Our Dermatology Online

Case Report

Miliaria pustulosa misdiagnosed as a case of acne vulgaris

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ABSTRACT

Miliaria is a skin disorder of eccrine glands. Based on the level of sweat duct obstruction, miliaria is subdivided into three main types: Miliaria crystallina, miliaria rubra and miliaria profunda. Besides, resident skin bacteria are thought to play a role in its pathogenesis. In this report we are presenting a case of miliaria pustulosa which was misdiagnosed initially as a case of acne vulgaris.

Key words: Miliaria; Eccrine gland; Sweat duct; Acne vulgaris

INTRODUCTION

Miliaria is a common skin disorder of eccrine glands. It is common in hot and humid climates such as in the tropics. Usually children and infants are more prone due to their underdeveloped sweat glands. Based on the level of sweat duct obstruction, miliaria is subdivided into three main types: Miliaria crystallina, miliaria rubra and miliaria profunda [1]. Resident skin bacteria, such as *Staphylococcus epidermidis* and *Staphylococcus aureus*, are thought to play a role in the pathogenesis of miliaria [2,3]. In this report we are presenting a case of miliaria pustulosa which was wrongly diagnosed for 6 months as a case of acne vulgaris. Mismanagement of such cases may rarely predispose the patient to severe complication due to the resulting anhidrosis.

Case Report

A 20 year-old Arabic male presented to our dermatology clinic with history of pruritic erythematous papular lesions affecting his chest, back and upper and lower extremities for the past 6 months (Fig. 1). The condition started during exercise at the gym and worsened after exposure to high temperature with profuse sweating. The patient discontinued going to the gym for 3 months during which the lesions disappeared completely without any treatment. Four weeks before presenation he started going to the gym and the condition recurred with more severe rash. His past medical history, family history and drug history was unremarkable. He was diagnosed in different private clinics as a case of acne vulgaris and treated with different topical and systemic antibiotics but with no response. On examination of the skin there was 1-2 mm non-follicular erythematous vesicles and pustules distributed over the chest, back and few on extremities. There was no comedones. Systemic evaluation was normal. So our differntial diagnosis included miliaria pustulosa, acne vulgaris and drug eruption. His laboratory investigations including complete blood count, liver function and renal function tests were within normal. A skin punch biopsy revealed intraepidermal vesicle, intraepidermal neutrophilic pustule with several lymphocytes and histiocytes, mild parakeratosis and absent granular layer. The dermis showed superficial moderate perivascular and periadnexal inflammatory lymphocytic infiltration. Gram stain and Periodic acid schiff stain were negative. So the case was diagnosed as a case of miliaria pustulosa. We instructed the patient to avoid hot humid weather

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Figure 1: Classical miliaria lesions on the chest of patient with small erythematous non-follicular papules.

environment and physical exercise. Initially we started him on topical soothing agent, mild topical steroid and topical mupiricin for two weeks. Upon follow up, the condition was almost the same so we started him on oral doxycycline 100 once daily for 6 weeks after which the condition completely resolved.

DISCUSSION

Miliaria is a common disorder of the eccrine glands. It commonly occurs in tropical humid environments. Individuals prone to this condition include: Infants, children, athletes, obese or overweight persons, military troops, bedridden patients and individuals with congenital absence or decreased sweating [4-6]. The disease affects both sexes equally and the most common affected site is the trunk, the upper back and the lower back. Miliaria is caused by occlusion of the sweat ducts. It is thought that the first event in the production of miliaria is an increase in Staphylocuccous epidermidis which produce a sticky substance occluding the eccrine ducts at different levels in the epidermis leading to the leakage of sweat into the epidermis or dermis leading to miliaria [7,8]. There are many clinical forms of miliaria based on the level of occlusion [1]. Miliaria crystallina or sudamina is caused by obstruction of the sweat ducts close to the surface of the skin and appears as small superficial clear vesicles that break easily not associated with any inflammatory reaction [9]. Miliaria rubra which is the most commonly encountered form in which obstruction causes leakage of sweat into the deeper layers of the epidermis, provoking a local inflammatory reaction and giving rise to the typical appearance of erythematous vesicular lesions. It is often accompanied by intense itching and anhidrosis to the affected areas [9]. There is a small risk of heat exhaustion due to inability to sweat if the patient continues to engage in heat-producing activity [10]. Miliaria profunda generally occurs as a complication of repeated episodes of miliaria rubra. The obstruction is located deep in the structure of the eccrine gland, causing the gland's secretions to leak between the superficial and deep layers of the dermis. The symptoms, tend to appear within hours of an activity provoking sweating but similarly fade within hours when the stimulus for the sweating is removed. Miliaria profunda is characterised by non-pruritic, flesh-colored, deep-seated papules [9]. Miliaria pustulosa occurs due to inflammation and bacterial infection. A rare complication of miliaria include postmiliarial hypohidrosis which can be severe enough to impair the individual's ability to perform sustained work in a hot environment [9]. Tropical anhidrotic asthenia is a rare form of miliaria, with long-lasting poral occlusion, which produces anhidrosis and heat retention [9,10].Occlusion miliaria is accompanied by anhidrosis and increased heat-stress susceptibility such as after the application of extensive polyethylene film occlusion for 48 hours or longer [9]. The differential diagnosis of miliaria include: Folliculitus, acne vulgaris, eczema, allergic rash, drug eruption and Grover's disease. In most cases the rash of miliaria will resolve without intervention. However, severe cases can last for weeks. General measures including moving to an air-conditioned environment, avoiding sweat-provoking activities, occlusive clothing, excessive soap and contact of the skin with irritants and taking frequent cool showers. To reduce the severity of symptoms topical agents that has soothing effect such as calamine or menthol or camphor-based preparations should be used. In moderately severe cases mild topical steroids and antibacterial creams can be used [11]. Our patient was an athelete who seemingly had recurrent miliaria rubra which was mismanaged as a case of acne vulgaris. Since he failed topical treatments we started him on oral antibiotic. The condition completely resolved after 6 weeks. It should be emphasized that taking good history and clinical examination in dermatology is mandatory to reach to a correct diagnosis. Besides, miliaria should be included in the differential diagnosis of papulopustular eruption in young atheletic individual and should not be restricted to neonates.

REFERENCES

1. Hashimoto K, Gross BG, Lever WF. The ultrastructure of the skin of human embryos. I. The intraepidermal eccrine sweat duct. J Invest Dermatol. 1965;45:139.

2. Holzle E, Kligman AM. The pathogenesis of miliaria rubra. Role of the resident microflora. Br J Dermatol. 1978;99:117-37.
3. Mowad CM, McGinley KJ, Foglia A, Leyden JJ. The role of extracellular polysaccharide substance produced by Staphylococcus epidermidis in miliaria. J Am Acad Dermatol. 1995;33:729-33.
4. Al-Hilo M, Al-Saedy S, Alwan A. Atypical Presentation of Miliaria in Iraqi Patients Attending Al-Kindy Teaching Hospital in Baghdad: A Clinical Descriptive Study. Am J Dermatol Venereol. 2012;1:41-6.
5. Hidano A, Purwoko R, Jitsukawa K. Statistical survey of skin changes in Japanese neonates. Pediatr Dermatol. 1986;3:140-4.
6. Moosavi Z, Hosseini T. One-year survey of cutaneous lesions in 1000 consecutive Iranian newborns. Pediatr Dermatol. 2006;23:61-3.
7. Szabo G. The number of eccrine sweat glands in human skin, in Advances in Biology of Skin, edited by Montagna W, Ellis R, Silver A. New York, Pergamon, 1962, p 1
8. Sato K, Dobson RL. Regional and individual variations in the function of the human eccrine sweat gland. J Invest Dermatol. 1970;54:443.
9. James WD, Berger T, Elston D. Andrews' Diseases of the Skin: Clinical Dermatology. Saunders Elsevier 2015.
10. Rapini RP, Bolognia JL, Jorizzo JL. Dermatology: 2-Volume Set. St. Louis: Mosby. 2007;541.
11. Carter R, Garcia A, Souhan B. Patients presenting with miliaria while wearing flame resistant clothing in high ambient temperatures: A case series. J Med Case Report. 2011;5:474.

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