***no patient handout*

Erythema annulare centrifugum

Synopsis

Erythema annulare centrifugum (EAC) is a figurate erythema that has been postulated to be a hypersensitivity reaction to a foreign antigen. While infections, drugs, underlying systemic disease, malignancy, pregnancy, and blue cheese ingestion have occasionally been associated with EAC, in most cases, an etiologic agent is not identified.

EAC can occur at any age but tends to affect young or middle-aged adults. There is no gender or racial predilection. Idiopathic EAC is typically self-limited and spontaneous resolution is common. However, new lesions may continue to erupt while old lesions resolve.

In the superficial form of EAC, arcuate or annular plaques with a "trailing edge" of scale are seen on the trunk and proximal extremities. In the deeper form, also known as deep gyrate erythema, no scale is seen.

EAC may be asymptomatic or may be accompanied by pruritus.

While most cases of EAC are idiopathic, a number of agents have been reported to cause EAC-like lesions including piroxicam, penicillins, chloroquine and hydroxychloroquine, hydrochlorothiazide, spironolactone, cimetidine, phenolphthalein, amitriptyline, hydrochlorothiazide, salicylates, ustekinumab, rituximab, pegylated interferon alpha / ribavirin combination therapy, azacitidine, and anti-thymocyte globulin.

EAC in the setting of an underlying malignancy has been described in patients with lymphoproliferative malignancies (polycythemia vera, acute leukemia, chronic lymphocytic leukemia, Hodgkin lymphoma, non-Hodgkin lymphoma, multiple myeloma, myelodysplastic syndrome, histiocytosis), breast cancer, gastrointestinal cancer, lung cancer, prostate cancer, nasopharyngeal cancer, carcinoid tumor of the bronchus, and peritoneal cancer. The eruption may precede the diagnosis of occult malignancy.

Reported systemic disease associations include systemic lupus erythematosus, cryoglobulinemia, polychondritis, linear IgA disease, sarcoidosis, hypereosinophilic syndrome, hyperthyroidism, Hashimoto thyroiditis, Graves disease, and pemphigus vulgaris. Finally, infectious etiologies may include bacterial, viral, parasitic, and fungal agents.

Codes

ICD10CM:
L53.1 – Erythema annulare centrifugum

SNOMEDCT:
399914006 – Erythema annulare centrifugum

Look For

Superficial EAC is more common and presents with single or multiple erythematous papules (may also appear urticarial) that advance peripherally by millimeters per day to form arcuate or annular plaques with central clearing and faint brownish pigmentation. The ring may have a trailing scale behind the advancing edge.

Deep EAC (or deep gyrate erythema) presents with more infiltrated nonpruritic annular plaques without scale.

EAC lesions are slow moving.

Sites of predilection include the trunk and proximal extremities, especially the buttocks, hips, and upper legs.

Diagnostic Pearls

Most EAC lesions are not pruritic.

Look for the diagnostic "trailing edge" of scale in superficial EAC.

Lesions developing deeper in the dermis (deep gyrate erythema) may not have evidence of scale inside the active border.

Differential Diagnosis & Pitfalls

The differential includes other figurate erythemas:

- Erythema migrans (marker of **Lyme disease**)
- **Erythema marginatum** (rheumatic fever)
- **Erythema gyratum repens** (faster moving)
- Necrolytic migratory erythema (associated with **glucagonomas**)

Also consider:

- **Pityriasis rosea**
- Annular **urticaria**
- **Urticaria multiforme**
- Urticarial phase of **bullous pemphigoid**
- **Erythema multiforme**

- **Tinea corporis**
- **Psoriasis**
- **Tumid lupus erythematosus**
- **Subacute cutaneous lupus erythematosus**
- **Granuloma annulare**
- **Secondary syphilis**
- **Leprosy**
- **Sarcoidosis**
- **Mycosis fungoides**

Best Tests

EAC is usually a clinical diagnosis but biopsy can be helpful to rule out other dermatoses in the differential diagnosis. Before biopsy, rule out a fungal infection by performing a potassium hydroxide (KOH) examination of the lesion.

Histopathology Findings:
Common features

- Parakeratosis and spongiosis corresponding to the advancing edge of the lesion
- Densely packed superficial perivascular lymphocytic infiltrate ("coat-sleeve" pattern)

Occasional features

- Perivascular eosinophils alongside lymphocytes
- Deep variant shows superficial and deep perivascular lymphocytic infiltrate without epidermal change

Perform a thorough history, including review of symptoms, and physical examination to evaluate for signs and symptoms of systemic disorder. Identify any temporal relationship between the eruption of skin lesions and medication use. Consider age-appropriate screening for occult malignancy.

Management Pearls

Identification and treatment of the underlying condition or infection may lead to resolution of EAC.

Withdrawal of the culprit medication is helpful in drug-induced EAC.

Therapy

Topical steroids seem to be of little benefit. Antihistamines may be warranted for symptom suppression. Systemic corticosteroids suppress EAC, but relapse is common. PUVA therapy (2-3 times per week), topical tacrolimus, and calcipotriene have been helpful in managing some patients.

The empiric use of topical antidermatophyte, anticandidal, and/or antibacterial agents has been suggested by some.

Drug Reaction Data

Below is a list of drugs with literature evidence indicating an adverse association with this diagnosis. The list is continually updated through ongoing research and new medication approvals. Click on Citations to sort by number of citations or click on Medication to sort the medications alphabetically.

Medication	Citations
5 alpha-reductase inhibitor	2
amitriptyline	3
ampicillin	2
ampicillin + sulbactam	1
Antifungal	1
Antihistamine	1
Antimalarials	2

Medication	Citations
Antimetabolite	1
Antimicrobial	3
Antiparasitic	1
Antiviral	3
Anxiolytic	1
azacitidine	1
benzodiazepine	2
chloroquine	2
cimetidine	3
Diuretic	5
etizolam	2
finasteride	2
Histamine H2 antagonist	2

Medication	Citations
hydrochlorothiazide	4
hydroxychloroquine	3
interferon	3
lenalidomide	1
Monoclonal antibody	3
NSAID	2
penicillin antibiotic class	2
piroxicam	2
ribavirin	3
rituximab	2
Salicylates	2
spironolactone	4
sulfamethoxazole + trimethoprim	1

Medication	Citations
sulfonamide	1
terbinafine	1
Therapeutic gold & gold compounds exposure	1
thiacetazone	1
Tricyclic antidepressant	2
ustekinumab	2