SKIN

SHORT COMMUNICATION

A Rare Case of Early Pregnancy-Associated Erythema Annulare Centrifugum in a Low-Resource Setting

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INTRODUCTION

Erythema annulare centrifugum (EAC) is a reactive inflammatory dermatosis characterized by multiple, pruritic annular plaques that often resolve spontaneously.[1] EAC is putatively caused by hypersensitivity to medications, foods, infections, malignancies, stress, and arthropod bites; however, in many cases, a participating factor is not identified.[2] We present a pregnant woman who was diagnosed with EAC seen by our dermatology team during a short-term brigade in Tegucigalpa, Honduras.

CASE REPORT

A healthy 28-year-old woman (gravida-1, para-1) presented to the Urban Clinic in Tegucigalpa with a recurring pruritic rash of seven years. She first reported that the rash involved both hands, lower limbs, and thighs. At this time, she was diagnosed with allergic contact dermatitis from cleaning products and treated with topical steroids and antihistamines for 1 year without improvement. Three years later, her symptoms worsened during her first pregnancy. Her lesions had an annular shape, an expanding boarder, a clearing center and were pruritic. The wide differential diagnosis at this time included other reactive dermatoses like granuloma annulare, fungal infections like tinea corporis, and viral causes like pityriasis rosea. However, based on the characteristic physical features of the lesions, their variable distribution, their persistent recurrence, and a lack of concurrent systemic symptoms, she was diagnosed with EAC. She received treatment with topical antifungals and topical steroids for six months without improvement. Over the next three years, she experienced partial resolution and recurrence of the rash with no clear associated factors, until starting oral contraceptive pills (OCPs) over the course of a month and experiencing worsening of the lesions. At that time, following a negative KOH prep, she was prescribed clobetasol .05% for four months without improvement.

She presented to our dermatology brigade with worsening pruritus and an increased number of scaly patches (**Figure 1**). On physical examination, she had numerous (1-8cm) well-defined tan to pink annular patches with a peripheral, fine, white scale on her

thighs, chest, and back. She denied changes in environmental factors or medications; therefore, a participating factor to cause rash flares was not identified, and an otherwise negative review of systems and lack of alarm symptoms decreased concern for other causes such as paraneoplastic processes. Consequently, upon remembering that her lesions worsened prior to her first pregnancy, the patient took a pregnancy test which was positive despite one month of OCPs. At 16 weeks, ultrasonographic confirmation of pregnancy dated conception to coincide with the month of EAC recurrence and the patient elected not to pursue other treatment. This was the last time that the patient was seen and has not otherwise received any follow-up care at the practice.

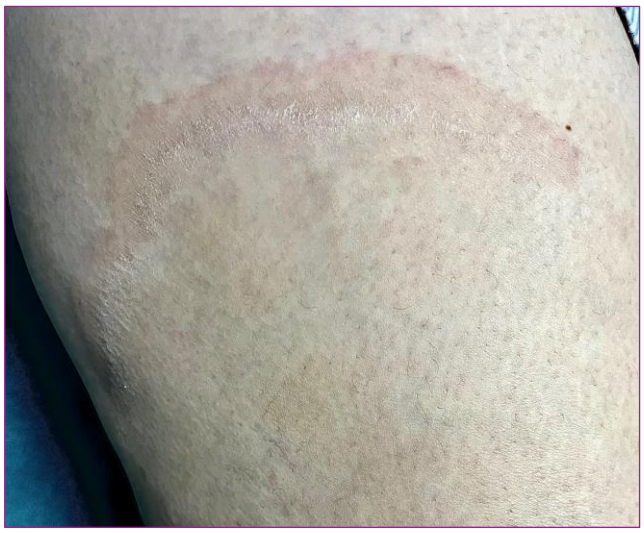

Figure 1. A pink, annular 8 cm patch on the thigh with a peripheral, fine, white scale and central clearing upon presentation at the Dermatology Brigade in Tegucigalpa, Honduras.

DISCUSSION

Given the myriad causes that can contribute to its etiology, EAC has been reported worldwide and is not thought to be specific to any particular geographic region. However, to the author's knowledge this is the first reported case of EAC in Central America. This underscores the underrepresentation of dermatologic conditions in resource-limited settings, as well as the importance of the ability to recognize EAC based on clinical findings alone and treat appropriately with limited options. Treatment of an underlying causative agent, such as bacterial or fungal causes with appropriate antimicrobial therapy, can most directly alleviate manifestations of disease; in many cases such as ours, the cause may be idiopathic. Therefore, topical or systemic corticosteroids can be used in mild/moderate and more severe/widespread cases, respectively, in order to reduce symptoms of inflammation and alleviate itching. Oral antihistamines or immunosuppressants can also relieve pruritis and may be particularly useful if an allergic or autoimmune reaction is suspected. EAC can therefore be managed in these low-resource settings based on availability of therapeutics and clinical presentation.

While EAC is more commonly associated with medications, infections, and allergies, associations with pregnancy that improve postpartum have been reported (**Table 1**). A 21-year-old woman experienced asymptomatic EAC of the trunk and extremities that resolved by week 4 of two consecutive pregnancies, abruptly reoccurred on the first day postpartum, and did not resolve for an additional three years.[4] All other previously reported cases of EAC suggest that lesion onset occurs between weeks 12-33 of pregnancy in a nulliparous woman with regression in the postpartum period.[4] In contrast, our patient developed EAC worsening during two pregnancies, with an earlier onset (weeks 1-4) and postpartum improvement.

One proposed mechanism for the pathogenesis of EAC is a delayed-type hypersensitivity reaction, in which an antigenic stimulus triggers an immune

Table 1. Reported cases of EAC associated with pregnancy and related patient history, disease presentation, and timeline.

Case	Age	Localization	Prior History of Rash (Y/N)	Onset of Disease State	Resolution	Reappearance postpartum (Y/N)	Author
1	28	Arms, legs	N	Week 32, pregnancy	Week 1, postpartum	N	Rosina et al.[7]
2	34	Legs	N	Week 32, pregnancy	Week 1, postpartum	N	Chiang et al.[3]
3	28	Back, arms, legs	N	Week 12, pregnancy	Week 36, pregnancy	N	Dogan[5]
4	21	Back, trunk, thighs, arms, legs	Y	Prior to first pregnancy	Week 4, pregnancy	Y	Ozkaya et al.[4]
5	28	Abdomen, legs	N	Week 26, pregnancy	Week 33, pregnancy	N	Senel et al.[8]
6	28	Back, chest, hands, arms, legs	Y	*Prior to both pregnancies and worsened at the start	*Diminished after both pregnancies and eventually resolved	Y	Jaklitsch et al.

response. This immune response involves T lymphocytes and cytokines, leading to local inflammation. The antigen responsible for initiating the immune response in EAC is often unknown, but infection, environmental triggers, and immune dysregulation are all known to be instigating factors. Prior studies have even suggested that human chorionic gonadotropin (hCG) may contribute to this response in pregnancy associated EAC, since its production begins at implantation and peaks at week 12.[5] In our case, increased levels of hCG or higher patient sensitivity immediately following implantation could have contributed to worsening symptoms in this novel early presentation.

Additionally, this dermatologic care relied on clinical acumen and patient history. In low-resource settings like Honduras, biopsies are not standard of care due to high out-of-pocket costs and limited supplies. This report expands upon under-represented global skin disease in mainstream dermatology education, exemplifying care outside of resource-rich settings.[6]

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