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Terra Firma Forme Dermatosis – a Report of two Cases and a Review of the Literature

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Abstract

Terra firma-forme dermatosis (TFFD) or Duncan's dirty dermatosis is a bizarre, acquired, and idiopathic dermatosis. It is characterized by its asymptomatic, yellowish, or brownish dirt-like lesions, resistant to usual washing with soap and water, but disappearing when rubbed with 70% ethyl alcohol or isopropyl alcohol. Swabbing with alcohol is both diagnostic and therapeutic means for this disorder. We present two boys, aged 14 and 11, with asymptomatic brownish, dirt-like lesions on the chest and forearms, respectively. Skin lesions were continuously present for more than a month. Both of the patients had usual hygiene habits. The diagnosis of TFFD was confirmed by rubbing with 70% ethyl alcohol which led to disappearance of the lesions. TFFD often causes much concern in patients and parents of affected children. Since its clinical picture is similar to some other dermatoses, the disease can be misdiagnosed. Therefore, it is important to recognize this dermatosis in dermatological and pediatric practice in order to explain the benign nature of the disease to patients and to avoid unnecessary diagnostic tests.

Key words: Hyperpigmentation; Skin Diseases; Ethanol; Diagnosis; Therapeutics; Case Reports

Introduction

Terra firma-forme dermatosis (TFFD) was first described in 1987 as Duncan's dirty dermatosis. The name "terra firma" is derived from Latin words meaning "solid earth or land" (1, 2). It is characterized by its yellowish or brownish dirt-like asymptomatic patches or plaques caused by disorder of keratinization of unknown origin. Although the patients have regular washing habits, skin changes in TFFD cannot be removed by conventional washing with water and soap, and they cause concern in patients. TFFD is an uncommon condition, rarely mentioned in literature. However, the disease is probably more widespread among patients than literature shows since it is commonly misdiagnosed and unreported (2-5).

Case Report

Case 1. A 14- year old boy was presented with asymptomatic dirt-like hyperpigmentation on the sternum and upper chest, which had been present for about 1 month. The boy had a history of regular washing habit with soap and water. The patient was otherwise healthy, with no reported history of other diseases, trauma, eczema or excessive use of cosmetic products. Dermatological examination revealed dirt-like hyperpigmented patches on the sternum and upper chest (Figure 1). The lesions disappeared after rubbing with 70% ethyl alcohol, leaving frictional erythema (Figure 2).

Case 2. A 11-year-old boy was presented with asymptomatic brownish lesions on the forearms, with a presumed diagnosis of atopic dermatitis. These lesions were constantly present during the previous four months despite regular washing with water and soap. He did not have any other diseases neither did he use topical corticosteroids and moisturizing creams. Dermatological examination revealed papillomatous hyperpigmented patches on the forearms, more prominent on the left side (Figure 3). The diagnosis of TFFD was confirmed by rubbing the patches with

Figure 1 A. The initial appearance of hyperpigmented patch lesions on the sternum and upper chest in a 14-year-old-boy.

70% ethyl alcohol gauze pad, which led to the disappearance of lesions.

Discussion

TFFD was defined by Duncan et al. as a rare disorder of keratinization of unknown etiology (1). It occurs in people of different ages, with higher frequency reported among children and young adults and with similar frequency in both sexes (1-3, 5, 6). In a retrospective study done by Asslan et al. which was published in 2018, out of 79 patients with TFFD 88.6% were children whose average age was 10.4 years. A slightly higher incidence was found in females (64.6%) (7). Similar results were reported by Berk et al.: out of the 31 patients reported, 54.8% were females, while 55% were children whose average age was 12 years (8). Both of our patients were also under 17 years of age.

According to literature data the duration of TFFD ranges from 3 weeks to several years (2, 8, 10, 11,12). In case of our patients, the diagnosis of TFFD was set one and four months after the appearance of skin changes. In the study of Berk, the median duration of lesions before presentation was 4 months. Many cases were diagnosed in a short period of time, which confirms that the disease is more frequent than the literature data show (8).

Figure 1 B. Resolution of lesions and frictional erythema after rubbing with 70% ethyl alcohol pads

The etiology of TFFD is still unclear (1-3, 9-12). Some authors presume that this condition is caused by a delay in keratinocyte maturation, which leads to the retention of keratinocytes and melanin within the epidermis. This disordered keratinocyte buildup and compaction of scales, sebum and dirt that may ultimately lead to the hyperkeratosis and hyperpigmentation clinically manifests as TFFD (3-5, 8, 12). Although the genetic predisposition to TFFD was described in the literature, it is not clearly established in most of the studies (2, 3, 10-13). In the study of Asslan et al two patients were siblings and had xerosis, which may lead to a suspicion of the possible impact of inheritance on the occurrence of this disease, but more extensive studies are needed to confirm these assumptions (7). As a possible cause of TFFD, Ashique et al. emphasize inadequate hygiene and inappropriate care of skin areas damaged by previous surgical interventions (13). Most of other authors did not establish a relationship of TFFD with poor hygiene or hygienic habits (3, 10, 12, 13). Patients often state that the changes occurred during warm periods and sometimes due to the intense exposure to the sun (1, 8, 10, 12, 14).

TFFD usually presents on the neck, face, trunk and ankles (1, 2, 7, 8, 12). In our Case 1, the changes were localized on the chest, whereas in Case 2 they were localized on the forearms, which is rarely described in the literature (7, 14). In the study of Aslan and al. the most common location of lesion was the trunk (27.8%) and extremities (26.6%). In the same study the TTFD lesions were multiple in 34.2% of patients and in 77.2% of patients they were symmetrical (7). As the most common localization of TFFD, Berk reported the neck, in 21 patients (67.77%), then the ankles and face. Lesions were mainly symmetrical (8). This dermatosis can also occur on scars after surgical interventions, scalp, arms, and legs, or postauricular, axillary, umbilical and pubic areas (2, 4, 6, 8-10, 12, 15).

Figure 2. Brownish plaques on the forearms in an 11-year-old boy.

Clinically, TFFD is usually presented as asymptomatic yellowish or brownish dirt-like plaques. The changes may also have papilomatosus, verrucous or reticular appearance (3, 11). In our Case 1, the changes were in the form of hyperpigmented patch lesions while in Case 2 they were papillomatous plaques. In both patients, they could not be removed by usual washing with water and soap, which made their parents worried. After rubbing the lesions with 70% ethyl alcohol, the lesions disappeared, which confirmed the diagnosis of TFFD (2, 3, 8, 12).

It is important to distinguish TFFD from other similar dermatoses and thus avoid unnecessary invasive testing and biopsy of the skin (3, 7, 8, 12, 13). To confirm the diagnosis, a test with 70% ethyl alcohol or isopropyl alcohol is sufficient (2, 3, 7, 8, 11, 12). In recent literature it is mentioned that dermoscopy can assist in the evaluation of TFFD. Dermoscopic changes pointing to this dermatosis are in the form of unstructured, large polygonal platlike brown to black macules or scales, arranged in a mosaic or tile-like pattern, interrupted in furrows (10). Biopsy is rarely necessary. Characteristic histology of TFFD shows the prominent lamellar hyperkeratosis with compact orthokeratotic whorls, prominent keratin globules in the stratum corneum, increased melanin in the basal layer, papillomatosis and acanthosis (1, 2, 9-12).

TFFD should be distinguished from dermatosis neglecta, acantosis nigricans, “dirty neck” of atopic dermatitis, confluent and reticulate papillomatosis, pityriasis versicolor, ichthyosis, seborrheic dermatitis, seborrheic keratosis and epidermal nevus (2, 4, 7-9, 11, 12). The most common differential diagnostic problem is the differentiation of TFFD from dermatosis neglecta, as skin changes in TFFD can also appear as dirt, even though the patient has regular hygienic habits. Dermatosis neglecta is typical among people of all ages with poor hygienic habits, but these changes may disappear after simple bathing with water and soap, unlike TFFD (2, 4, 9, 15).

Lesions in acanthosis nigricans are darker and smoother, usually localized on the back of the head, sides of the neck, and in skin folds. This condition is commonly associated with obesity, hyperinsulinemia and rarely with malignant diseases. Skin lesions cannot be removed by washing with water and soap or by rubbing with a gauze soaked in 70% ethyl alcohol or isopropyl alcohol (2, 10, 13, 15). Atopic dermatitis localized on the neck, the so-called “Dirty neck syndrome”, is more common among adult patients in the form of plaques and cannot be removed by rubbing with alcohol pads (8). Confluent and reticulate papillomatosis are characterized by confluent, flat, brown papules forming a pigmented reticulated pattern, localized primarily in the intermammary, epigastric and interscapular region (2).

It is sufficient to rub skin changes with 70% ethyl alcohol or isopropyl alcohol in order to diagnose as well as to treat TFFD (2, 3, 8, 11, 12). Chun et al. reported successful treatment of TFFD localized on the face with 20% salicylic acid in the alcohol (16).

Conclusion

This disease can be diagnosed and treated at the same time by recognizing the TFFD clinical presentation and performing a test with 70% ethyl alcohol or isopropyl alcohol. It is important to recognize this dermatosis so that its benign nature can be explained to the patients and thus to avoid unnecessary diagnostic tests, as well as the patient’s concern.

Abbreviatioins

TFFD - Terra firma forme dermatosis

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Terra firma forme dermatosis – prikaz dva bolesnika i pregled literature

Sažetak

Terra firma forme dermatosis (TFFD) ili Dankanova „prljava" dermatoza je bizarna, stečena idiopatska dermatoza. Karakterišu je žućkaste ili braonkaste lezije, nalik prljavštini, koje se ne mogu ukloniti uobičajenim pranjem vodom i sapunom, ali nestaju nakon trljanja 70% etil alkoholom ili izopropil-alkoholom. Prebrisavanje alkoholom omogućava dijagnozu i istovremeno terapiju ovog oboljenja. Prikazujemo dva dečaka, uzrasta 14 i 11 godina, sa asimptomatskim, braonkastim, prljavštini sličnim lezijama na koži grudnog koša kod prvog i podlaktica kod drugog, koje su bile prisutne duže od mesec dana. Oba pacijenta su održavala redovnu higijenu. Dijagnoza je potvrđena trljanjem kožnih promena 70% etil-alkoholom, nakon čega su promene nestale. TFFD često izaziva zabrinutost kod pacijenata i roditelja obolele dece. Zbog slične kliničke slike sa drugim dermatozama, bolest se može pogrešno dijagnostikovati. Stoga je prepoznavanje TFFD važno za dermatologe i pedijatre, kako bi se pacijentima objasnila benigna priroda oboljenja i izbegla nepotrebna dijagnostička ispitivanja.

Ključne reči: Hiperpigmentacija; Kožne bolesti; Etanol; Dijagnoza; Terapija; Prikazi slučajeva

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