Tinea cutis glabrae: causes of diagnostic challenge

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Abstract

Dermatophytoses belong to the most common disease entities encountered in everyday dermatological practice. Despite the fact that their clinical presentation, course and treatment response remain rather typical, they often present a considerable diagnostic and therapeutic challenge. We present a case of a 54-year-old male who presented to the outpatient clinic of the Department of Dermatology in December 2012 with the diagnosis of erythema gyratum repens for further diagnosis and treatment of skin lesions gradually intensifying in the previous 2 years. The skin changes presented as spreading annular erythematous lesions, with papules and plaques located peripherally, and accompanying pruritus. Due to the clinical presentation and anamnesis, working conditions (poultry farm), and lack of response to previous treatment, mycological culture was performed. Epithelial scrapings of the trunk and the groins proved to be positive. After 3 weeks, Trichophyton mentagrophytes var mentagrophytes was identified by epithelial cell culture.

Key words: tinea, tinea cutis glabrae, dermatophytes.

Introduction

Superficial mycoses are caused mostly by dermatophytes and constitute the main cause of fungal infections in humans. Dermatophytes include three types of fungi *Trichophyton, Epidermophyton* and *Microsporum*, with common ability to grow in the cornified layer of the epithelium (stratum corneum) and its appendages. Depending on their ecologic habitat, dermatophytes can be classified as anthropophilic, zoophilic and geophilic species. As far as pathogens responsible for the development of lesions in humans are concerned, anthropophilic species are dominant (over 70% of all infections), followed by zoophilic and geophilic ones, although the latter are extremely rare. *Trichophyton rubrum* and *T. mentagrophytes* are the most common dermatophytes isolated from cutaneous lesions [1–5].

Tinea cutis glabrae is characterized by well-demarcated erythematous lesions with desquamation, peripheral activity with the presence of papules, bullae, and purulent lesions. The changes are numerous and spread centrifugally, assuming an annular shape with an area of central clearing. Zoophilic species tend to produce more intense inflammation and the skin infiltration is not confined to the peripheral rim but rather the entire area of the lesion. The localization is connected with exposure to dermatophytes and most often involves the skin of the face, neck and extremities. Active lesions in animals or humans are usually the primary source of infection. Also, it is possible for a recurrent infection to spread. The skin changes are usually accompanied by pruritus, varying in intensity [3–8].

Despite the fact that dermatophytoses belong to the most common disease entities encountered in everyday dermatological practice, and have a rather typical clinical presentation, course and treatment response, they often present a considerable diagnostic and therapeutic challenge.

We present a case of a 54-year-old male with the diagnosis of erythema gyratum repens (EGR), treated for over 2 years with, among others, general glucocorticosteroids and antibiotics.

Case report

A 54-year-old male presented to the outpatient clinic of the Department of Dermatology, Poznan University of Medical Sciences, on 20 December 2012 for further diagnosis and treatment of skin lesions gradually intensifying

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in the previous 2 years. Considerable exacerbation of the skin changes was observed 2 months before. The lesions were localized on the skin of the back (approximately 70% of the surface), upper extremities, neck, right groin, and the perianal region. They present as multiple spreading annular erythematous lesions, with papules and plaques located peripherally (Figures 1 A–C). They were spreading peripherally and were accompanied by intense pruritus. The patient did not report any other complaints, concomitant diseases or use of any medication.

Approximately 2 years before, the patient had initially been treated with oral antibiotics (doxycycline). Due to no clinical improvement and gradual spreading of the cutaneous lesions, methylprednisolone was initiated in fractional doses of 32/16 mg/day, with a clinical suspicion of disseminated eczema. The treatment lasted for approximately 6 months and also failed to improve the patient condition.

At the end of 2012, the patient was referred to the outpatient clinic of the Department of Dermatology with the diagnosis of EGR. Taking into consideration his clinical history, working environment (poultry farm), lack of treatment response, mycological culture was immediately performed. Epithelial scrapings of the trunk and groins proved to be positive. The Wood's lamp examination was negative. After 3 weeks, Trichophyton mentagrophytes var mentagrophytes was identified by epithelial cell culture grown on Sabouraud medium at 25°C. Laboratory results were normal, with an exception of slight leukocytosis. Itraconazole (initially at the dose of 2 × 100mg/day for 14 days, followed by the dose of 100 mg 2 × 2 tab. for 7 days after the result of the mycological culture), antihistamines, and external treatment (antifungal preparations, initially with glucocorticosteroids) were started and resulted in significant improvement of the patient's dermatological condition just after 4 weeks of therapy (Figure 2).

Due to the positive result of control mycological culture from persistent skin changes, itraconazole was re-started, resulting in complete remission of skin lesions and a negative result for mycological culture (Figure 3).

Discussion

Despite improving working conditions, antifungal prevention and growing awareness of the risk for fungal infections among doctors as well as patients, a steady growth of fungal infections has been noted. According to epidemiological data, they affect from 10% to 40% of the population, most often involving the skin and its appendages [1, 5].

Predisposing factors for fungal infections may be divided into internal and external ones. The former include factors such as the compromised immune system, lowered granulocyte activity, or abnormal T4/T8 lymphocyte ratio, endocrinopathies and diabetes. People with atopic dermatitis are at a particularly high risk of dermatophyte infections. The acquired factors comprise injuries, peripheral artery diseases and collagenoses. Students, people who travel often or use sun beds are at an increased risk of infection. Also, intensive development of transplant surgery, cardiac surgery and intensive medical care, as well as the introduction and common use of cytostatics, immunosuppressants, corticosteroids and wide-spectrum antibiotics, have contributed to a higher incidence of fungal infections. Men are more prone to fungal infections. Neonates and the elderly population (over 65 years of age) are at the highest risk of infection [1, 3, 5, 6, 9, 10].

External predisposing factors for fungal infections include humidity, high air temperature, increased human migration, improper clothing and socks, as well as lifestyle connected with the use of public sanitary facilities. A high incidence of fungal infections is noted among some occupational groups such as steelworkers, soldiers,

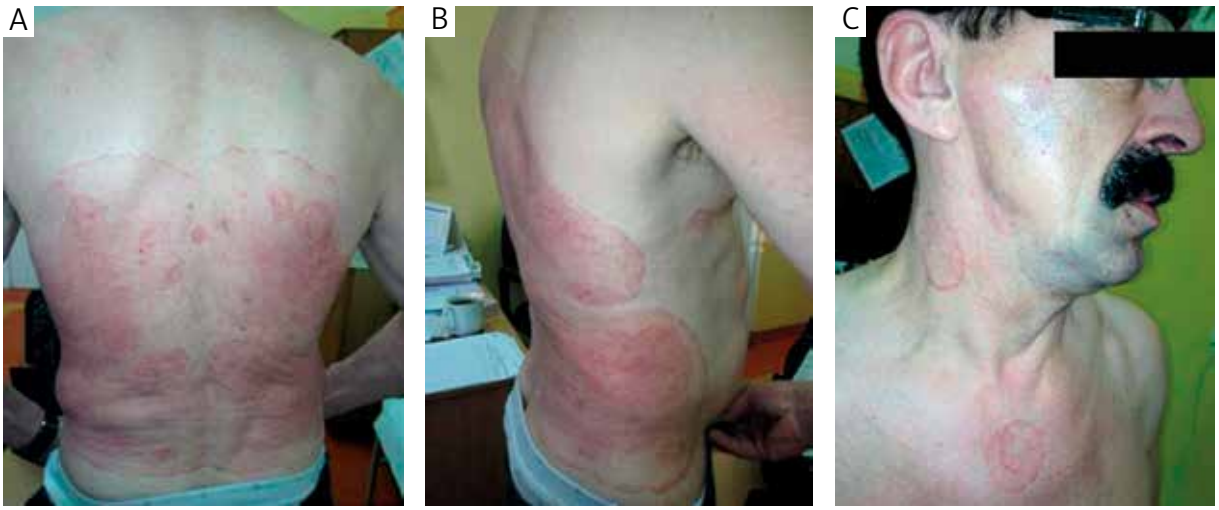

Figure 1 A–C. Dermatological condition of the patient upon presentation to our Dermatology Clinic

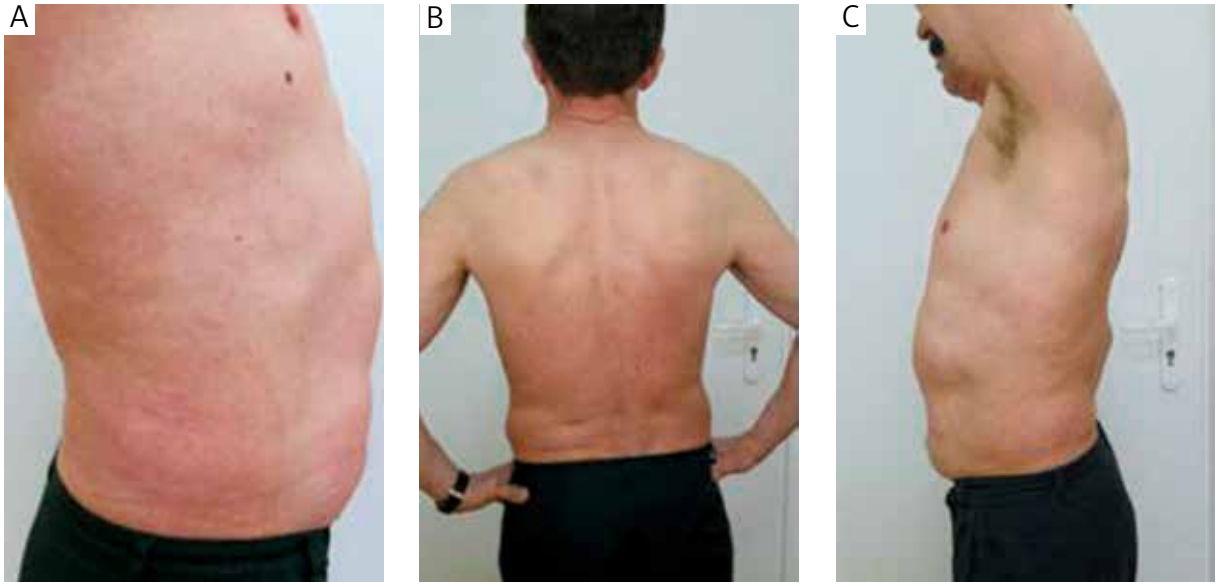

Figure 2 A–C. Dermatological condition of the patient 4 weeks after antifungal treatment

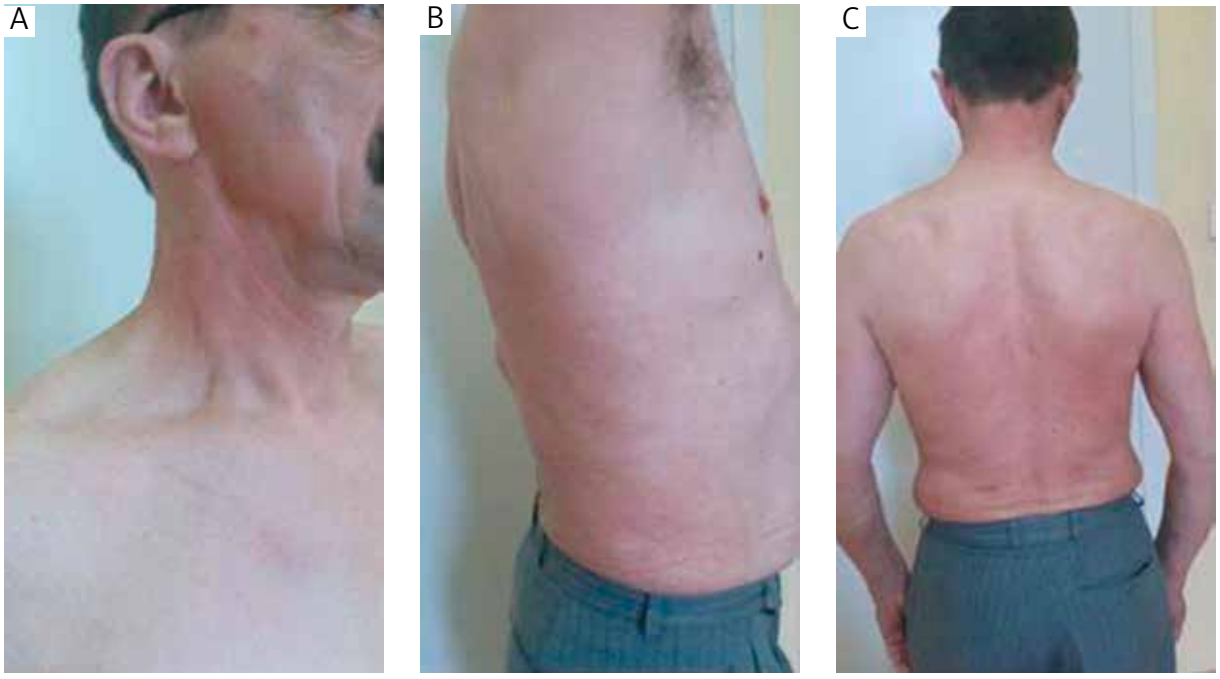

Figure 3 A–C. Dermatological condition of the patient after treatment completion

miners and athletes owing to their working conditions, the need to wear special footgear, plastic-derived fabrics, and frequent use of the same sanitary facilities by a great number of people. Fungal infections may also be triggered by improper diet, with an excessive intake of carbohydrates and vitamin deficiency [1, 3, 5, 6, 9, 10].

In the case of our patient, the working place, i.e. a poultry farm, seems to have been a predisposing factor, although no changes on the skin of the bird population were noted and reported there. The patient was referred to our Clinic with a suspicion of EGR but the diagnosis was doubtful from the very beginning. The patient presented in good overall condition, and the skin lesions had been developing for a lengthy period of time (over 6 months), contrary to EGR, in which case the changes typically develop rapidly. Also, the morphology of the skin lesions was different – massive erythematous infiltrations on the trunk and neck were concentric in nature,

but we observed a clearly active rim with small papules and bullae, without the presence of the typical of EGR wood-grain or zebra-like patterns [11, 12].

Differentiation of erythematous lesions with desquamation may constitute a serious clinical challenge. Thus, while analyzing patient's medical history, the overall condition, clinical presentation, morphology and dynamics of the developing changes, as well as response to treatment so far, it is essential to take into consideration a number of disease entities, among others: psoriasis, mycosis, pityriasis rosea, eczema microbicum, annular erythema, EGR, lichen planus, seborrheic eczema, pityriasis versicolor, or lichen simplex [7, 9, 11, 13, 14].

References

1. Baran E. Mycology – what's new? [Polish]. Cornetis, Wrocław 2008.
2. Panek E, Jankowski S. History and principles of classification of fungi. In: Outline medical mycology [Polish]. Baran E (ed.). Wydawnictwo Volumed, Wroclaw 1998; 13-20.
3. Szepietowski J, Reich A: Mycosis. In: Treatment of skin diseases and sexually transmitted diseases [Polish]. Szepietowski J, Reich A (eds.). Wydawnictwo Lekarskie PZWL, Warsaw 2008; 83-103.
4. Nockowski P, Plomer-Niezgoda E, Hryncewicz-Gwóźdź A. Tinea cutis glabrae originally diagnosed as atypical disseminated eczema [Polish]. Mikol Lek 2011; 18: 57-9.
5. Jakubowicz O, Żaba R. Mycosis. In: Psychological and medical aspectes of skin diseases [Polish]. Rzepa T, Szepietowski J, Żaba R (eds.). Wydawnictwo Cornetis, Wroclaw 2011; 243-51.
6. Sowiński W. Clinical forms of mycosis in humans. In: Mycosis and ways of fightig against it [Polish]. Kowszyk-Gindifer Z, Sobiczewski W (eds.). Państwowy Zakład Wydawnictw Lekarskich, Warsaw 1986; 107-256.
7. Burgdorf WHC, Plewig G, Wolff HH, Landthaler M. Mycosis. In: Dermatology [Polish]. Gliński W (ed.). Wydawnictwo Czelej, Lublin 2010; 211-46.
8. Uczniak S, Kaszuba A. Skin infection. In: Dermatology [Polish]. Kaszuba A, Adamski Z (eds). Wydawnictwo Czelej, Lublin 2012; 23-57.
9. Nowicki R. Dermatophytosis in practical. Fungal infections of the skin and nails. Basis for diagnosis and treatment [Polish]. Wydawnictwo Valeant, Warsaw 2013.
10. Macura AB. Risk factors for fungal infections. In: Outline medical mycology [Polish]. Baran E (ed.). Wydawnictwo Volumed, Wroclaw 1998; 289-95.
11. Espana A. Erythemas. In: Dermatology. Bolognia JL, Jorizzo J, Rapini RP (eds.). Elsevier, London 2003; 303-11.
12. Jabłońska S, Majewski S. Skin diseases and sexually transmitted diseases [Polish]. Wydawnictwo Lekarskie PZWL, Warsaw 2010.
13. Poonawalla T, Chen W, Duvic M. Mycosis fungoides with tinea pseudoimbricata owing to Trichophyton rubrum infection. J Cutan Med Surg 2006; 10: 52-6.
14. Olek-Hrab K, Osmola-Mańkowska A, Silny W, et al. Use of UVA1 in treatment of mycosis fungoides – case report. Postep Derm Alergol 2011; 28: 158-64.