Impetigo herpetiformis with postpartum flare-up: a case report

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SUMMARY

Impetigo herpetiformis is a rare dermatosis of pregnancy with typical onset during the last trimester of pregnancy and rapid resolution during the postpartum period. It is still a matter of debate whether it is a variant of pustular psoriasis or a separate entity. We report a case of impetigo herpetiformis with an earlier onset during the second trimester of pregnancy (G4 P2) and an atypical postpartum flare-up. Even though the case is not new *per se*, it reveals the natural course of this rare disease because the condition was neglected and given no oral treatment throughout the entire pregnancy. Consequently, the patient had a premature delivery with premature rupture of membranes, placental insufficiency, and intrauterine growth retardation.

KEY WORDS

pregnancy dermatoses, impetigo herpetiformis, psoriasis, pustules, pregnancy

Introduction

Impetigo herpetiformis (IH) is a rare pustular dermatosis of pregnancy with typical onset in the last trimester of pregnancy, rapid resolution after delivery, and possible recurrences in subsequent pregnancies. Clinically it is characterized by the presence of widespread tiny superficial pustules in a herpetiform pattern on erythemato-squamous plaques. The disease can be associated with constitutional symptoms such as fever, chills, vomiting, nausea, and diarrhea. Maternal complications are rare today but may consist of delirium, convulsions, and tetany due to hypocalcemia; fetal complications can be stillbirth, neonatal death, and fetal abnormalities due to placental insufficiency. In this context, early diagnosis and prompt treatment are mandatory.

Case report

A 25-year-old woman, gravida 4 para 2, approximately 3 weeks postpartum, was transferred to our dermatology clinic from Timisoara, presenting with erythemato-squamous plaques with polycyclic borders, intense itchiness, and covered with many pustules with yellowish content and honey-like scales (Figs. 1–3). She had a premature delivery, with premature rupture of membranes, and a vaginal birth. Her daughter had no birth or neonatal complications, apart from a low birth weight of 1.3 kg.

Upon presentation, the skin eruption was localized on the abdomen, anterior trunk, posterior trunk, axillas, inguinal region, and extremities (especially the hands and nails). The mucous membranes were not involved. On the scalp there were erythemato-squamous pla-

ques, covered with a thick white scale and weak adhesion. Constitutional symptoms such as fever, perspiration, nausea, and diarrhea were also present at the time of presentation.

Due to the presence of pustules developed on an erythemato-squamous base the dermatological diagnosis, defined by clinical criteria, was IH. Other diagnoses such as pustular psoriasis or a drug-induced pustular eruption were taken into consideration. A punch biopsy of the lesional skin was performed. The histopathological exam supported the diagnosis of IH, showing a subcorneal neutrophilic pustule with a spongiform aspect, and edematous papillary dermis with perivascular lymphocytes and neutrophils (Fig. 4). Unfortunately, direct immunofluorescence could not be performed. The laboratory findings were as follows: hemoglobin of 10.7 g% with total leukocyte count of 13,400/mm^3. Liver function tests, renal function tests, blood sugar, urine and stool examination, VDRL, serum electrolytes, and serum calcium were within normal limits.

An oral prednisone dose of 0.5 mg/kg body weight (30 mg/daily) was started immediately. In addition, a moderately potent topical corticosteroid was added to the therapy. By the end of the third week of treatment (Fig. 5), her skin condition had improved significantly, with areas of desquamation and resolution of the pyrexia and cessation of new pustule formation. Oral prednisone was than tapered off over 2 weeks. A further rebound was noticed especially when the dose of oral corticosteroid was tapered below 15 mg/daily. Despite the medical recommendation, the patient refused to stay in the hospital and preferred to continue treatment at home, at the same dose of prednisone. She was seen at the outpatient clinic after 1 month and her skin was without lesions. At that time only postinflammatory hyperpigmentation and nail lesions were noted.

From the patient's medical history, it was evident that the skin disease started in the second trimester of pregnancy with a sudden onset of itchy erythematous pustules, which were initially localized in the inguinal region with subsequent spread over the entire body, except for the mucous membranes. Her general practitioner considered this eczema and the patient received only topical corticosteroids (high potency) throughout the entire pregnancy. The eruption did not resolve but there were periods with cessation of new pustule formation. Her pregnancy was not monitored by an obstetrician because she lives in a rural area, is not employed and could not afford this level of medical care. The premature rupture of membranes complicated her condition and she was transported immediately to the maternity hospital. At 35 weeks of pregnancy, she delivered a female baby with a birth weight of 1.3 kg because of placental insufficiency and the resulting intrauterine growth retardation.

The patient's detailed medical history also revealed that the disease had appeared first seven years previously, in the postpartum period following her first pregnancy (term delivery, female, birth weight 3.2 kg); the plaques appeared initially on the abdomen and inguinal region, and then spread over the entire body except for the face, hands, and feet. After treatment with topical corticosteroids (high potency) the lesions gradually disappeared.

The patient had had two abortions. The first abortion was before her first live birth and the second abortion was after the first live birth. The aborted pregnancies had not precipitated The disease. The patient did not use oral contraceptives in the past. After the first episode (7 years ago), the disease had periodic recurrences, especially during menstruation, with a mild form that responded well to topical steroids (high potency). The patient also reported that there was no personal history of psoriasis, but the patient's mother had a history of psoriasis and eczema.

Discussion

IH is a rare pustular dermatosis of pregnancy that mainly affects women during the third trimester, although cases have been reported as early as the first trimester (1) or during the postpartum period (2). Since 1872, when Hebra first described it, it has remained a matter of debate whether it is a distinct dermatosis of pregnancy or simply a form of pustular psoriasis (3–5). The theory that IH is a separate entity is supported by facts such as:

– Most patients do not have a personal or family history of psoriasis (6) or do not subsequently develop chronic plaque psoriasis (5, 6);
– The disease usually resolves by the conclusion of the pregnancy; and
– The potential for recurrence in subsequent pregnancies (7, 8).

The pathogenesis of IH is still unclear. The main theories proposed to date focus on the role of high progesterone levels during the last trimester of pregnancy, low calcium levels (9), and a lower amount of skin-derived antileukoproteinase activity, which could contribute to the formation of epidermal pustules (2, 10). In addition, IH can be triggered by hypoparathyroidism or thyroidectomy (2).

Clinically, the disease consists of tiny superficial pustules on an erythematous background, arranged in rings or groups at the margins of the lesions. In the central area of the lesions, the pustules break down, resulting in crusting and impetiginization (11). Initially, the eruption begins in the flexures, especially in the inguinal region, with the potential to spread over the entire body (11, 12). The face, hands, and feet are not affected. Some unusual findings that have been reported are mucous membrane erosions and nail bed involvement (13, 14), of which the latter was present

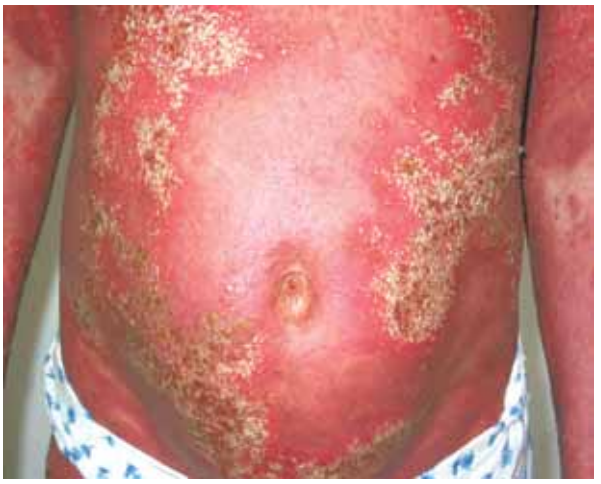
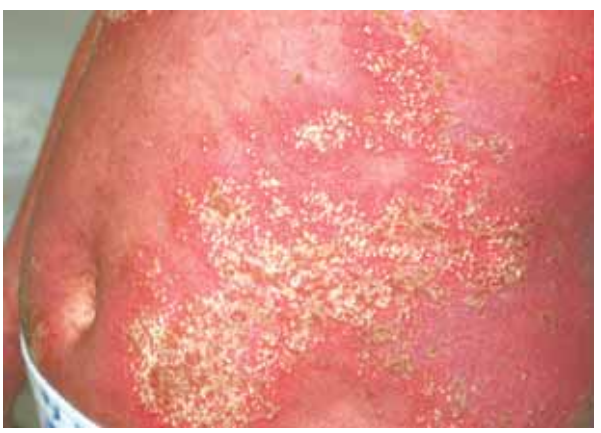


Fig.1. Impetigo herpetiformis: erythematosquamous plaques, with polycyclic edges covered with many pustules.



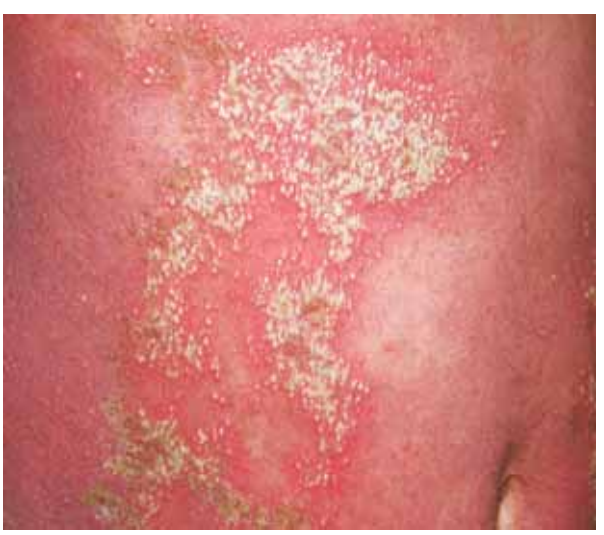


Fig. 2 and 3. Impetigo herpetiformis: Abdomen - erythematous plaques with polycyclic edges with many pustules (the pictures were taken in the first day of treatment).

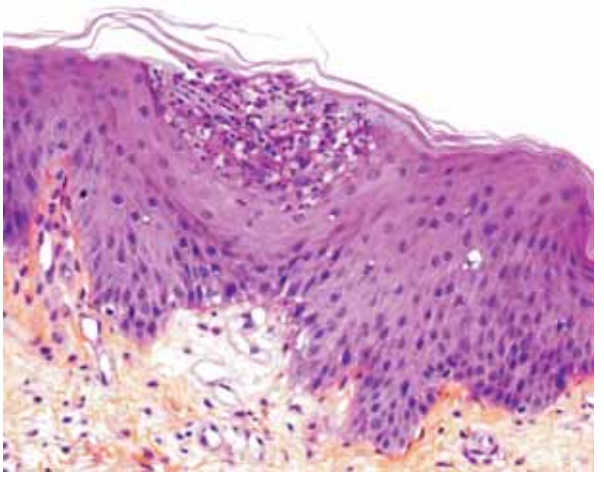


Fig. 4. Impetigo herpetiformis - histopathology: HES x 200 : Subcorneal pustule with a spongiform aspect (some neutrophils are scattered among keratinocytes at the periphery) consistent with pustular psoriasis or impetigo herpetiform.

in our case as well. The eruption is usually associated with symptoms such as pain, fever, chills, vomiting, nausea, diarrhea, seizures, and malaise. In addition, severe dehydration, prostration, and convulsions can appear (15–17). After the resolution of the lesions, postinflammatory hyperpigmentation is regularly seen (15, 18).

Laboratory findings generally show leukocytosis with neutrophilia, elevated erythrocyte sedimentation rate

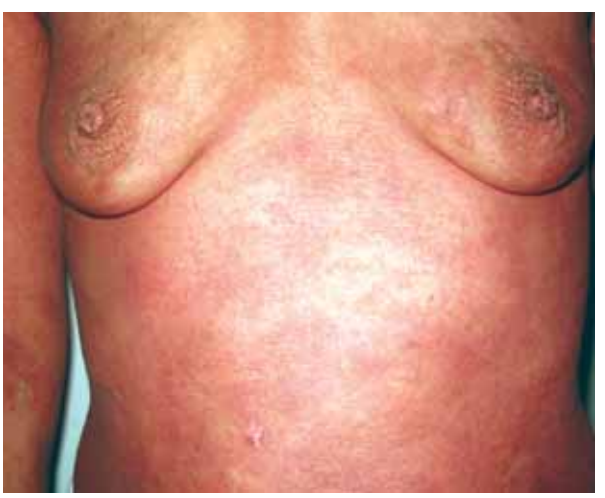


Fig. 5. Impetigo herpetiformis After 3 weeks from the beginning of the treatment, the skin was without lesions; only postinflammatory hyperpigmentation is seen.

(ESR), low levels of maternal serum calcium and phosphate, hypoalbuminemia, and iron deficiency anemia (3, 15–18).

The histology of IH bears some resemblance to that of pustular psoriasis. The presence of subcorneal spongiform pustules filled with neutrophils and perivascular infiltrates with lymphocytes and neutrophils can be suggestive for IH. Some aspects that are characteristic for pustular psoriasis were absent in our case, such as parakeratosis and psoriasiform hyperplasia. In addition, the absence of eosinophils helped us to differentiate IH from acute generalized exanthematous pustulosis. Direct and indirect immunofluorescence assays are negative in IH, but unfortunately these procedures could not be performed in our patient.

The differential diagnosis has to be made first with the specific dermatoses of pregnancy, and second with bullous dermatoses. The specific dermatoses of pregnancy presenting with bullae and vesicles as clinical features are pemphigoid gestationis (syn. herpes gestationis) and the rare condition polymorphic eruption of pregnancy (syn. pruritic urticarial papules and plaques of pregnancy) (19). In addition, several bullous dermatoses have to be taken into consideration, including bullous pemphigoid, dermatitis herpetiformis Duhring, or pemphigus vulgaris (20, 21).

Prompt treatment is the key to minimizing the impact of the disease on both mother and child. Systemic corticosteroids are considered first-line treatment. Prednisolone can be initiated at a dose of 15 to 30 mg/daily. This dose can be increased to 60 to 80 mg/daily after which other treatment could be used in unresponsive or refractory cases (8, 22).

Other medicaments have also been tried, either as single agents or in combination with oral corticosteroids. These agents include systemic retinoids such as isotretinoin or etretinate; oral psoralen and ultraviolet A (PUVA); cyclosporine; and methotrexate. However, these agents should be used only if the potential benefits justify the potential risk to the fetus. Systemic retinoids, oral psoralens, and methotrexate are not safe for use during pregnancy because of their embryotoxic side effects (2–4, 23). Prednisolone is safe in the second period of pregnancy (24) but there is limited experience concerning the use of cyclosporine in IH. Some authors consider the use of cyclosporine an alternative treatment for cases that do not respond to high doses of steroids or when the condition relapses while the steroids are being tapered (25–28). Therefore, cyclosporine could be considered a second-line treatment in IH during pregnancy.

If there is a secondary skin infection, antibiotics must be used. In addition, supportive therapy with fluids and electrolytes must be added to maintain balance. Hypocalcemia must be corrected promptly because of its possible role in the pathogenesis of IH. In severe cases, pregnancy could be terminated by induction of labor or Cesarean section (8, 12, 29).

Early recognition and prompt treatment of IH is important in order to avoid the disease's complications. Nowadays, maternal prognosis is good even in severe cases complicated by delirium, convulsions, and tetany due to hypocalcemia (15, 30). In contrast, the fetal prognosis is not as good. Because of placental insufficiency, fetal complications such as fetal abnormalities, stillbirth, and neonatal death are possible and may occur even in cases well controlled with systemic corticosteroids (5, 7, 11, 17, 29). In our patient, the baby's low birth weight is suggestive of placental insufficiency with intrauterine growth retardation.

Recurrence in subsequent pregnancies is common and this tends to have an earlier onset and more severe character. In addition, the subsequent use of oral contraceptives and menstrual periods can also trigger the disease (29, 31).

Conclusions

The onset of the disease in the postpartum period after the first completed pregnancy and the recurrence during the second trimester of the second completed pregnancy, with greater severity, proves the progressive, worsening, and earlier character of subsequent IH recurrences.

The outcome of pregnancy was characterized by the presence of fetal complications such as intrauterine growth retardation. Systemic steroids remain the treatment of choice as a first-line treatment even in the postpartum period Cyclosporin could be considered only as a second-line treatment in IH.

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