

# Diagnostic Sign of Terra Firma-Forme Dermatitis

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## Abstract

**Background:** Terra Firma-Forme Dermatitis (TFFD), a benign skin condition which presents with asymptomatic brown to black plaques which resemble dirty skin. **Aim:** To document a new case presentation with TFFD in the Arab region which is considered as one of the differential diagnoses of dirty neck. **Case presentation:** A 15-year-old girl presented with a history of asymptomatic brownish dirt-like lesion on the nape and sides of the neck for 4-years duration, not resolved by wash with water and soap and confused with other dermatoses like acanthosis nigricans or atopic dermatitis. The diagnosis of TFFD was confirmed when the lesions were completely resolved after gentle swabbing with 70% isopropyl alcohol. **Conclusion:** TFFD is rarely reported in Arab region and should be considered when evaluating cases of dirty neck-like presentation of atopic dermatitis or acanthosis nigricans.

## Keywords

Terra Firma-Forme Dermatitis, Duncan's Dirty Disease, Isopropyl Alcohol, Dirty Neck, Acanthosis Nigricans

## 1. Introduction

TFFD is a benign condition which presents with asymptomatic brown to black plaques and resembles dirty skin [1] [2] [3]. It was first reported by Duncan et al in 1987 and received the nickname "Duncan's dirty disease" [2]. The term Terra Firma-Forme is derived from Latin and can be translated as a surface that's similar to the solid land [4]. It most often occurs in children on the neck or posterior malleolus with an equal incidence in both sexes [5].

The condition is only little known and rarely described in the medical litera-

ture or textbook [6]. Etiology remains unknown but it's hypothesized that TFFD results from delayed maturation of keratinocytes with incomplete development of keratin squamous, and retention of keratinocytes and melanin within the epidermis. Dermoscopic appearance showed large polygonal plate-like brown scales arranged together giving mosaic pattern or tile-like pattern interrupted in furrows [7]. Histopathologically, melanin retention and alteration of keratinization could be seen [1] [2] [3]. TFFD can mimic dirty neck-like of Atopic Dermatitis, Acanthosis Nigricans, Dermatitis Neglecta, Epidermal Nevi, Confluent and Reticulated Papillomatosis, Tinea Versicolor, Post Inflammatory Hyperpigmentation, or Seborrheic Keratosis [8] [9] [10] [11].

TFFD is treatable and completely resolved by gentle rubbing with a 70% isopropyl alcohol swab [12]. In the present case report, we are describing a girl presented with chronic dirt-like Brownish, Hyperkeratotic Plaques on the nape and sides of neck which are not resolved by washing with water and soap but completely resolved by rubbing of skin with a 70% isopropyl alcohol, confirming the diagnosis of TFFD. The aim of present report is to describe clinical diagnosis, differential diagnosis and appropriate management of TFFD. The consent form taken from parents is about the publication of her condition.

## 2. Case Report

A 15-years-old girl presented to our clinic with a history of asymptomatic brownish dirt-like lesion on the nape and sides of the neck for 4-year duration. The patient and her mother tried to clean the "dirt" with water and soaps without success. There was no history of rapid weight gain, inflammatory dermatosis in the affected area. No family history of the same presentation.

Physical examination revealed symmetrical, dirt-like brownish, hyperkeratotic plaques on the nape and sides of the neck (**Figure 1**). Dermoscopic examination

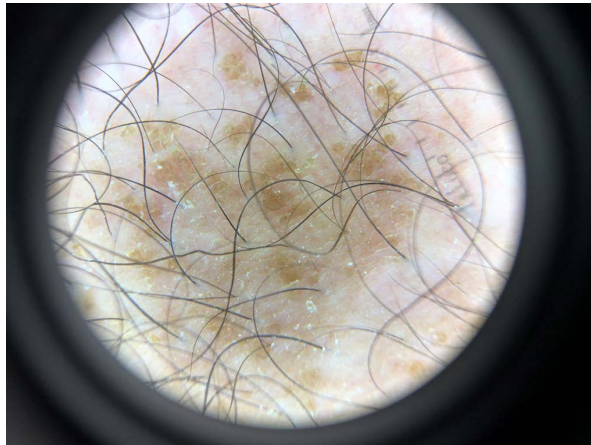


**Figure 1.** Terra firma-forme dermatosis presenting as symmetrical, a dirt-like brownish, hyperkeratotic plaque on the nape and side of the neck of a 15 years old girl.

showed large polygonal plate-like brown scales arranged together giving mosaic pattern (**Figure 2**). Histopathology was recommended but her mother refuses to take skin biopsy. Differential diagnosis was acanthosis nigricans, dirty neck-like hyperpigmentation of atopy and TFFD. Rubbing of skin lesion with a 70% isopropyl alcohol-soaked gauze pad resulted in complete disappearance of the lesion (**Figure 3**), which confirmed the diagnosis of TFFD.

Further management with emollients was recommended, and the patient advised to repeat treatment with isopropyl alcohol in case of recurrence of the skin lesions.

Follow up after 6 months showed complete resolution of hyperpigmented plaque without relapse.



**Figure 2.** Dermoscopic examination of the lesion reveals large polygonal plate-like brown scales arranged together in a mosaic pattern.



**Figure 3.** Nape and side of the neck of 15 years old girl following gentle rubbing with 70% isopropyl alcohol-soaked gauze pad.

### 3. Discussion

TFFD is a keratinization disorder characterized by brown to black plaques resemble dirty skin [1] [2] [3]. The condition is only little known and rarely reported in Arab region or medical literature [6] [7]. It most often occurs in children on the neck or posterior malleolus [13], with equal incidence in both sexes. The exact cause of TFFD is still unclear, but genetic predisposition has been mentioned [2] [3] [5]. Xerosis and decreased sun exposure have been reported as causative factors [3] [4]. The clinical appearance of TFFD may be explained by an abnormal keratinization and accumulation of melanin and dirt within the epidermis [4]. Dermatoscopy is a noninvasive tool that helps visualization of morphologic features usually imperceptible to the naked eye [14]. The dermoscopic appearance of all studied patients revealed similar findings, with large polygonal plate-like brown scales arranged together giving a mosaic pattern or tile-like pattern interrupted in furrows. These features disappeared completely after alcohol swabbing of the lesions [7].

Histopathological studies are limited, but lamellar hyperkeratosis, compact orthokeratosis with Whorls, Keratin Globules in the Stratum Corneum, increased Melanin, and Malassezia Furfur Spores in the basal layer have been reported [1] [3] [15].

The main differential diagnosis of TFFD from dirty neck-like Atopic Dermatitis, Acanthosis Nigricans and Dermatitis Neglecta [8] [9] [10] [11].

Atopic dirty neck-like hyperpigmentation is an acquired atopic hyperpigmentation present in cases of atopic dermatitis, clinically present as Rippled Hyperpigmented Plaque in the neck. Histopathologically, it is characterized by increased epidermal melanin deposition, not resolved by washing with soap and water or isopropyl alcohol, and considered as a part of atopic eczema [16].

Acanthosis nigricans is characterized by Dark Velvety Hyperpigmented thickening of the skin, usually on the nape and sides of the neck, associated with obesity or hormonal disturbances, and also can't be removed by soap and water or isopropyl alcohol. The treatment of acanthosis nigricans is by treating the underlying cause [8] [10].

Dermatitis neglecta can affect any age, and as the name suggests, it affects individuals who have less efficient hygienic habits and can be easily removed by washing with soap and water [8] [9].

Other less common differential diagnoses (Epidermal Nevi, Confluent Reticulated Papillomatosis, Tinea Versicolor, Post Inflammatory Hyperpigmentation, or Seborrheic Keratosis) can be easily demonstrated [11]. In the present case report, we are describing a girl presented with chronic dirt-like brownish, hyperkeratotic plaques on the nape and sides of neck for 4 years duration can't remove by any modalities of treatment and cause psychological impact on her parents. The complete clearance of TFFD by rubbing with 70% isopropyl alcohol immersed gauze can be interpreted as a diagnostic sign and treatment as well.

## 4. Conclusion

TFFD is uncommonly seen in Arab region and should be considered as one of differential diagnoses of dirt neck-like atopic dermatitis or acanthosis nigricans.

## Disclosure

This study is an independent study and not funded by any of the drug companies.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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