data sharing statement provided by the authors is available with the full text of this article at jebmh.com.
Financial or other competing interests: None.
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