

Pruritic Urticarial Papules and Plaques of Pregnancy

Pruritic Urticarial Papules and Plaques of Pregnancy (PUPPP) is the most common dermatologic condition associated with pregnancy. First described under various names including Nurse's late onset prurigo, Bourne's toxemic rash of pregnancy, and polymorphic eruption of pregnancy, PUPPP is characterized by an intensely pruritic, rash-like condition that typically develops in the third trimester of pregnancy or immediately postpartum. The condition, though bothersome, is generally self-limiting and benign, with no long-term consequences for the mother or fetus.

Clinical Presentation

PUPPP generally manifests as a pruritic rash characterized by raised, edematous papules that coalesce into larger plaques. These lesions often appear within the stretch marks on the abdomen, gradually spreading to the extremities over a few days. The rash tends to spare areas such as the periumbilical region, palms, soles, and face. The characteristic appearance of the rash resembles hives, hence the term *urticarial*. The papules may appear targetoid or with microvesicles, though overt blisters are typically absent. If blisters are present, the differential diagnosis should include conditions such as pemphigoid gestationis, which can have similar features but carries a higher risk of fetal prematurity.

Pathogenesis and Risk Factors

The precise pathogenesis of PUPPP remains unclear, though it is thought to involve an inflammatory reaction triggered by the rapid stretching of the skin during pregnancy. This skin stretching, often seen in women with multiple gestation pregnancies or those who gain weight rapidly, may cause damage to the connective tissue in the skin, which could initiate the urticarial rash. Another hypothesized mechanism is the hormonal changes during pregnancy, which might play a role in the development of the condition.

Risk factors for PUPPP include:

- **First pregnancy:** PUPPP is more commonly observed in primigravida (first-time pregnant) women, though it can also occur in subsequent pregnancies.
- **Multiple gestation:** Women carrying twins or higher-order multiples are at an increased risk due to the greater degree of abdominal skin stretching.
- **Rapid weight gain:** Excessive or rapid weight gain during pregnancy can increase the likelihood of developing PUPPP.

Differential Diagnosis

The clinical presentation of PUPPP may resemble other dermatologic conditions, making a differential diagnosis important. Conditions to consider include:

- ***Pemphigoid gestationis***: Although it shares some similarities with PUPPP, pemphigoid gestationis is associated with a higher risk of fetal prematurity and is typically characterized by blisters, unlike the papules of PUPPP.
- ***Drug reactions***: Drug-induced rashes can also present similarly to PUPPP, with hives or pruritic papules.
- ***Viral exanthems***: Conditions such as measles or rubella may present with a rash that needs to be differentiated from PUPPP.
- ***Contact dermatitis or scabies***: External irritants or infestations can cause pruritic skin lesions similar to PUPPP, requiring appropriate testing for diagnosis.

Diagnosis

PUPPP is primarily a clinical diagnosis, with the characteristic appearance of raised papules and plaques and the typical distribution on the abdomen and extremities. In most cases, no laboratory tests are required to confirm the diagnosis. However, when the diagnosis is uncertain, or when pemphigoid gestationis or other conditions need to be excluded, laboratory tests can help clarify the situation.

Laboratory tests may include:

- Complete blood count (CBC) and comprehensive metabolic panel (CMP) to assess for systemic abnormalities.
- Liver function tests to rule out hepatic conditions.
- Serum human chorionic gonadotropin (hCG) and serum cortisol levels for hormonal evaluation.
- Skin biopsy to examine histopathology in unclear cases, which typically reveals nonspecific inflammation, with eosinophils and spongiosis.
- Direct immunofluorescence can be used to exclude pemphigoid gestationis, which would typically present with positive findings for IgG and C3 antibodies along the basement membrane.

Treatment Options

While PUPPP resolves spontaneously after delivery, treatment is often sought to alleviate the intense pruritus that accompanies the rash.

The management of PUPPP focuses on symptomatic relief and prevention of further irritation.

- ***Topical Corticosteroids***:

- The first-line treatment for PUPPP is the application of topical corticosteroids, particularly in cases where the rash is localized. These steroids help reduce inflammation and relieve pruritus. Potent corticosteroids may be used initially, with less potent formulations for maintenance if required.
- **Oral Antihistamines:**
 - Oral antihistamines such as diphenhydramine or cetirizine may be used to control itching, especially if the pruritus is generalized or severe. These medications help block histamine, a key mediator of allergic responses that contributes to itching.
- **Systemic Steroids:**
 - In severe or widespread cases, a short course of oral corticosteroids may be prescribed to control inflammation and provide more effective relief. This is typically reserved for cases that do not respond adequately to topical treatments.
- **Other Symptomatic Relief:**
 - Cool compresses and oatmeal baths are often recommended to soothe the skin and reduce itching. These treatments provide a cooling effect and help calm inflammation, offering temporary relief from pruritus.
- **Psychosocial Support:**
 - Since PUPPP can cause significant discomfort and distress, reassurance is an important component of management. Patients should be informed that the condition will typically resolve within two weeks postpartum and that it does not pose a risk to the fetus.

Prognosis

The prognosis for PUPPP is excellent, as the condition resolves spontaneously after delivery, usually within 1–2 weeks. Importantly, PUPPP does not pose any significant risk to the fetus or the mother's long-term health. Recurrent episodes in subsequent pregnancies are rare, and most women do not experience PUPPP beyond the immediate postpartum period.

Conclusion

Pruritic Urticarial Papules and Plaques of Pregnancy (PUPPP) is a common and self-limiting dermatologic condition in pregnant women, characterized by pruritic, urticarial papules and plaques. While the exact cause remains unknown, rapid skin stretching during pregnancy, especially in first pregnancies and those with multiple gestation, is thought to play a significant role. The condition is diagnosed clinically, and treatment is aimed at providing symptomatic relief. With appropriate management, PUPPP typically resolves after delivery, and it does not result in long-term health issues for the mother or baby.

References

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