

# Clinical Study on Pruritus During Pregnancy

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**Background :** Pruritus, which is a frequent accompanying symptom of dermatological diseases, is also common during pregnancy, either localized or generalized. It may be related to specific dermatoses of pregnancy.

**Objective :** A clinical study was performed to know the exact nature of pruritus in pregnancy.

**Methods :** Subjects with systemic diseases, or laboratory abnormalities were excluded. People who have had pruritic dermatologic diseases before pregnancy were also excluded. One hundred and fifty five pregnant women were interviewed with physical examinations and followed up to the date of delivery. Pruritus was graded.

**Results :** Pruritus was present in 31.6%. Most affected subjects had mild or moderate severity. The abdomen was the most common site. There was a tendency for the duration of itching to increase with the duration of pregnancy.

**Conclusion :** These findings may provide basic and useful data on pruritus during pregnancy. (Ann Dermatol 9:(4):270~275, 1997).

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*Key Words :* Pregnancy, Pruritus

There are many skin symptoms and signs related to pregnancy<sup>1</sup>. Some of them are common pregnancy-related physiological skin changes that are believed to be mainly produced by the hormonal changes. Others are considered to be specifically associated with pregnancy and are often called the dermatoses of pregnancy.

Pruritus, which is a frequent accompanying symptom of dermatological diseases, is also common during pregnancy, either localized or generalized. It is said to affect about 10 to 20% of pregnant women, although there is great variation according to authors<sup>1-3</sup>. Pruritus of pregnancy may be idiopathic, or may be related to pre-existing dermatoses or other systemic diseases. It can be so annoying that many pregnant women complain about intense itching and seek medical advice. Very rarely may early delivery be required<sup>4</sup>.

Analysis of pruritus in pregnancy has never been

done in Korea. Therefore, we performed a clinical study focusing on pruritus in normal pregnant women without previous dermatological or systemic diseases.

## MATERIALS AND METHODS

### 1. Subjects

In co-operation with the Department of Obstetrics and Gynecology, we gave out questionnaires with history taking and performed physical examinations of 155 pregnant women. Before the study we obtained their consent. Every pregnant woman observed was interviewed, and women revealing histories of pruritus were asked about its exact nature. Pregnant women with systemic diseases or obstetric problems were excluded from the study, and subjects with laboratory abnormalities in their prenatal checks were also ruled out. People who had had pruritic dermatological or allergic diseases before pregnancy were also excluded. Most enrolled subjects were in the third trimester. They were followed up to the date of delivery. Their age ranged from 20 to 43 with the average being 31.0 years-old. The peak age distribution was 25-29 years old (40.6%). One

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**Table 1.** Severity and frequency of pruritus during pregnancy according to onset

	Onset (trimester)			Total(%)
	1st	2nd	3rd	
Severity				
mild	9	6	11	26(53.1)
moderate	5	3	10	18(36.7)
severe	2	1	2	5(10.2)
Frequency				
infrequently	8	4	13	25(51.0)
frequently	7	6	9	22(44.9)
continuously	1	0	1	2(4.1)
Total(%)	16(32.7)	10(20.4)	23(46.9)	49(100)

**Table 2.** Sites of pruritus

Category	Sites	No. of cases	%
1	Extremities	11	22.4
2	Abdomen	13	26.5
3	Chest & back	2	4.1
4	Anogenital area	0	0.0
5	Face & neck	1	2.0
6	1+2	10	20.4
7	1+2+3	5	10.2
8	1+2+3+4+5	5	10.2
9	2+3	2	4.1
Total	49	100	

**Table 4.** Skin manifestations developing on pruritic sites

Skin manifestation	No. of cases	%
Striae formation	11	22.4
Excoriated papules	7	14.3
Erythematous papules	3	6.1
Follicular pustulopapules	2	4.1
Urticarial papules	4	2.0
Lichenoid patch	1	2.0
No skin lesion	28	57.1

hundred(64.5%) women were primigravida, and others were multigravida(35.5%).

## 2. Grading of pruritus

The intensity of pruritus was graded by functional handicap and the patient's own assessment, adapted from the grading by Kolodny et al<sup>5</sup>.

**Table 3.** Correlation between duration and onset of pruritus

Duration	onset(trimester)			Total (%)
	1st	2nd	3rd	
< 1wk	5	1	1	7(14.3)
1-4wk	9	7	5	21(42.9)
5-8wk	1	2	10	13(26.5)
> 8wk	1	0	7	8(16.3)
Total	16	10	23	49(100)

**Table 5.** Presumptive diagnosis of subjects with pruritus

Diagnosis	No. of subjects
Contact Dermatitis	1
PUPPP	4
Pruritic folliculitis of pregnancy	2
Striae gravidarum	7
Pruritus of unknown cause	35

Mild : Able to perform daily activities; sleep unaffected.

Moderate : Significant interference with daily activities; sleep occasionally affected.

Severe : Incapacitated for daily activities ; unable to sleep.

The frequency of pruritus was classified by the number of times of scratching and episodes of attack depending on subjective memories.

Infrequent : Less than or equal to 10 times.

Frequent : More than 10 times but less than

"continuous".

Continuous : More than 100 times. They expressed it as "all day" or "very often"

## RESULTS

Among 155 pregnant women studied, forty-nine (31.6%) experienced or had pruritus. Their mean age was 29.8 years-old, and the overall age distribution of 49 women with pruritus was not significantly different compared with that of the total 157 subjects. Pruritus developed in the third trimester in 23 cases (46.9%), which was greater than that developed in the second (20.4%) or first (32.7%) trimester.

Subjects with mild (53.1%) and moderate (36.7%) severity prevailed over severe (10.2%) severity, irrespective of the onset of pruritus (Table 1). In view of the frequency of pruritus, the subjects who continuously felt the itching sensation was somewhat rare (4.1%). Also the pattern of frequency was not associated with the onset of pruritus in pregnancy. The abdomen was the most common predilection site. It was affected in 35 subjects (71.4%) (Table 2). Among them, thirteen women complained of itching only on the abdomen. The order of involvement was as follows ; abdomen (71.4%), extremities (63.3%), chest & back (28.6%), face & neck (12.2%), anogenital area (10.2%). Generalized pruritus (category 8) was present in 5 subjects (10.2%). If generalized pruritus includes category 7, it reached 20.4%. One person felt itching of the face and neck only and it was considered to be contact dermatitis.

Pruritus which had developed in the first trimester subsided within 4 weeks in most cases (87.5%) (Table 3). However, there was a tendency for the duration of itching to increase with the duration of pregnancy. So, in the third trimester, the duration of over 4 weeks occupied 73.9%.

Skin manifestations on pruritic sites were diverse. Among them, pruritus without any skin lesions was the most frequent (57.1%). In the second place, pregnant women felt itching at the sites of striae (22.4%). In some cases, several manifestations occurred together. For example, excoriated papules, striae formation, and urticarial papules developed in a patient of pruritic urticarial papules and plaques of pregnancy (PUPPP). PUPPP was diagnosed in 4 cases, and pruritic folliculitis of pregnancy was strongly suspected in 2 cases (Table 5).

## DISCUSSION

Pregnant women are very anxious about their fetuses. If pruritus develops during pregnancy, they become upset and worried about the effect on their unborn children.

The nomenclature and classification of pruritic specific dermatoses of pregnancy is still confusing and have been reported under a variety of terms<sup>6-8</sup>. Herpes gestationis and pruritus gravidarum are well-known disease entities which can be confirmed by laboratory and immunopathological findings.

Herpes gestationis is a kind of autoimmune bullous diseases. Pemphigoid gestationis is its synonym. DIF of perilesional skin reveals deposition of C3 along the basement membrane zone. In about 40% of cases, deposition of IgG is also detected<sup>9,10</sup>. BPAG2 is the principal antigen, but the BPAG1 is recognized in some patients as well<sup>11-12</sup>. Although skin biopsies were not performed, none of the subjects had skin manifestations suggesting herpes gestationis.

Pruritus gravidarum is a condition of late pregnancy manifesting as severe, generalized pruritus commonly at the beginning of the third trimester in the absence of a primary skin eruptions. It is considered to be caused by intrahepatic cholestasis and is accompanied by laboratory abnormalities including the increase of serum aminotransferases, alkaline phosphatase, bile acid salts, and bilirubin<sup>13-15</sup>. It is notorious for the possibility of mortality, prematurity and low birth weight in the offspring. In our study, pregnant women with laboratory abnormalities at any time during pregnancy were excluded. So, there were no cases of pruritus gravidarum.

PUPPP, which is considered to be the commonest dermatosis related to pregnancy, is a distinct rash of pregnancy that typically occurs in the later part of the third trimester in primigravida<sup>16-18</sup>. The rash frequently begins in the abdominal striae as small erythematous papules that coalesce into plaques. The rash often spreads to thighs, buttocks, and extremities, and is intensely pruritic. Four cases in our study were diagnosed as PUPPP, and they had severe pruritus. The association of PUPPP with maternal weight gain, abdominal distension and twin or triplet pregnancies remains controversial<sup>19-22</sup>. In addition, the role of immune system dysregulation or hereditary predisposition in the development of

PUPPP has to be elucidated more clearly<sup>23-26</sup>. Although there are some controversies<sup>6,8,27-29</sup>, most cases which were reported under the name of toxic rash of pregnancy, prurigo annularis, erythema multiforme gestationis, and polymorphic eruption of pregnancy are now considered to be PUPPP.

Pruritic folliculitis of pregnancy is manifested as erythematous follicular papules with the histopathologic features of acute folliculitis and intraluminal pustule formation<sup>30</sup>. It has a tendency to recur in subsequent pregnancies, but there is no harmful effect on mother and fetus. Two pregnant women in our study were suggested to have this disease based on compatible history and skin findings, although skin biopsies was not done. Some authors regard this entity as a form of hormonally induced acne<sup>31</sup>.

Prurigo gestationis is a very rare disease which develops in the fourth to ninth months of pregnancy. No one was suspected to have this disease in our study. Small papules occur on the arms, thighs, and upper trunk. It causes severe itching, so that it almost always accompanies many excoriations. It subsides after delivery. Topical corticosteroid may sometimes be helpful.

Pruritus is a nonspecific, common symptom. It may be caused by underlying skin diseases, which were ruled out in our study, and systemic causes, including pregnancy. In many cases, the cause of pruritus is unknown, as 57.1% was idiopathic in our study. As a whole, 31.6% of pregnant women complained of itching in which is presumed to be a higher prevalence than that in normal non-pregnant women. Itching is supposed to be transmitted by unmyelinated C fibers to the central nervous system. Histamine, prostaglandins, and neuropeptides mediate itching<sup>32-34</sup> and it is influenced by skin temperature and psychogenic factors<sup>35,36</sup>. Progesterone has a thermogenic effect, and it is highly elevated inducing a slight increase in body temperature<sup>37</sup>. This situation is somewhat similar to thyrotoxicosis, in which excessive thyroid hormone also upregulates metabolism and elevates body temperature, causing a higher prevalence of itching in the patients<sup>35,3</sup>.

In addition, pruritus may be a manifestation of anxiety<sup>36</sup>. Because pregnant women are careful and anxious to acclimatize themselves to their new environment, such situations can cause the threshold of itching to be decreased. Physiological and anatomical changes of nerves and hormones during pregnancy may add to the increase of prevalence of

itching<sup>39,40</sup>. Unconfirmed immune system alterations may work<sup>41</sup> and the role of the fetus in the provocation of pruritus in the mother should be investigated.

In most of pregnant women complaining of pruritus, the severity and frequency was not great. So they wanted to endure itching without any medications. The abdomen was the most common pruritic site. Thirteen patients complained of itching only on the abdomen, and in these women striae gravidarum was strongly related because they had developed immediately before or after the start of pruritus. Duration of the pruritus was correlated with gestational age. Namely, the duration was shorter in the first trimester than in the third trimester. In the first trimester, transient contact dermatitis or insect bites should be ruled out, while pregnancy-related specific dermatoses should be considered in the third trimester. In cases of moderate or severe pruritus, antihistamines and corticosteroids may be efficacious and are known to be relatively safe in pregnancy<sup>42</sup>, although refusal by pregnant women may be a larger obstacle.

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