with urticaria, Stevens-Johnson syndrome, toxic epidermal necrolysis, pruritus, or vasculitis.[10]

Patch testing with drugs has been demonstrated to be useful in determining the cause of drug-related skin reactions.[9,11] The main advantages of patch testing over other diagnostic procedures are that serious adverse reactions are rare and testing can be performed with any commercial form of the drug.

Given the absence of a gold standard for determining the causal agent and the importance of reaching a specific diagnosis in these patients, other tests, such as prick, intradermal, and oral challenge tests, should be performed if the results of the patch tests are negative.

Conflict of Interest

The authors declare they have no conflict of interest.

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Pregnancy-Related Erythema Annulare Centrifugum

Eritema anular centrífugo asociado a gestación

To the Editor:

Erythema annulare centrifugum (EAC) is an uncommon skin disease consisting of annular and polycyclic, erythematous, papular lesions with borders that advance slowly but do not leave scars. Although its etiology remains unknown, the disease has been associated with a range of clinical conditions, including pregnancy.[1-3] We describe a new case of EAC associated with pregnancy, provide a review of the relevant literature, and discuss the role of hormones as a possible trigger.

A 34-year-old woman in her 28th week of pregnancy and with a history of allergy to tetracyclines consulted for slightly pruritic, annular lesions on the trunk and limbs which had appeared in the 12th week of pregnancy. She said she had not had any recent infections or been exposed to any medications, except for folic acid, which she had been taking since early pregnancy.

Physical examination revealed annular erythematous lesions of various sizes, with slightly raised borders, a clear center, without vesiculation, and scaling on the inner margins of the rims; the lesions were located on the thighs, the trunk, and the arms (Figure 1). We requested a biopsy from the advancing border of a lesion to corroborate an initial diagnosis of EAC. Histologically, there was a lymphohistiocytic infiltrate around the superficial vessels with areas of spongiosis and focal parakeratosis. Periodic acid-Schiff staining for fungi was negative (Figure 2). Blood, urine, and serology studies for toxoplasmosis, syphilis, measles, hepatitis B and C, and human immunodeficiency virus were normal. Following confirmation of the suspected diagnosis of EAC, treatment was initiated with methylprednisolone 0.1% cream applied twice daily. However, the lesions did not improve and several new lesions appeared over the course of the pregnancy. Within a few hours of delivery, the lesions started to regress rapidly and had disappeared almost completely 3 days later (Figure 3). Five days after delivery, coinciding with the onset of lactation, the

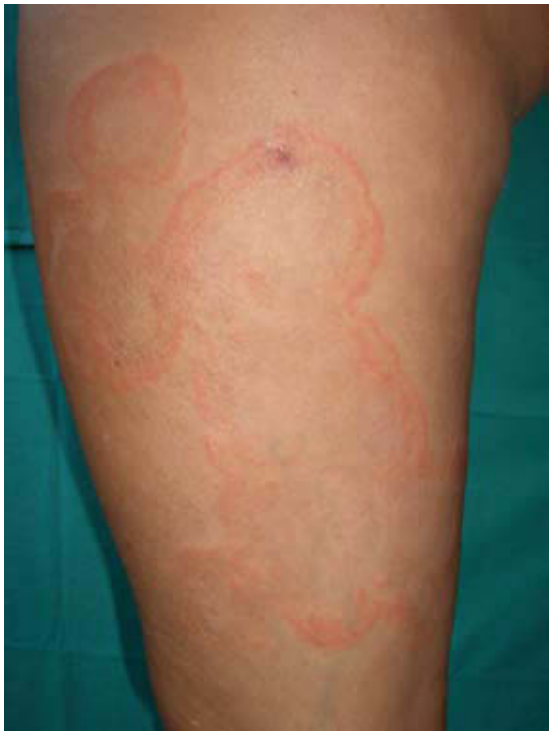

Figure 1 Polycyclic plaques with advancing arcuate lesions with raised borders and clear centers on the patient's thigh.

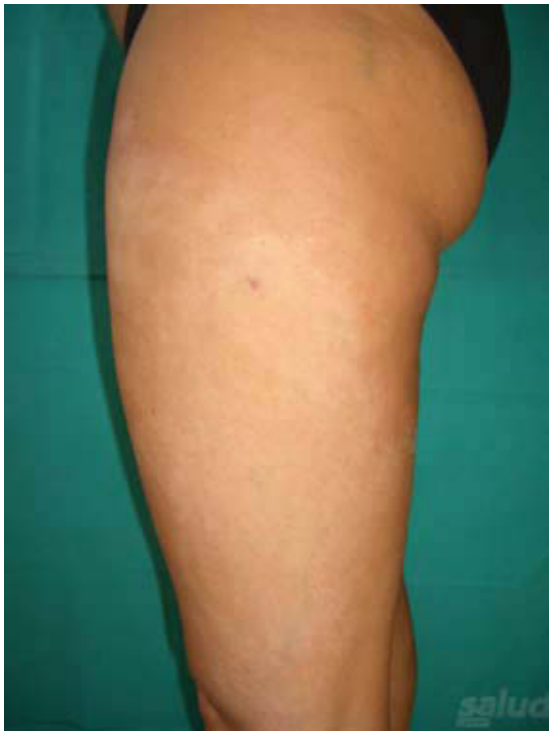

Figure 3 Hypopigmented residual lesions on the patient's thighs 2 days postpartum.

lesions recurred, but cleared rapidly. One month later, the lesions had disappeared completely and at follow-up 8 months later, the patient remained asymptomatic.

EAC can occur at any time during life but it is most common in patients older than 50 years. It affects men and women equally and the lesions generally resolve within weeks when the trigger is eliminated. The most commonly affected sites are the buttocks, the thighs, and the upper arms.

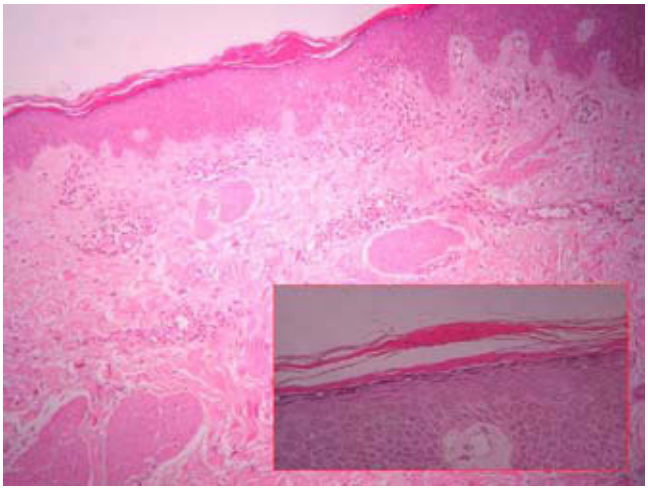

Figure 2 Superficial perivascular infiltrate with foci of epidermal spongiosis and parakeratosis (hematoxilin-eosin, original magnification, ×40).

EAC is currently considered to be a skin reaction pattern with nonspecific histology, as in its original description.[4] Classically, it was categorized as either superficial or deep. According to Ziemer et al,[5] the term EAC should only be used to refer to the superficial variant. According to those authors, clinical and histologic differential diagnosis should include 3 groups of disease: *a)* lupus erythematosus tumidus; *b)* spongiotic dermatitis (subacute or chronic) and severe forms of pityriasis rosea or stasis dermatitis; and, less frequently *c)* pseudolymphoma, particularly in association with *Borrelia* infection.

Other conditions that should also be considered in the differential diagnosis include diseases characterized by erythematous annular lesions such as pityriasis rosea, tinea corporis, subacute cutaneous lupus erythematosus, seborrheic dermatitis, pustular psoriasis, granuloma annulare, syphilis, and linear immunoglobulin A dermatosis. When EAC is detected in pregnancy, as occurred in our case, the differential diagnosis should also include all eczematous eruptions that come under the umbrella of atopic eruption of pregnancy. These dermatoses are early-onset diseases (occurring in the first and second terms of pregnancy) and include prurigo gestationis (Besnier prurigo), Nurse early prurigo of pregnancy, papular dermatitis of pregnancy, and pruritic folliculitis of pregnancy. All of these conditions have nonspecific histologic features and findings that overlap with those observed in our patient.[6]

It is believed that EAC may be a hypersensitivity reaction to different antigens. Among the triggers that have been suggested are tinea pedis, candidiasis, molluscum

Table 1 Summary of Published Reports of Erythema Annulare Centrifugum in Pregnancy

Publication	Patient Age, y	Week of Pregnancy at Onset of Lesions	Treatment	Disappearance of Lesions
Choonakarn et al[1]	27	33 (first pregnancy)	Unknown	3 days postpartum
Rosina et al[2]	28	31 (first pregnancy)	Vaseline	Gradually in first month postpartum
Dogan[3]	28	12 (first pregnancy)	Low-potency topical corticosteroid	36th week of pregnancy
Present case	34	12 (first pregnancy)	Low-potency topical corticosteroid	3 days postpartum

contagiosum, Epstein-Barr virus, and parasites. EAC has also been associated, albeit less frequently, with drugs (eg, diuretics, antimalarials, and gold salts), food consumption, rheumatic disorders, sarcoidosis, liver disease, neoplasms (eg, lymphomas), endocrine disorders, and pregnancy.[7]

The main treatment strategy consists of eliminating the trigger and using topical corticosteroids.

Our review of the literature of EAC in pregnancy revealed just 3 cases that followed the same course as in our patient, ie, with immediate resolution of lesions postpartum (Table 1). There is evidence that the menstrual cycle and estrogenic substances may act as triggers. Dogan[3] was the first to establish a causal link between EAC onset and human chorionic gonadotropin hormone, whose levels peak in the 12th week of pregnancy. This hormone might also explain the lesions in our case given that they appeared when the patient was 12 weeks' pregnant. One particularly noteworthy observation in our study, not previously reported, was the fact that the lesions returned when, as it is known colloquially, the mother's milk came in. When this happens, the breasts become very distended and the suckling of the infant on the nipples stimulates the release of oxytocin and prolactin, 2 key hormones that regulate the onset of lactation.

As has occurred in other dermatoses of pregnancy, the reporting of new cases of EAC in pregnant women may help to shed light on the role played by hormonal and immunologic changes in the onset of lesions.

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