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Specific and Non-Spesicific Dermatoses Of Pregnancy In The Emergency Department

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ABSTRACT

Dermatological changes both specific to pregnancy and nonspecific to it may be observed during gestation. In this study, specific and nonspecific dermatoses of pregnancy were investigated in patients admitted with dermatologic complaints to the emergency department. This information will be useful in identifying common and important dermatoses of pregnancy that need to be recognized at the point of primary care, so that the proper initial treatment and referrals can be instituted.

Pregnant patients admitted with dermatological complaints to the emergency service were enrolled in the study. We retrospectively collected clinical and laboratory findings, diagnoses, administered treatments and admission rates.

Of the 4,280 pregnant patients admitted to the emergency service, 99 pregnant patients had dermatological complaints. While pregnancy-specific dermatoses were detected in 22 % of the patients, dermatoses nonspecific to the pregnancy were found in 78 % of them. Listed in descending order, specific dermatoses of pregnancy were atopic eruption of pregnancy (12%), polymorphic eruption of pregnancy (6%), intrahepatic cholestasis of pregnancy (2%), and pemphigoid gestationis (2%). Urticaria and angioedema were the most frequently diagnosed diseases among the dermatoses nonspecific to the pregnancy.

There are many dermatoses are seen in the pregnancy, while urticaria and angioedema are the most common. Atopic eruption of pregnancy and the polymorphic eruption of pregnancy are the most common specific dermatoses. It was seen that the frequency of dermatological causes was quite low among the pregnant patients applying to the emergency service. However, some of these dermatoses may necessitate early diagnosis and immediate treatment.

Key Words: Emergency, pregnancy, skin, dermatoses of pregnancy

Introduction

During pregnancy, skin lesions can occur as a result of immunological, endocrine, metabolic and vascular changes (1). Due to the presence of hormone receptors in the skin and its related structures, several changes can be observed in eccrine and apocrine units, the pilosebaceous unit and the vascular system. Those changes can be related to protein and steroid structures released by the fetoplacental unit as well as increased endocrine gland activities on the part of the hypophysis, thyroid and adrenal glands (2).

Pregnancy-related skin changes include pregnancy-induced physiological skin changes, specific dermatosis of pregnancy and nonspecific dermatosis (3). Herein, we investigated an incidence and features of specific dermatosis of pregnancy, and nonspecific dermatosis in pregnant women who were admitted to the emergency department for skin related complaints.

Materials and Methods

We enrolled 99 pregnant patients who were admitted to the emergency department between January 2010 and November 2011. We retrospectively collected clinical and laboratory findings, diagnoses, administered treatments, and admission rates from the medical charts. The study protocol was carried out in accordance with the Helsinki Declaration as revised in 2013. The study protocol was approved by the Van Yuzuncu Yil University, Faculty of Medicine of local ethics committee (approval number: 5/ 2014).

Clinical and laboratory findings including complete blood count, comprehensive metabolic panel, C-reactive protein test, urinalysis, skin biopsy, and

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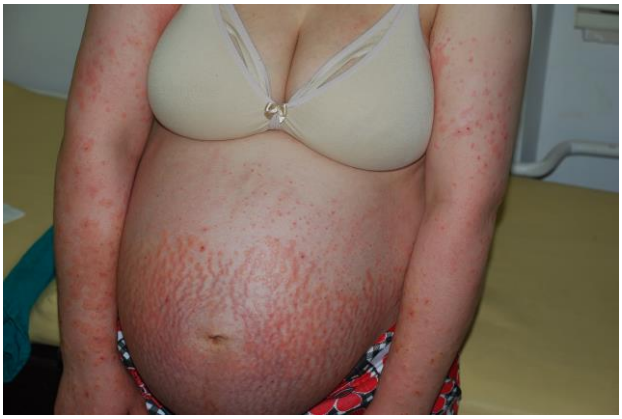

Fig. 1. Polymorphic eruption of pregnancy

wound culture were assessed to make a diagnosis. Topical and systemic steroids, pregnancy-compatible antibiotics, and antifungal medications were administered as treatments. The diseases were categorized into specific dermatoses of pregnancy and nonspecific dermatoses groups.

Statistical analyses: Statistical analyses were performed with SPSS version 11.0 (SSPS Inc, Chicago, III, USA). Continuous variables were described with descriptive statistics including the mean, standard deviation, minimum and maximum values. Categorical data were described in number and percentages.

Results

Of 4,280 pregnant patients who were admitted to the emergency department, 2.3% (99 patients) had skin disease-related complaints. The mean age of enrolled patients was 30±7 years (age range 18 to 46 years). Twenty two percent of the patients had specific dermatosis of pregnancy, whereas 78% (78 patients) had non-specific dermatosis.

The encountered specific dermatoses of pregnancy were atopic eruption of pregnancy (AEP) in 12% of the patients, polymorphic eruption of pregnancy (PEP) in 6% of the patients (Figure 1), intrahepatic cholestasis of pregnancy (ICP) in 2% of the patients, and gestational pemphigoid (GP) (Figure 2), in 2% of the patients. The distribution of pregnancy-specific dermatoses according to trimesters is shown in (Table 1).

The most common non-specific dermatoses in pregnancy were urticaria and angioedema (30%). The other non-specific dermatoses, in descending order of occurrence, were viral infections (11.1%), bacterial infections (8.1%), and vascular diseases (8.1%). Of the viral infections, five patients had herpes infections (5%), two had zona zoster (2%), two had varicella (2%), one had orf (1%), and one had anogenital wart

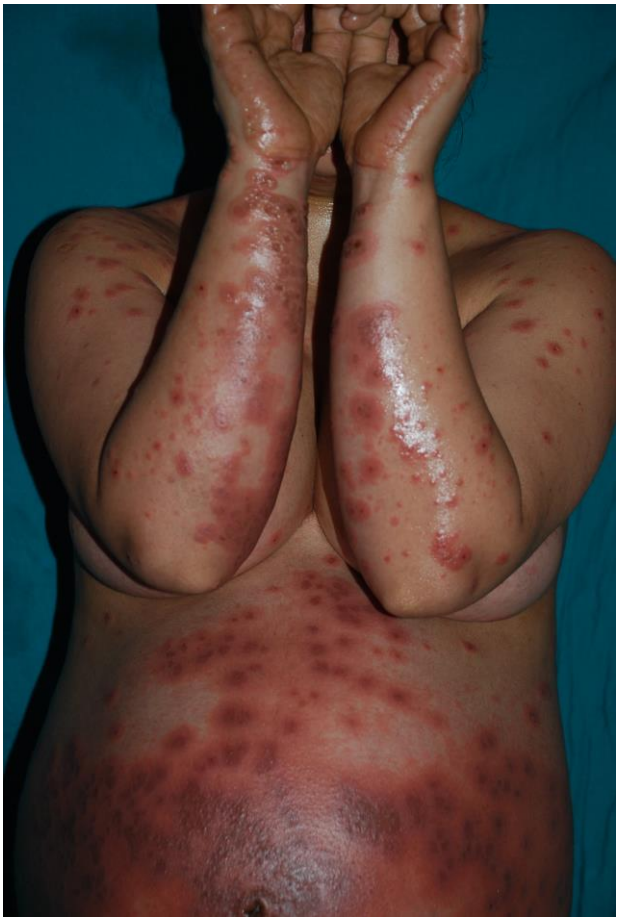

Fig. 2. Pemphigoid gestationis

(1%). Of the bacterial infections, four patients had cellulitis (4%), two had erysipelas (2%), two had lymphangitis (2%). Of the vascular diseases, four patients had Behcet's disease (4%), two had leukocytoclastic vasculitis (2%), one had livedo reticularis (1%), one had deep vein thrombosis (1%). The distribution of non-specific dermatoses according to trimesters was shown in (Table 2).

Of the total number of patients, 47.5% of them were hospitalized (two patients with burn were hospitalized in the burn unit; one patient with deep vein thrombosis was hospitalized in the medical unit; and the rest of them were hospitalized in the dermatology unit), 12% of them were observed overnight, and 40% of them were referred to the outpatient clinic. Seventy-three percent of the specific dermatosis of pregnancy patients and 36% of non-specific dermatosis patients were hospitalized in the dermatology unit (Table 3).

Discussion

The specific dermatoses of pregnancy are classified as polymorphic eruption of pregnancy, atopic eruption of pregnancy, gestational pemphigoid, and intrahepatic cholestasis of pregnancy. The hallmark of

Table 1. Distribution of specific pregnancy dermatoses according to pregnancy trimester (n=22)

Disease	First Trimester (n)	Second Trimester (n)	Last Trimester (n)	Total (n)	%
Atopic eruption of pregnancy	1	2	9	12	12,1
Polymorphic eruption of pregnancy	-	-	6	6	6,1
Intrahepatic cholestasis of pregnancy	-	1	1	2	2,0
Pemphigoid gestationis	-	-	2	2	2,0
Total	1	3	18	22	22,2

Table 2. Distribution of non-specific pregnancy dermatoses according to pregnancy trimester (n = 77)

Disease	First Trimester (n)	Second Trimester (n)	Last Trimester (n)	Total (n)	%
Urticaria-angioedema	9	12	9	30	30,3
Viral infections	4	2	5	11	11,1
Bacterial infections	1	2	5	8	8,1
Vascular diseases	1	2	5	8	8,1
Contact dermatitis	2	1	2	5	5,1
Insect bite reaction	-	2	3	5	5,1
Drug reactions	1	-	3	4	4,0
Scabies	-	1	2	3	3,0
Burn	-	-	2	2	2,0
Squamous cell carcinoma	-	-	1	1	1,0
Total	18	22	37	77	77,8

all four entities is severe pruritus that is accompanied by characteristic skin changes. While some of these dermatoses are distressing only to the mother because of pruritus, others may be associated with significant fetal risks. Early diagnosis and prompt treatment are therefore essential (4). In our study, the rate of specific dermatosis of pregnancy was 22%. Half of the patients were treated as outpatients, and the rest of them were treated as inpatients.

The most common specific dermatosis of pregnancy was AEP (12.1%), then follow by PEP (6.1%). In recent studies, the patients having eczema of pregnancy, prurigo of pregnancy and pruritic folliculitis of pregnancy have been classified as having AEP due to the presence of a history of atopy, and eczema-like lesions (4,5). Based on the recent classification, patients with AEP should have a past medical or family history of atopy and eczema-like or papular lesions during pregnancy. The skin eruptions affected all parts of the body, in the majority, lesions are in flexures-atopic sites such as the face, neck, and the flexor surfaces of the extremities. AEP can be seen more commonly in pregnancy and has an early onset, usually during first and second trimester. AEP consists of 30-50% of specific dermatosis of pregnancy among pruritic dermatoses of pregnancy. The reason for the increased incidence of AEP was cited to be immunological changes in pregnancy. Because skin lesions usually respond quickly to treatment, the mother's prognosis is good, even in severe cases. Recurrence is common in subsequent pregnancies. The fetal prognosis is unaffected, but there may be a risk of developing atopic skin changes in the later stages of the baby's growth (5-8). A study by Ambros-Rudolph et al. which included 505 patients collected from two universities in England and Austria showed that the most common specific dermatosis of pregnancy is eczema of pregnancy (49.7%) (8). Vaughan-Jones et al's prospective study involving 200 pregnant patients also showed the most common specific dermatosis of pregnancy is eczema of pregnancy (36%) (9). The most common specific dermatosis of pregnancy in our study was AEP (55%). AEP was seen during the second trimester in two cases, and during the third trimester in nine cases.

Polymorphic eruption of pregnancy is primarily localized around the stria and is characterized by very itchy, erythematous papule, plaques, and urticarial

Table 3. Type of treatments for pregnant patients

Disease	Patients who treated in the inpatient setting (n)	Patients who treated in the outpatient setting (n)	Patients who admitted for only observation (n)
Atopic eruption of pregnancy	6	6	-
Polymorphic eruption of pregnancy	6	-	-
Intrahepatic cholestasis of pregnancy	2	-	-
Pemphigoid gestationis	2	-	-
Urticaria-angioedema	8	13	9
Viral infections	4	7	-
Bacterial infections	6	2	-
Vascular diseases	5	3	-
Contact dermatitis	2	3	-
Insect bite reactions	1	2	2
Drug reactions	1	2	1
Scabies	1	2	-
Burn	2	-	-
Squamous cell carcinoma	1	-	-
Total	47	40	12

lesions (10). PEP is mostly seen during second and third trimester or rarely early stage of postpartum period (4). PEP is typically seen in during the first pregnancy and not seen during following pregnancies. It is associated with multiple gestation pregnancies and increased maternal weight gain. The exact etiology is not known. It has been proposed that stretching of the skin on the abdomen. The stretching elicits an immune response due to connective tissue damage (10,11). PEP was the second common dermatosis in the study. The rate of PEP was 21.6% in Ambros-Rudolph' study, and was 2.35% in Shivakumar and Madhavamurthy's study including 170 pregnant women (12). Kumari et. al investigated skin lesion in 670 pregnant women and found specific dermatosis of pregnancy in 22 patients (3.6%). The most common type was PEP (14 patient) (13). Bakar Dertlioglu et. al showed the rate of PEP was 8.9% in 135 pregnant women (3). The most common specific dermatosis of pregnancy was AEP and PEP in our study that was consistent with the previous findings.

Gestational pemphigoid is a rare autoimmune disorder. GP is not associated with herpetic infection. The incidence is estimated to be approximately 1 in 60,000 pregnancies. GP mainly affects multiparous women in their second or third trimester of pregnancy. GP frequency correlates with HLA DR3 and HLA DR4 haplotypes. The pathogenesis of GP is characterized by deposition of autoantibodies directed against two hemidesmosomal proteins, BP180 and BP230, within the dermoepidermal junction, resulting in the formation of bullae and skin erosions (14). The onset of the disease in the periumbilical region then spread to the gluteal, trunk and extremities. The skin lesions are pruritic, urticarial and vesiculobullous (10). The gold standard in diagnosing GP is direct immunofluorescence of tissue from the perilesional skin which shows, in 100% of cases, a linear deposition of C3 along the basal membrane zone in the DIF is diagnostic (15).

Intrahepatic cholestasis of the pregnancy (ICP) is reversible cholestasis of the characterized with severe itching that occurs during late pregnancy in those with genetic predisposition. It is characterized by generalized itching, elevated liver enzymes, and serum bile acids. The etiology of ICP is multifactorial, and involves genetic, hormonal, and environmental factors. It poses a serious risk for the fetus. Fetal risks of ICP include increased risk of preterm birth, fetal distress and stillbirth. Contrary to other pregnancy dermatoses, there is no primary skin lesion. Pruritus begins after 30th week of gestation and usually disappear 1-2 days after delivery. It is usually starting from the palmoplantar region and spreading to the extremities and the body. The itching is usually worse at night. Cutaneous lesions arise in the scratching results (16). Diagnosis is based on clinical findings and serum laboratory values. A serum total

bile acid value of> 10 μmol / L is considered pathological in pregnancy and is a finding supporting ICP recognition. Except for elevated levels of alkaline phosphatase, other liver function tests are usually normal. Sometimes GGT is elevated and hyperbilirubinemia is detected in 10-20% of cases. Mild and moderate elevations (2-5mg / dl) in serum bilirubin levels can be observed (17-18).

GP (two patients) and ICP (two patients) were less common in our study. However, Chandler et al's study including 1430 pregnant women showed 70 patients had ICP was the most common specific dermatosis of pregnancy (19).

In our study, the most common non-specific dermatosis were urticaria and angioedema (30%), viral infections (11.1%), and bacterial infections (8.1%). The most common viral infection was herpes infection and the most common bacterial infection was cellulites. In Ambros-Rudolph et al's study, the most commonly seen non-specific dermatosis was pityriasis rosea, acne, and urticaria like inflammatory diseases (52%), followed by skin infections (26%). The most commonly seen skin infections were viral infections, bacterial infections and scabies (8). In Shivakumar and Madhavamurthy' study, scabies was the most commonly seen non-specific dermatosis (17.6%). Vaginal candidiasis was reported as the most commonly seen in one of the study (12). In our study, the rate of non-specific dermatosis among the pregnancy women was similar to general population (20- 23). In Kim et al's study, the most commonly seen non-specific dermatosis were urticaria and angioedema (68.15%), then followed by skin infections (15.1%) (20). A study by Mirkamali et al's, the most commonly seen non-specific dermatosis was skin infections (35.2%), and the third frequently seen one was urticaria (6.1%) (23). Although the frequency was different, the most commonly seen dermatosis during pregnancy were urticaria, angioedema and skin infections.

In our study, we included pregnant women who admitted to emergency service and was consulted to dermatology service. In literature, most of the studies investigated skin changes admitting to Obstetrics and Gynecology services. Therefore, the chloasma like pigmentation changes, striae gravidarum, palmar erythema, spider angioma, and other pregnancy related physiologic changes were not assessed in the study that different from other studies (3, 12).

As a result, this is the first study investigating skin diseases in pregnant women who admitted to the emergency service. Dermatological problems related emergency admissions were low in our study (2.3%). However, some of these dermatoses may be associated with significant fetal risks. For this reason, early diagnosis and immediate treatment are necessary. Prospective interdisciplinary studies of dermatological problems during pregnancy are needed.

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