

Terra Firma-Forme Dermatitis in Childhood: Two Cases

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Published:

J Turk Acad Dermatol 2015; 9 (1): 1591c2

This article is available from: <http://www.jtad.org/2015/1/jtad1591c2.pdf>

Keywords: Terra firma-forme dermatosis, hyperpigmentation, alcohol

Abstract

Observation: Terra firma forme dermatosis (TFFD) is an uncommon disorder of keratinization, in which patients present with dirt-like lesions resistant to washing, but disappearing almost magically when rubbed forcefully with 70% of ethyl alcohol. Two girls, 8 and 12 old years, presented with almost identical cutaneous findings. The patients were admitted with the complaints of asymptomatic, brown, slightly elevated, dirt-like lesions on trunk, arms, limbs and neck, with no response to washing with soap and water. All lesions completely disappeared after forced wiping with 70% of ethyl alcohol.

We described two patients with the disorder and discussed the differential diagnostic considerations in light of literature.

Introduction

Terra firma-forme dermatosis (TFFD) is the appearance of a brown dirty lesion that cannot be washed off with soap, but can easily be removed with alcohol. It is usually encountered around the regions such as mainly necks, upper extremities and trunks in children, as well as seen in adults. Although posing no serious medical threat, TFFD is quite cosmetically distressing.

First described in 1987 by *Duncan et al.* (hence, the alternative name: “*Duncan’s dirty dermatosis*”), TFFD is a benign condition, derived from the Latin “*terra firma*,” meaning “*dirty land*” [1,2,3]. As well as 12 cases in the report by *Guarnieri et al.*, other cases have also been reported since the original description in 1987 by *Duncan et al.*; however, the true prevalence of TFFD is probably underestimated. TFFD affects a wide range of

age groups, ranging from toddlers to the elderly (4-72 years; mean age, 18 years) with an equal incidence in both sexes [4,5,6]. *Berk et al.* described a 4-month-old girl with TFFD as the youngest patient, suggesting



Figure 1. Brown hyperpigmented plaques with a rough surface involving the bilaterally volar and lateral surfaces of the arms



Figure 2. Brown hyperpigmented plaques with a rough surface involving the anterior chest, umbilical and periumbilical regions



Figure 3. Lesions on right arm completely disappeared after forced rubbing with alcohol



Figure 4. Brown hyperpigmented patches on both sides of abdomen



Figure 5. All lesions completely disappeared after forced rubbing with alcohol

that TFFD should be taken into account in the differential diagnosis of infants with characteristic brown lightly scaly plaques [7]. No cases have been reported as to hereditary features of TFFD. On physical examination, such features as asymptomatic, localized or extensive, sometimes symmetrical, clear-cut areas of brownish to black hyperpigmentation, variously characterized by palpable, papillomatous plaques and light scaling, involving most commonly neck and trunk regions, are usually witnessed as the widespread symptoms of TFDD. Other areas that may be involved are scalp, back, upper and lower extremities, axillary, umbilical and pubic areas. No lesions can be removed with water and/or soaps, but disappear almost completely when rubbed with 70% of ethyl alcohol [2,3,4].

Case Reports

Case 1: An 8-year-old girl was admitted with two-week history of an asymptomatic brown dirt-like skin eruption on her arms, chest, and lower and upper limbs. Declaring to have familial hygienic habits, her parents reported that while bathing, no response was detected to washing with soap and water. On admission, the examination revealed brown hyperpigmented plaques with a rough surface involving the bilaterally volar and lateral surfaces of the arms (Figure 1), anterior chest, umbilical and periumbilical regions (Figure 2) and bilaterally upper parts of thighs. No regional involvements were determined on the neck and lower parts of the lower limbs. The case was seen to be healthy, unatopic and on the use of no medication. Despite good hygiene, including showers and bathing with any ordinary soap at least two to three times per week, the case showed no improvement related to the lesions. With the suspicion of der-

matitis neglecta and TFFD, ethyl alcohol swabbing was performed, and the clinical diagnosis of TFFD was confirmed with the complete removal of these lesions by 70% of ethyl alcohol swabbing (Figure 3). Because the case was accurately and precisely diagnosed with TFFD, no biopsy was considered.

Case 2: A 12-year-old girl was admitted with 1-month history of asymptomatic multiple discolouration involving periumbilical region and abdomen. This case had a shower daily, had no chronic illnesses and was on the use of no medication. Dermatologic examination revealed brown hyperpigmented patches on both sides of abdomen (Figure 4). Initially, post-inflammatory hyperpigmentation, dermatosis neglecta and TFFD was suspected, and then isopropyl alcohol was applied to the patient's lesions. So, all the lesions completely disappeared after rubbing forcefully with ethyl alcohol (Figure 5).

Both cases had dirt-like lesions on their bodies despite normal washing habits. Although the lesions of TFFD pose no serious medical threats, they may be cosmetically quite distressing, as in our cases.

Discussion

TFFD appears to be a type of cutaneous discolouration resembling dirt. The condition is seen in children and adults with normal washing habits, which excludes inadequate cleansing as the cause of the lesions, such as those seen in dermatosis neglecta. In contrast to dermatosis neglecta, normal washing with soap and water cannot remove the pigmentation but swabbing with isopropyl alcohol is very effective in wiping it off [2, 6].

Physical examination usually reveals asymptomatic, localized or extensive, sometimes symmetrical, clear-cut areas of brownish to black hyperpigmentation, variously characterized by palpable, papillomatous plaques and light scaling, involving most commonly the neck and trunk, but also the scalp, back, limbs, axillary, umbilical, and pubic areas [4]. A series of cases involving different sites of the body (neck, arm, back, axillary line and scalp) was reported [5].

The cause is unknown. Speculation into the pathophysiology of this condition includes altered maturation of keratinocytes with retention of melanin, and initial inadequate cleansing with the buildup and compaction of

scale and dirt [4]. Histopathologic examination of TFFD displays prominent lamellar hyperkeratosis with focal areas of compact orthokeratosis in whorls. Toluidine blue stains show scattered keratin globules throughout the thickened stratum corneum [2, 5]. The most commonly identified yeast is *Malassezia furfur* [5]. Electron microscopic changes indicated a disordered and delayed keratinization [2, 3].

TFFD must be distinguished from pityriasis versicolor, *Gougerot* and *Carteaud's* reticular and confluent papillomatosis, acanthosis nigricans, pseudoacanthosis nigricans, atopic dermatitis with post-inflammatory hyperpigmentation, epidermolytic hyperkeratosis of the nipple and areola, frictional asymptomatic darkening of the extensor surfaces, idiopathic deciduous skin, and dermatosis neglecta [2, 4, 5].

The diagnosis of TFFD is confirmed by rubbing forcefully with a gauze pad immersed into 70% of isopropyl alcohol or ethyl alcohol. This diagnostic test prevents unnecessary laboratory work-up or biopsy [1, 2, 4, 8, 9, 10, 11]. After removal of pigmentation with isopropyl alcohol, no discolouration usually recurs. Prophylactic weekly application of alcohol has been recommended for resistant or recurrent cases [9]. Indeed, TFFD may be considered a common, but mostly ignored ailment, and so, we speculate that cases related to TFFD are often misdiagnosed. If unrecognized, may cause anxiety and lead to unnecessary endocrinological investigations [3, 8, 10, 11].

By training patients with TFFD or their family members on how to clean the bodily lesions at home using ethyl alcohol or increasing the awareness, fiscal burden and time spent for treatment modalities may be saved. In our experience, recrudescence is exceptionally rare, even though individuals do not alter their cutaneous habits or exogenous exposures in any way. In the uncommon event of recurrence, the application of ethyl alcohol once a week will suffice as prophylaxis.

In summary, TFFD is a recently described entity of unknown etiology that seems more common than one might expect after browsing through the rare reports in the medical literature. Dermatologist should be aware of this relatively common skin condition.

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