

## **ORIGINAL RESEARCH**

### **Assessment of cases of Pruritic urticarial papules and plaques of pregnancy (PUPPP)**

<sup>1</sup>Dr. Ichchhit Bharat, <sup>2</sup>Dr. Chandni Sehgal, <sup>3</sup>Dr. Ravi Ranjan

<sup>1,3</sup>Assistant Professor, Department of Dermatology, Mata Gujri Memorial Medical College and Lions Seva Kendra Hospital, Kishanganj, Bihar, India

<sup>2</sup>Assistant Professor, Department of Obstetrics and Gynaecology, Mata Gujri Memorial Medical College and Lions Seva Kendra Hospital, Kishanganj, Bihar, India

#### **Corresponding author**

Dr. Ravi Ranjan

Assistant Professor, Department of Dermatology, Mata Gujri Memorial Medical College and Lions Seva Kendra Hospital, Kishanganj, Bihar, India

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#### **ABSTRACT**

**Background:** Pruritic urticarial papules and plaques of pregnancy (PUPPP), also known as polymorphic eruption of pregnancy (PEP), is a common skin condition that affects some pregnant women. The present study was conducted to assess cases of Pruritic urticarial papules and plaques of pregnancy (PUPPP). **Materials & Methods:** 46 cases of Pruritic urticarial papules and plaques of pregnancy (PUPPP) were included and parameters such as skin rashes, pruritus, and subsequent pregnancies was recorded. Skin biopsy specimens were studied. Complete blood count, urinalysis, and serum multiphasic analysis was done on all patients. **Results:** Age group 18-24 years had 26, 25-30 years had 11 and 31-36 years had 9 cases. The difference was significant ( $P < 0.05$ ). Gravida was Primi in 20 and multipara in 26. Degree of pruritus was mild in 10, moderate in 12 and intense in 24. Distribution was on thighs in 11, trunks in 4, abdomen in 11 and generalized in 20 cases. Onset was 24-27 weeks in 21, 27-30 weeks in 13 and 30-33 weeks in 10 cases. The difference was significant ( $P < 0.05$ ). **Conclusion:** Maximum cases of Pruritic urticarial papules and plaques of pregnancy had intense and generalized involvement was seen.

**Key words:** Pruritic urticarial papules, pregnancy, Gravida

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#### **INTRODUCTION**

Pruritic urticarial papules and plaques of pregnancy (PUPPP), also known as polymorphic eruption of pregnancy (PEP), is a common skin condition that affects some pregnant women. It is characterized by an itchy rash that typically appears in the third trimester of pregnancy.<sup>1</sup>

PUPPP usually starts with itchy red bumps or papules that develop into larger plaques or patches.<sup>2</sup> The rash typically begins on the abdomen and may spread to other parts of the body, such as the thighs, buttocks, and arms. The itching can be intense and may interfere with sleep. The exact cause of PUPPP is unknown, but hormonal changes during pregnancy are believed to play a role.<sup>3</sup> It is more common in first pregnancies, multiple pregnancies (twins or more), and pregnancies with male fetuses. PUPPP is usually diagnosed based on the characteristic appearance of the rash and the patient's medical history. In some cases, a skin biopsy may be performed to confirm the diagnosis and rule out other conditions. Although PUPPP can be uncomfortable, it is not harmful to the mother or the baby.<sup>4</sup>

Biopsy specimens from lesional skin reveal nonspecific findings. In early pruritic urticarial papules and plaques of pregnancy lesions, there is epidermal and upper dermal edema, and occasionally focal mild spongiosis, with a deeper dermal lymphohistiocytic perivascular infiltrate, which may resemble arthropod bite reactions.<sup>5</sup> The lymphocytic infiltrate is often composed of T-helper lymphocytes with an admixture of a variable number of eosinophils and neutrophils.<sup>6</sup> The primary goal of treatment is to relieve itching and discomfort. The present study was conducted to assess cases of Pruritic urticarial papules and plaques of pregnancy (PUPPP).

#### **MATERIALS & METHODS**

The present study consisted of 46 cases of Pruritic urticarial papules and plaques of pregnancy (PUPPP). All gave their written consent to participate in the study.

Data such as name, age, etc. was recorded. Parameters such as skin rashes, pruritus, and subsequent pregnancies was recorded. Skin biopsy specimens were studied. Complete blood count, urinalysis, and serum multiphasic analysis was done on all patients.

Direct immunofluorescence with IgG, IgM, and C3 was done on skin biopsies. Serum human chorionic gonadotropin (HCG) levels were also recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

**RESULTS**

**Table I Distribution of patients**

Age group (years)	Number	P value
18-24	26	0.05
25-30	11	
31-36	9	

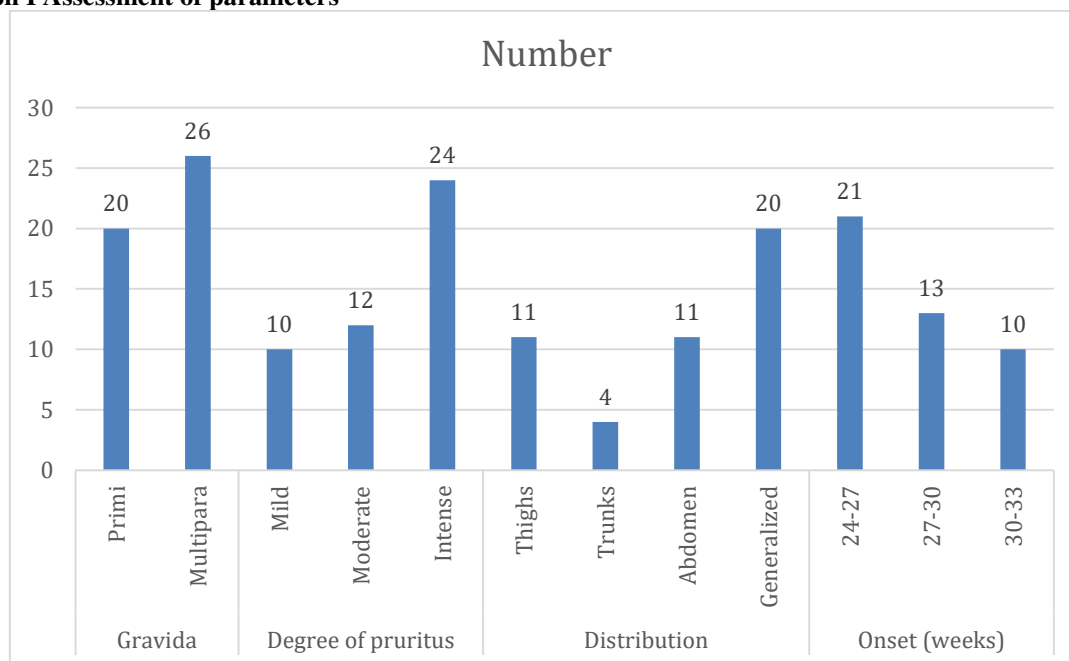
Table I shows that age group 18-24 years had 26, 25-30 years had 11 and 31-36 years had 9 cases. The difference was significant (P< 0.05).

**Table II Assessment of parameters**

Parameters	Variables	Number	P value
Gravida	Primi	20	0.84
	Multipara	26	
Degree of pruritus	Mild	10	0.05
	Moderate	12	
	Intense	24	
Distribution	Thighs	11	0.02
	Trunks	4	
	Abdomen	11	
	Generalized	20	
Onset (weeks)	24-27	21	0.05
	27-30	13	
	30-33	10	

Table II, graph I shows that gravida was Primi in 20 and multipara in 26. Degree of pruritus was mild in 10, moderate in 12 and intense in 24. Distribution was on thighs in 11, trunks in 4, abdomen in 11 and generalized in 20 cases. Onset was 24-27 weeks in 21, 27-30 weeks in 13 and 30-33 weeks in 10 cases. The difference was significant (P< 0.05).

**Graph I Assessment of parameters**



**DISCUSSION**

Management options may include antihistamines which may be prescribed to help relieve itching and promote better sleep.<sup>7</sup> It is important to consult with a

healthcare provider before taking any medication during pregnancy.<sup>8</sup> Emollients and moisturizers can help soothe the skin and alleviate dryness. Applying cool compresses or taking cool showers may help

relieve itching and inflammation.<sup>9</sup> Oatmeal baths: Taking a bath with colloidal oatmeal added to the water can help soothe the skin. PUPPP usually resolves on its own after delivery, typically within a few weeks. In some cases, the rash may persist for a longer period, but it eventually clears up without treatment.<sup>10</sup> The present study was conducted to assess cases of Pruritic urticarial papules and plaques of pregnancy (PUPPP).

We found that age group 18-24 years had 26, 25-30 years had 11 and 31-36 years had 9 cases. Jeon et al<sup>11</sup> assessed the efficacy of intramuscular injection of autologous whole blood (AWB) for treatment of PUPPP. This was a retrospective descriptive case series of three patients with PUPPP, all of whom were treated with intramuscular injection of AWB. All patients showed good responses to intramuscular injection of AWB, tolerated the treatment, and there were no adverse effects to the patients or their babies. AWB may be an alternative treatment option for patients with PUPPP who are worried about the risk of medication use during pregnancy or breastfeeding. Whole blood collected from the patient's own body may be preferable to foreign medications.

We found that gravida was Primi in 20 and multipara in 26. Degree of pruritus was mild in 10, moderate in 12 and intense in 24. Distribution was on thighs in 11, trunks in 4, abdomen in 11 and generalized in 20 cases. Onset was 24-27 weeks in 21, 27-30 weeks in 13 and 30-33 weeks in 10 cases. Callen et al<sup>12</sup> reported fifteen Pruritic urticarial papules pregnancy (PUPPP) cases of this distinctive eruption. The lesions began in the third trimester in all but two patients. The rash consisted of a symmetric eruption of papules, urticarial lesions, and some erythema multiforme-like target lesions. Histologic examination showed a mild nonspecific lymphohistiocytic perivascularitis. Moderate or intense pruritus was present in all but one case. The abdomen and proximal extremities were most commonly involved, but two patients had lesions only on the lower legs. Clearing occurred prior to delivery (five cases), within 1 week of delivery (nine cases), and at 6 weeks postpartum (one case). The pruritus was decreased with topical corticosteroids and diphenhydramine in all cases except one. Fetal wastage did not occur. Subsequent pregnancies were uneventful in two patients. PUPPP is a benign dermatosis of pregnancy which resolves spontaneously or with delivery.

Powel et al<sup>13</sup> assessed 35 cases of Pruritic Urticarial Papules and Plaques of Pregnancy (PUPPP) seen over an 8 years period were reviewed with regard to age and gestational stage of onset, evolution and severity of disease and response to therapy. The histologic features in biopsies from 15 patients were analysed for pattern and extent of inflammatory change and the composition of the inflammatory cells were studied with a panel of monoclonal antibodies. This study confirmed PUPPP to be a well- defined clinical entity mainly occurring in young primagravidas in the third

trimester and usually responsive to topical treatments. Histologically, perivascular upper and mid-dermal inflammatory changes were present in all biopsies with epidermal spongiosis and vesiculation a prominent feature in many cases. The inflammatory infiltrate was composed of an admixture of T lymphocytes and macrophages.

The limitation the study is small sample size.

## CONCLUSION

Authors found that maximum cases of Pruritic urticarial papules and plaques of pregnancy had intense and generalized involvement was seen.

## REFERENCES

1. Rudolph CM, Al-Fares S, Vaughan-Jones SA, Müllegger RR, Kerl H, Black MM. Polymorphic eruption of pregnancy: clinicopathology and potential trigger factors in 181 patients. *Br J Dermatol*. 2006 Jan;154(1):54-60.
2. Elling SV, McKenna P, Powell FC. Pruritic urticarial papules and plaques of pregnancy in twin and triplet pregnancies. *J Eur Acad Dermatol Venereol*. 2000 Sep;14(5):378-81.
3. Ghazeeri G, Kibbi AG, Abbas O. Pruritic urticarial papules and plaques of pregnancy: epidemiological, clinical, and histopathological study of 18 cases from Lebanon. *Int J Dermatol*. 2012 Sep;51(9):1047-53.
4. Holmes RC, Jurecka W, Black MM. A comparative histopathological study of polymorphic eruption of pregnancy and herpes gestationis. *Clin Exp Dermatol*. 1983 Sep;8(5):523-9.
5. Zurn A, Celebi CR, Bernard P, Didierjean L, Saurat JH. A prospective immunofluorescence study of 111 cases of pruritic dermatoses of pregnancy: IgM anti-basement membrane zone antibodies as a novel finding. *Br J Dermatol*. 1992 May;126(5):474-8.
6. Kim EH. Pruritic Urticarial Papules and Plaques of Pregnancy Occurring Postpartum Treated with Intramuscular Injection of Autologous Whole Blood. *Case Rep Dermatol*. 2017 Jan-Apr;9(1):151-156.
7. Beltrani VP, Beltrani VS. Pruritic urticarial papules and plaques of pregnancy: a severe case requiring early delivery for relief of symptoms. *J Am Acad Dermatol*. 1992 Feb;26(2 Pt 1):266-7.
8. Pruet KA, Kirn R: Papular dermatitis of pregnancy. *Obstet Gynecol* 55:385-405, 1980.
9. Spangler AS, Reddy W, Bardawil WA, et al: Papular dermatitis of pregnancy: A new clinical entity? *JAMA* 181:577-581, 1962.
10. Wade TR, Wade SL, Jones HE: Skin changes and diseases associated with pregnancy. *Obstet Gynecol* 52:233-242, 1978.
11. Jeon IK, On HR, Oh SH, Hann SK. Three cases of pruritic urticarial papules and plaques of pregnancy (PUPPP) treated with intramuscular injection of autologous whole blood. *Journal of the European Academy of Dermatology and Venereology*. 2015 Apr;29(4):797-800.
12. Callen JP, Hanno R. Pruritic urticarial papules and plaques of pregnancy (PUPPP): a clinicopathologic study. *Journal of the American Academy of Dermatology*. 1981 Oct 1;5(4):401-5.

13. Powell FC, Dervan P, Wayte J, O'Loughlin S. Pruritic urticarial papules and plaques of pregnancy (PUPPP): a clinicopathological review of 35 patients. *Journal of the European Academy of Dermatology and Venereology.* 1996 Mar 1;6(2):105-11.