Erythema Annulare Centrifugum

Synonyms: erythema gyratum perstans, erythema exudativum perstans, erythema marginatum perstans, erythema perstans, erythema figuratum perstans, erythema microgyratum perstans, erythema simplex gyratum

Description\textsuperscript{[1,2]}

This was first described by Darier in 1916 and the aetiology and classification are still controversial. There seem to be both a superficial and a deep type and the term is often used to cover both. It is a figurate or gyrate erythema believed commonly to be due to a hypersensitivity reaction to a possible wide range of stimuli. The condition may be linked to underlying disease. In the case of malignancy, it can present up to two years before diagnosis.

Aetiology\textsuperscript{[3]}

- Drugs are implicated. It is most commonly associated with the antimalarial chloroquine/hydroxychloroquine, cimetidine, spironolactone, gold, salicylates, proxicam, penicillin and amitriptyline. Cases have been reported in association with finasteride.\textsuperscript{[4,5,6]}
- Infections of many types, including tuberculosis (TB), \textit{Escherichia coli} and the fungi (\textit{Trichophyton} spp., tinea pedis, \textit{Pityrosporum orbiculare/Malassezia furfur}), are associated, as is \textit{Candida albicans}. Parasites including \textit{Ascaris lumbricoides} are also associated. It has also been reported in association with Epstein-Barr virus (EBV).
- Food allergy, especially blue cheese and tomatoes.
- Insect bites.
- Malignancy, especially lymphoma but also many others, including squamous cell carcinoma, some types of leukaemia, breast cancer and prostate cancer.
- It has been associated with thyroid overactivity.
- It may be associated with pregnancy.\textsuperscript{[7]}
- Some cases have been attributed to a familial form.
- An annually recurring form has been described.\textsuperscript{[8]}
- Other causes include:
  - Recurrent acute appendicitis
  - Sarcoïdosis
  - Osteoarthritis
  - Cholestatic liver disease
  - Graves' disease
  - Menstruation
  - Hypereosinophilic syndrome
  - Sjögren's syndrome

  Most often, no cause is found.

Epidemiology\textsuperscript{[9]}

It is rare with an estimated incidence of 1 in 100,000 population per year. It can occur at any age and the sex incidence is equal. It is a reflection of its rarity that much of the literature is case reports rather than series or randomised controlled trials.

History

- The lesion may be asymptomatic or there may be pruritus.
- There may be symptoms - such as night sweats, fever and chills - of underlying diseases (eg, Hodgkin's lymphoma or TB).
- It may predate the diagnosis of malignancy by two years or more but it can also occur with or after the diagnosis.
- A new drug may have been introduced.

Examination

Skin

- The primary lesion begins as an erythematous papule that spreads peripherally while clearing centrally. These lesions enlarge at a rate of approximately 2-5 mm per day to produce annular, arcuate, figurate, circinate or polycyclic plaques.
- The margin, which is usually indurated, varies in width from 4-6 mm and, often, a trailing scale is present on the inner aspect of the advancing edge. The diameter of the polycyclic lesions varies from a few to several centimetres. There may be vesication.
- The lesions tend to be on the thighs or legs but they may occur anywhere, except on the palms and the soles.
- The colour of lesions is pink to red with central clear areas. Occasionally, residual hyperpigmentation of dull red, brown or violet is present.
Nails
The toenails may show white bands.

Lymph nodes
Lymphadenopathy may occur in association with infection, malignancy or autoimmune processes.

Thyroid
The thyroid should be palpated for enlargement or nodules, as overactivity has been associated with the lesion.

Chest
TB, lymphoma, sarcoidosis and malignant bronchial carcinoid have been associated with the disease.

Abdomen
The abdomen should be examined for tenderness, masses, or hepatosplenomegaly. These may represent liver disease, lymphoma or pregnancy associated with erythema annulare centrifugum (EAC).

Differential diagnosis
- Subacute cutaneous lupus erythematosus.
- Sarcoidosis.
- Cutaneous T-cell lymphoma.
- Erythema gyratum repens.
- Erythema migrans.
- Granuloma faciale.

Investigations
- Examine a sample of skin in potassium hydroxide for fungal hyphae.
- FBC, erythrocyte sedimentation rate (ESR) and CXR may be useful in excluding malignancy.
- Lyme antibody titre to exclude erythema migrans may be appropriate.
- Hyperbilirubinaemia and elevated transaminase levels may be found.
- Tests for TB, intestinal parasites and a urine test for pregnancy should also be considered if clinically appropriate.

Management
- Exclude or treat any underlying disorder.
- Withdraw or change any offending drug.
- The condition is usually self-limiting. Topical steroids will alleviate symptoms but will not prevent the appearance of new lesions.
- Systemic or injection of steroid is effective but the lesions recur once treatment is stopped.
- Isolated reports of successful treatment for unremitting cases have been reported in the literature. Drugs tried have included hyaluronic acid, calcipotriol, metronidazole and etanercept.
- This is a rare condition that may imply a serious underlying disease. If in doubt, refer to a dermatologist.

Complications
There are usually no complications unless from an underlying disease.

Prognosis
If there is no underlying disease, the prognosis is excellent. It lasts on average 11 months but can be much shorter or recur over many years. It often resolves with effective treatment of any underlying disorder. If associated with pregnancy, it resolves soon after delivery.[7] If associated with malignancy, the prognosis depends on that of the malignancy.

Further reading & references
- Willard RJ et al; Erythema Annulare Centrifugum, Medscape, Sep 2014
- Lawrence C et al; Global Dermatology: Diagnosis and Management According to Geography, Climate, and Culture, 2012.

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