

CASE REPORT

Water Drops All Over the Skin: Miliaria Crystallina in an Adult Febrile Patient with Glioblastoma

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ABSTRACT

Miliaria crystallina is a skin condition occurring due to the blockage of sweat ducts and the retention of sweat. It typically presents as fragile, clear fluid-filled vesicles on the skin surface. Humidity and heat are the main causative factors. The condition is self-limited and remission is promoted by keeping the affected areas cool, well-ventilated and dry. Miliaria crystallina is common in infants and children but rare in adults. We present a case of a febrile hospitalized adult patient who developed the characteristic rash, in order to raise awareness of clinicians and young doctors.

Keywords: miliaria crystallina, rash, heat rash, sweat retention.

INTRODUCTION

The development of skin papules is a common clinical scenario seen in everyday practice and the differential diagnosis is challenging. The spectrum of cutaneous manifestations associated with sweat retention is wide, especially in neonates, infants and young children. Such manifestations are rarely seen in adults, yet – when present – they should be promptly diagnosed. Herein

we present a case of miliaria crystallina, a self-limiting heat rash, in a febrile adult patient. □

CASE HISTORY

A 44-year-old male patient, suffering from end-stage glioblastoma multiforme, was hospitalized in our Internal Medicine Department for palliative care. He was on dexamethasone for cerebral edema and prophylactic anticoagulation with low molecular weight heparin. His hos-

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FIGURE 1. A) Miliaria crystallina on the axillary region; B) clear fluid-filled vesicles on the chest; C) crystal clear vesicles resembling water droplets

pitalization was complicated by streptococcal bacteremia, which was responsible for prolonged fever, despite the administration of the appropriate antibiotic therapy. On the seventh day of the fever, the patient developed a non-pruritic, clear fluid-filled vesicular rash without erythema all over the chest and axillaries (Figure 1A-B). The lesions, which resembled water droplets (Figure 1C), resolved spontaneously within 72 hours after reducing skin temperature and humidity and left neither scars nor desquamation. Based on the macroscopic characteristics as well as the self-limiting nature of the rash, the diagnosis of miliaria crystallina was clinically established. □

DISCUSSION

Eccrine, apocrine, and apoeccrine are the three types of sweat glands found in human. The eccrine sweat glands are the most numerous ones, with whole-body distribution. They are responsible for the main sweat excretion. These simple tubular glands located near the border between the dermis and hypodermis, consisting of a secretory coil and a duct lined by simple cuboid-like epithelium. Their ducts consist of basal and luminal cell layers and open out at epidermal sweat pores (1). The eccrine sweat glands mainly receive sympathetic innervation, mainly via cholinergic fibers. The primary stimuli leading to ec-

crine sweat glands response are the temperature of the body core and the skin; they also respond to adrenergic activation and non-thermal factors related to exercise (2).

There are three main subtypes of miliaria, namely crystallina, rubra and profunda, and each one is characterized by different depth of the anatomical blockage of the eccrine sweat glands, resulting in different macroscopic and microscopic characteristics. Crystallina, also known as white heat rash, prickly heat, sweat rash or sudamina, is the mildest and most common type of miliaria as it is restricted in the stratum corneum of the epidermis (3). The rash occurs when eccrine sweat glands are obstructed causing sweat retention into the dermis or epidermis. This form appears characteristically as sweat-filled blisters and bumps without erythema or inflammation, which are handily ruptured under light pressure (4). It is most frequently localized on the upper trunk, neck and head, and is usually asymptomatic, although it can be associated with pruritus (5).

As a classic heat rash, miliaria is particularly common in neonates and infants, especially those who are exposed to heat and humidity. Relative immaturity of the eccrine ducts may be another predisposing factor that favors the occlusion of the pores and the sweat retention (6). A few pharmaceutical agents have been linked to the presence of miliaria crystallina as well (7). According to some studies concerning neonatal and pediatric population, the incidence of miliaria ranges between 1.3%–14% (8-12). In a Japanese observational study on 5 387 infants, Hidano *et al* revealed that 15.2% of subjects presented with miliaria and approximately 4.5% of them were diagnosed with miliaria crystallina (13). In a more recent hospital-based descriptive cross-sectional study in South India, during the summer months, which included 150 patients aged 1 to 80 years old, with typical and atypical sweat-induced dermatitis, only four were diagnosed with miliaria crystallina (14).

Early in the course of the disease, viral dermatitis especially herpes simplex virus and varicella-zoster virus infection should be considered, especially in a patient who is treated with high dose of steroids. Yet, the absence of erythema is not supportive of such a diagnosis. General measures to decrease sweating and heat are the cornerstones of the management (15). □

CONCLUSION

Miliaria crystallina is an uncommon manifestation of sweat retention/extravasation syndrome in adults. Due to the fact that it is a totally clinical diagnosis, clinicians should be aware of

its self-limiting nature and take the appropriate measures for its management. ▣

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