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Approach to Dirt Like Dermatoses-Original Case Series

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Abstract: ***Dirt like dermatoses is an under-reported entity. A vast number of dermatoses such as Acanthosis nigricans, Terra firma-forme, confluent and reticulated papillomatosis, dermatitis neglecta, pityriasis versicolor, Atopic dermatitis, x-linked ichthyosis comes under the umbrella term "Dirt like Dermatoses". Patients present with hyperpigmented plaque with or without associated symptoms. Dirt like dermatoses is usually a diagnosis of exclusion. In this article we present 6cases of dirt-like lesions which include 2 cases of terra firma forme, one Confluent and reticulated papillomatosis, one case of adult onset atopic eczema and 2 cases of post inflammatory hyperpigmentation secondary to Miliaria Rubra. This article lays out the approach for a case presenting with dirt-like lesions.***

Keywords: Dirt Like Dermatoses, Terra Firma Forme, Confluent And Reticulated Papillomatosis

1. Introduction

- Dirt like dermatoses include an array of skin diseases that are often under-reported. The most common dirt-like dermatoses include Pityriasis versicolor, Terra forma firme, Acanthosis nigricans, Dermatitisneglecta and the rare causes include X linked ichthyosis, Atopic dermatitis and PIH [3]
- Dirt like dermatoses present as hyperpigmented plaque, occasionally lichenified associated with or without symptoms. Rarely may also present with verrucous brown plaques. A proper approach and a keen eye is essential to make the right diagnosis. Dirt like dermatoses can be seen anywhere in the body but is most commonly seen over the trunk, back and neck. There is paucity in data on Dirt like dermatoses with very few case reports. Hence it is worthwhile to study the emerging skin manifestations associated with it.

2. Case Series

Case 1

- A 32-year-old man presented to the dermatology OPD with well-defined hyperpigmented verrucous plaques in a reticulated pattern without any symptoms for the last 6 months.
- Histopathological examination revealed hyperkeratosis, acanthosis and papillomatosis and were consistent with confluent and reticulated papillomatosis of Gougerot and Carteaud. Patient was treated with oral Minocycline and is under regular follow up

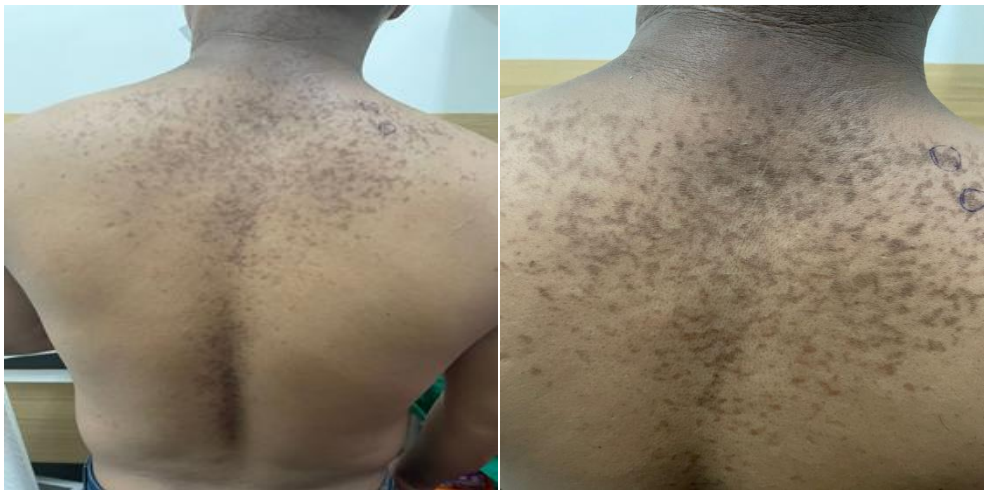

Figure 1A and 1B: Well-defined multiple hyperpigmented dirty verrucous plaques were seen in the chest and trunk in a reticulated pattern

Case 2

- A 39 year old female presented to the dermatology OPD with hyperpigmented macules with fine scaling. She was diagnosed as Pityriasis versicolor and was treated with topical clotrimazole. The patient had no improvement and lesions progressed in number.
- The lesion disappeared after being rubbed with a gauze soaked in isopropyl alcohol. The patient was diagnosed to have terra forma firme.

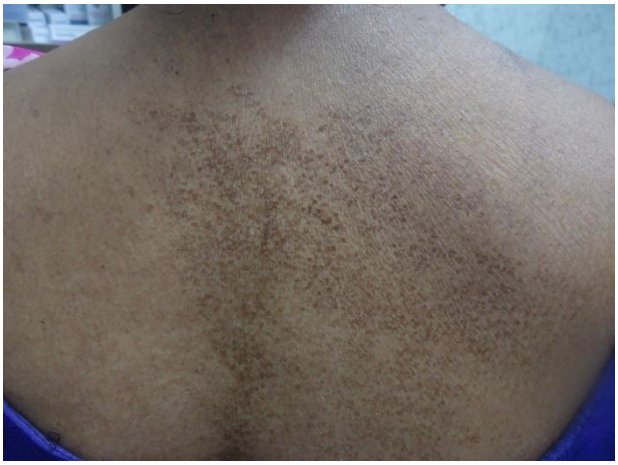

Figure 2: Scaly dirty brown macules on the back

Case 3

- A 29 year old male presented to the OP with brown macules coalescing to form a patch in a lace-like pattern with fine scaling seen over the lesions on the back. The patient had occasional itching. Patient denies any treatment taken for the same. The patient has a history of atopy. The patient had generalised xerosis. The lesion disappeared by rubbing with gauze soaked in isopropyl alcohol.
- The patient was diagnosed with terra forma firme.

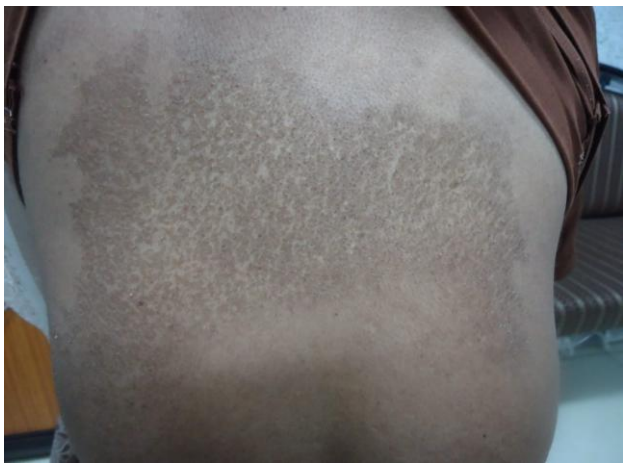

Figure 3: Brown macules coalescing to form a lace like pattern

Case 4

- A 41 year old female presented to the OP with skin coloured to brown plaque with fine scaling over the back with no associated symptoms for past 3 weeks
- On further questioning, the patient was treated for Miliaria Rubra 1 month back after which the patient developed lesions. The lesion did not disappear neither on washing with soap nor rubbing with alcohol soaked gauze.
- The patient was diagnosed as post inflammatory hyperpigmentation secondary to Miliaria Rubra.

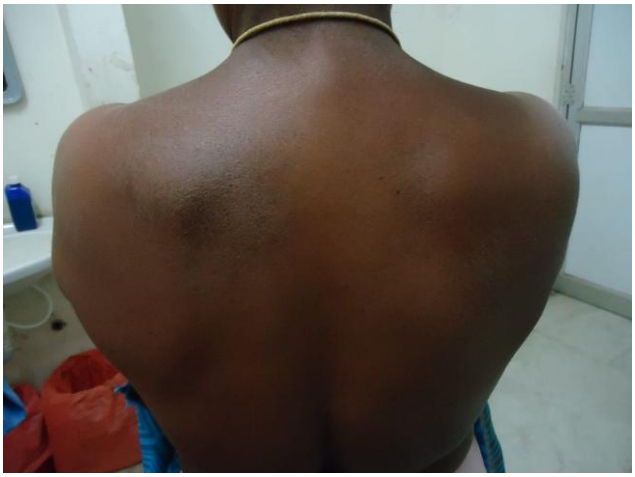

Figure 4: Skin Coloured to Brown Plaque with Fine Scaling

Case 5

- A 32 year old woman came with complaints of extremely itchy papules and hyperpigmented plaques with scaling seen over the nape of the neck extending up to upper back
- History of increased sweating was present. The patient was diagnosed as Milaria Rubra and was treated for the same

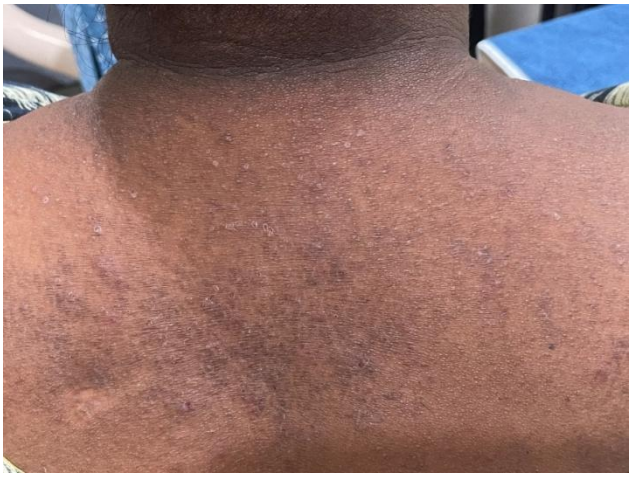

Figure 5: Papules and Hyperpigmented Plaques With Scaling Over the Back

Case 6

- A 27 year old male came with intensely itchy dirty scaly plaques with few erosions over the neck and cubital fossa region. The patient had history of bronchial asthma and allergic rhinitis and is on MDI for the same. The patient's father and grandmother also had a history of bronchial asthma. History of drug intake or topical application of any cream was denied. The patient was diagnosed with Adult onset Atopic dermatitis and is being treated with emollients, antihistamines and mild topical steroid.

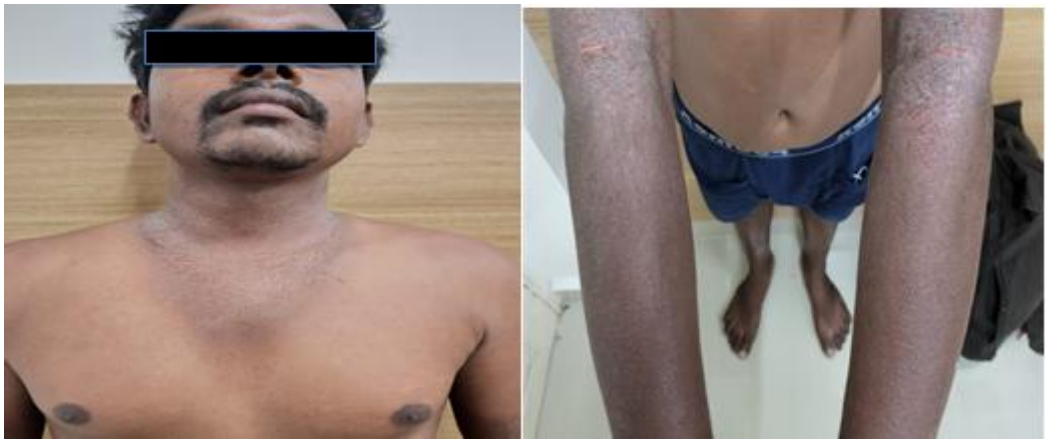

Figure 6 A and B: Showing Dirty Plaques Over the Neck and Cubital Fossa

3. Discussion

Dirt like dermatoses accommodates a wide array of diseases and they include dermatitis neglecta, terra firma forme, Pityriasis versicolor, Acanthosisnigricans, X linked ichthyosis, Atopic dermatitis, PIH and Darier's disease [2] [3]. These disorders with similar clinical characteristics have been identified in the literature and are briefly described in TABLE 1. A thorough history, cutaneous examination and biopsy wherever required must be done for diagnosis and treatment.

Poskitt et al. originally described dermatitis neglecta, otherwise known as unwashed dermatosis, in 1995. The instigating elements are assumed to include poor cleanliness and hygiene in a region of immobility, discomfort, hyperesthesia, past trauma, and surgeries leading to inadequate skin exfoliation [3]. The end result is a localised hyperpigmented patch or a plaque that may be verrucous with adhering, corn flake-like scales made up of sebum, perspiration, keratin, and other dirt. Patients should be advised and encouraged that maintaining proper cleanliness in the disabled affected area is beneficial rather than harmful. In most situations, a mild cleaning with soap and water or alcohol on the afflicted region once a day would suffice [4].

The Latin word terra-firma refers to ‘dry land’ a skin discolouration that resembles dirt [2]. Hence it is also known as Duncan’s dirty dermatosis. Asymptomatic black or brown dirt-like plaques are the most common clinical feature of Terra firma-forme dermatosis [1]. The etiopathogenesis is unknown. The lesions are thought to be caused by a delay in keratinocyte maturation, resulting in retention of melanin and a consistent accumulation of sebum, sweat, corneocytes and bacteria in areas where the skin is more prone to trauma and hygiene measures are less rigorous, resulting in insufficient exfoliation [5]. The condition of TFFD can be managed by rubbing the lesions with cotton soaked in 70% isopropyl alcohol/ethyl alcohol, which is both diagnostic and therapeutic [6].

Xlinked ichthyosis (XLI) is a skin condition marked by a symmetrical pattern of adhering, dry, and polygonal scales on the skin. XLI symptoms worsen in the winter and in dry areas, but improve in the summer [7]. Approximately 90% of XLI patients have a full deletion of the STS gene as well as its flanking sequences, with a smaller percentage having partial deletions and point mutations [8] A third of XLI patients have adherent, light grey scales on their skin, rather than unusual, polygonal, and "dirty" scales [7]. The basic therapeutic strategy is to hydrate the skin and apply an occlusive emollient to keep it from evaporating [8].

Table 1: Array of dirt like dermatoses, their pathophysiology and treatment

S. No	Dermatosis	Pathophysiology	Inheritance	Treatment
1	Dermatitis neglecta	Accumulation of dirt due to improper hygiene	Acquired	Proper washing/rubbing with ethyl alcohol
2	Terra firmeforme	Delay in keratinocyte maturation leading to insufficient exfoliation	Acquired	Vigorous rubbing with 70% isopropyl alcohol
3	X-linked Ichthyosis	Steroid sulfatase deficiency leading to impaired desquamation	Inherited	Occlusive Emollients, keratolytics
4	Dirty neck of Atopic dermatitis	The pigmentary alterations are due to melanin incontinence and amyloid like protein accumulation.	Inherited	Emollients and Keratolytics
5	Acanthosis nigricans	Insulin resistance leading to keratinocyte proliferation through IGF-1	Acquired	Keratolyticsfor cutaneous lesion and metformin for insulin resistance
6	Post inflammatory hyperpigmentation	Over production of Melanin and melanin incontinence	Acquired	Depigmenting agents like hydroquinone, kojic acid and chemical peels
7	Darier’s disease	Acantholysis and incoherence of keratinocytes due to impaired SERCA2 function	Inherited	Keratolytics, topical retionoids and Vitamin D analogues.
8	Confluent and reticulated papillomatosis of Gougerot and Carteud.	Exagerated response to M. furfur infection.	Acquired	Minocycline, azithromycin and oral retinoids

Darier disease otherwise known as keratosis follicularis, is a genetically inherited disorder in an autosomal dominant inheritance pattern [9]. Darier disease is caused by a mutation in the ATP2A2 gene. SERCA2, a calcium pump in the endoplasmic reticulum, is encoded by this gene. SERCA2 dysfunction causes abnormal junctional protein processing and, as a result, there is poor keratinocyte cohesiveness. This leads to acantholysis and incoherence of kerationocytes [10]. Darier's is characterised by dirty hyperkeratotic or verrucous plaque which usually coalesces with each other. Nail and oral mucosa changes are also seen. Management includes genetic counselling, topical keratolytics, topical Vitamin D analogues and oral retinoids if large body surface area is involved [11].

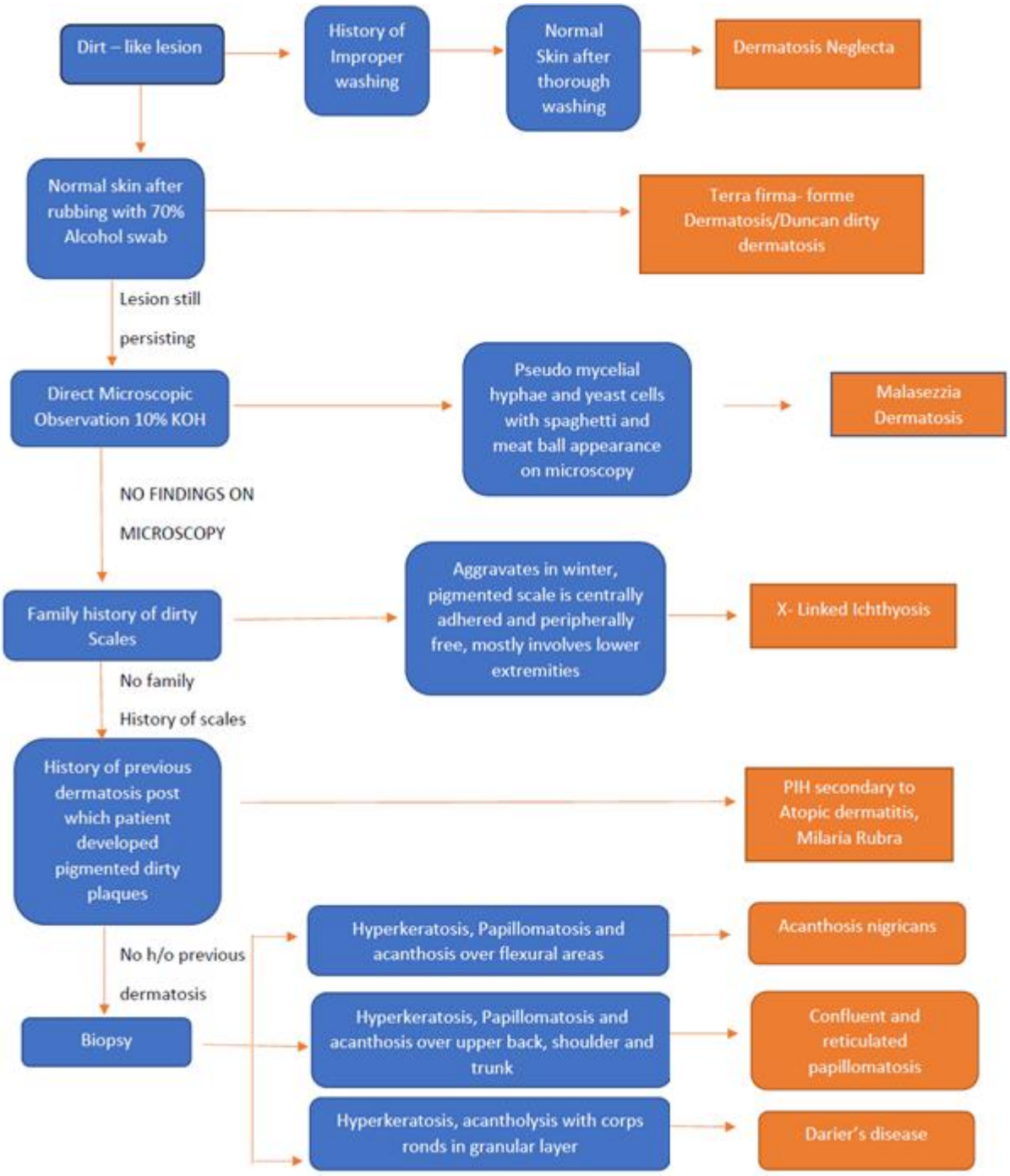

Figure 7: Algorithm on the Approach to Dirt Like Lesions

Acanthosis nigricans is a velvety darkening of the skin that occurs mostly in the intertriginous regions Acanthosis nigricans is usually linked to diabetes and insulin resistance, although it can also be a symptom of internal malignancy on rare occasions. Growth factor levels and insulin-mediated stimulation of insulin-like growth factor (IGF) on keratinocytes are believed to have a role in the development of acanthosis nigricans. Dark, coarse, thickening of skin with a velvety feel characterises Acanthosis nigricans. The early sign of change is a grey-brown/black pigmentation, which is accompanied by dryness and roughness [12]. Treatment of the underlying illness or tumour, discontinuation/avoidance of the inciting factor in drug-induced AN, topical/oral medications, and aesthetic surgery are all part of the therapeutic strategy [13].

The 'dirty neck' appearance is a pigmentation issue that affects around 2% of adult atopics, according to earlier research. In addition to eczematous alterations, there was significant pigmentary incontinence. Electron microscopy revealed amyloid-like material deposition. Although there is some amyloid accumulation in this illness, the pigmentary alterations are due to melanin incontinence. It's likely that the 'dirty neck' appearance is a type of post-inflammatory pigmentation caused by previous eczema, UV exposure, or even the use of photosensitizing chemicals, and that the rippling appearance is caused by the neck's cutaneous architecture [14] [15].

CRP (confluent and reticulated papillomatosis) is a disordered keratinization condition. Gougerot and Carteaud were the first to describe the condition. Multiple theories have been proposed which include exaggerated response to M. furfur, infection with Dietzia papillomatosis, over expression of K16 gene and amyloidosis. CRP is usually characterised by hyperpigmented verrucous dirty plaques in a reticular pattern seen commonly over the back and trunk. Treatment of choice is Minocycline. Other treatment includes Azithromycin, clarithromycin and oral retinoids [16] [17].

After skin inflammation or damage, postinflammatory hyperpigmentation (PIH) is a frequently acquired disorder. It is a chronic condition that is more frequent and severe in those with Fitzpatrick skin type III-VI. Hypermelanosis, or postinflammatory hyperpigmentation, is caused by excessive melanin synthesis or excessive melanin deposition in the epidermis or dermis as a result of inflammation. In the distribution of the primary inflammation or damage, PIH manifests as irregular, hyperpigmented macules or patches on physical examination [18]. PIH secondary to atopic dermatitis usually results in dirty scaly plaques [3]. In this article, we have described dirty brown patches of PIH secondary to miliariarubra. According to our knowledge, there is not much of data on PIH secondary to Milariarubra causing dirty scales [19]. An algorithmic approach to dirt like lesions is mentioned in FIG 7

In conclusion, dirt like dermatoses is an entity that is under reported. In this article we have laid out the common causes of dirt like lesions and listed PIH secondary to Miliaria Rubra as a new cause for dirt like lesions

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