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Ring-like lesions on the hand

A case study

Keywords

general practice; skin diseases

Case study

Pat, 55 years of age, is a librarian. She presented with a 5 month history of multiple red, ring-like lesions on her hands, elbows and the back of her knees. Her husband died 10 months ago from disseminated cancer. Pat was left with a farm to run, which included the care of horses and cattle. Pat was previously well with no medications and no known allergies. However, her bereavement led to insomnia and mild depression, which was treated with citalopram. Two weeks after commencing citalopram, Pat developed the rash. The rash was not painful but was sometimes itchy and worse with sweating. She did not notice any other systemic symptoms such as tiredness or weight loss.

On examination, the rings measured 1.0–2.5 cm with well-defined, raised and erythematous margins, mostly on the dorsum of her hands and near the olecranon of both elbows (*Figure 1*). There were also multiple erythematous papules at the popliteal fossae. The lesions did not blanch with pressure and there were no scales when scratched with a wooden spatula. Pat was embarrassed by the rash, and said that people tried to avoid contact with her when they noticed the lesions.

Question 1

What are the differential diagnoses and why?

Question 2

Results of skin scrapings for fungal hyphae are not diagnostic. You empirically prescribe a topical antifungal cream twice daily for 4 weeks but there is no improvement. What do you do next?



Figure 1. Ringed lesions with raised margins on dorsum of hands

Question 3

Pat uses some of her husband's high potency steroid cream, which led to a dramatic improvement. What is the most likely diagnosis?

Question 4

What is the most appropriate management and prognosis?

Answer 1

The differential diagnoses of annular skin lesions include tinea corporis, a fixed drug eruption, granuloma annulare, erythema multiforme and erythema chronicum migrans.

Pat's contact with farm animals and soil may support the diagnosis of tinea corporis. Fixed drug reaction is possible with her recent use of citalopram. Granuloma annulare can mimic tinea corporis, with similar lesions that are sometimes clinically indistinguishable. Erythema multiforme typically presents with multiple annular lesions of variable sizes with erythematous margins and centres which classically resemble targets. Mucosal involvement is common and the patient is often quite ill. Erythema chronicum migrans presents with a solitary oval or quasi-annular erythematous rash with constantly extending margination and possible central clearing. It is due to acute infection with *Borrelia burgdorferi*

bacteria from the bite of an Ixodes tick. Patients are usually systemically unwell.

Answer 2

Skin biopsy to confirm a diagnosis. Also consider changing citalopram to another class of antidepressant.

Answer 3

Granuloma annulare is the most likely diagnosis; a very potent topical corticosteroid can result in regression of both granuloma annulare and tinea corporis. However, in tinea corporis the lesions will often flare-up during or after a course of steroid treatment, which leads to a complicated form of tinea called 'tinea incognita'. For granuloma annulare, clinical improvement with potent corticosteroids has been described.¹

Answer 4

The skin lesions were causing Pat stress and stigmatisation and she requested treatment to expedite recovery. After considering the pharmacological options described for granuloma annulare,¹ Pat was prescribed a combination of potent topical corticosteroid creams with a 6 month course of oral dapsone.

On review after 3 months, the annular lesions were almost completely resolved (*Figure 2*).

Discussion

Granuloma annulare is a benign skin condition commonly diagnosed before 30 years of age, with a female-to-male prevalence ratio of 2.3 to 1.² It can be subdivided into four clinical forms: localised, disseminated, subcutaneous and perforating. The localised and disseminated forms are the most common.² The aetiology is unknown.

Associations with diabetes mellitus, viral infections such as human immunodeficiency virus (HIV) and Epstein-Barr virus (EBV) and lymphoma have been reported.^{1,2} Clinically, granuloma annulare presents as erythematous annular, semi-annular, papular or plaque lesions with central clearing. The lesions may be solitary or may number in the hundreds with a preferred distribution over trunk and limbs. They can be mildly pruritic and may progressively enlarge.

Histologically, it is characterised by layers of granulomas formed by histiocytes and epitheloid cells surrounding necrobiotic collagen bundles.³



Figure 2. The annular lesions after 3 months treatment with topical corticosteroids and oral dapsone

Very rarely the subcutaneous variant of granuloma annulare can present on the penis,^{4,5} with 10 cases reported in the medical literature.^{6,7}

Granuloma annulare is usually self limiting and resolves without treatment within 6–24 months.⁸ For the localised form of granuloma annulare, reassurance is often adequate. For more widespread and complicated lesions, various pharmacological treatments have been described including potent corticosteroid cream, cryotherapy, psoralen and ultraviolet A therapy, dapsone, infliximab, calcineurin inhibitors¹ and a combination of rifampicin, ofloxacin and minocycline.⁹ Intra-lesional injection of steroids^{10,11} and interferon¹² may also bring about resolution. Surgical removal is an option for nodular lesions of the subcutaneous variant of granuloma annulare.^{7,13}

Key points

- Annular skin rash is a common condition seen in general practice, with tinea infection the most likely diagnosis.
- Poor response to antifungal treatment should prompt consideration of alternative diagnoses including granuloma annulare.
- Clinically, tinea infections may be difficult to distinguish from granuloma annulare and skin biopsy remains the definitive diagnostic procedure.
- Watchful waiting and reassurance is sufficient for localised granuloma annulare. For widespread and more complicated involvement, various pharmacological options are available with no consensus for best evidenced treatment. Topical corticosteroids and oral dapsone can be considered as first line treatment when indicated.

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References

1. Gupta D, Hess B. Granuloma annulare. *Scientific World Journal* 2010;10:384–6.
2. Cyr PR. Diagnosis and management of granuloma annulare. *Am Fam Physician* 2006;74:1729–34.
3. Arnold HL, Odom RB. *Andrew's diseases of the skin: clinical dermatology*, 8th edn. Philadelphia, Pennsylvania: WB Saunders Co., 1990.
4. Suarez Penaranda JM, Aliste C. Granuloma annulare of the penis: a uncommon location for an usual disease. *Am J Dermatopathol* 2011;33:e44–6.
5. Trap R, Wiebe B. Granuloma annulare localized to the shaft of the penis. *Scand J Urol Nephrol* 1993;27:549–51.
6. Floyd MS, Jr., Kokai G, McAndrew HF. Granuloma annulare of the penis in a seven-year-old boy. *Scand J Urol Nephrol* 2011;45:77–9.
7. Forman SB, Sumfest JM, Pride HB, Ferringer TC. Penile granuloma annulare of an adolescent male – case report and review of the literature. *Pediatr Dermatol* 2008;25:260–2.
8. Barron DF, Cootauco MH, Cohen BA. Granuloma annulare. A clinical review. *Lippincott's Prim Care Pract* 1997;1:33–9.
9. Marcus DV, Mahmoud BH, Hamzavi IH. Granuloma annulare treated with rifampin, ofloxacin, and minocycline combination therapy. *Arch Dermatol* 2009;145:787–9.
10. Seif-El-Nasr H, El-Komy HM. Granuloma annulare. Report of a case treated successfully by intralesional triamcinolone injection. *J Egypt Med Assoc* 1962;45:105–6.
11. Palamaras I, Kench P, Thomson P, Al-Dulaimi AH, Stevens HP, Robles W. An unusual presentation of a common disease. *Dermatol Online J* 2008;14:4.
12. Baba T, Hoshino M, Uyeno K. Resolution of cutaneous lesions of granuloma annulare by intralesional injection of human fibroblast interferon. *Arch Dermatol* 1988;124:1015–6.
13. Narouz N, Allan PS, Wade AH. Penile granuloma annulare. *Sex Transm Infect* 1999;75:186–7.

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