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Darier-White Disease with Sensorineural Hearing Loss – A Case Report

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ABSTRACT

Darier-White disease (keratosis follicularis) is a rare autosomal dominant genodermatosis characterized by hyperkeratotic papules and plaques in seborrheic areas, often presenting with nail abnormalities and occasionally mucous membrane changes.

It has been associated with neurocognitive/psychiatric disorders, ankylosing spondylitis, hidradenitis suppurativa and nephritis. Affected individuals also have an increased tendency to cutaneous infections.

However, a thorough literature search showed no association with sensorineural hearing loss.

We herein report the case of a 34-year-old Nigerian man with disfiguring Darier-White disease (DWD) associated with spondyloarthropathy and sensorineural hearing loss. We affirm that early diagnosis, prompt and appropriate therapy and adequate patient education can avert undesirable outcomes.

Keywords: Darier-White Disease, Otitis Media, Sensorineural Hearing Loss, Tinnitus, Nigeria

INTRODUCTION

Darier-White disease (DWD) is a rare chronic progressive genodermatosis resulting from a mutation in the ATP2A2 gene, which encodes the enzyme required for intracellular calcium transport. It shows complete penetrance and variable expressivity [1,2]. It is characterized by multiple greasy skin-coloured or yellow-brown hyperkeratotic papules predominantly in the seborrheic areas of the face, scalp, upper trunk and flexures. Secondary skin infections with bacteria, fungi and viruses are common [3,4].

Reports exist of its association with several other disease entities such as hidradenitis suppurativa, ankylosing spondylitis, nephritis and, more commonly, neurocognitive/psychiatric manifestations such as mental retardation, mood disorders and epilepsy [3-10].

There are rare reports of reduced auditory perception due to keratotic debris [9,11], but a thorough literature search yielded no association with sensorineural hearing loss (SNHL). This is a preventable previously unreported irreversible sequela of DWD.

CASE PRESENTATION

A 34-year-old male road construction supervisor was referred with a 10-year history of progressively

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evolving rashes predominantly affecting the face, trunk and genitalia. The nails, hands and feet were also affected, and there was associated joint pain and hearing impairment.

The problem started in his early twenties when he experienced recurrent episodes of thickening, redness and peeling of the lips; tiny depressions on the palms and soles, with malodorous groin lesions.

There was associated debilitating low-back and chest pain, presenting the worst in the morning, which improved as the day progressed. This eventually became a feature of every flare.

About three months before first presentation at our facility, he developed rashes on the face and trunk, with tinnitus and hearing loss in both ears. The latter was treated at a peripheral health facility and resolved. However, he experienced reoccurrences in either or both ears.

Cutaneous lesions were pruritic, sometimes painful and often malodorous; aggravated by exposure to sunlight, sweating and heat. He also had recurrent episodes of painful boils. He denied any family history of a similar condition, and a sibling confirmed this.

There were varied lesional morphologies depending on the body part affected- discrete and coalescent greasy warty papules on the face and trunk, which formed a polygonal reticulate (honeycomb) pattern on the nose with fissured yellow hyperkeratotic lips, hyperkeratotic palmoplantar and dorsal pits with nail changes showing v-shaped notches, trachyonychia, onycholysis and accumulation of subungual debris (Figure 1); and hyperkeratotic sheet-like plaques overlying an erythematous base on the scrotum and glans penis.

Figure 1: Polygonal reticulate (honeycomb) pattern on the nose, with yellow fissured hyperkeratotic lips (Left). Nail changes showing v-shaped notches, onycholysis and subungual debris (Right)

Differential diagnoses entertained were keratoderma of unknown aetiology to rule out syphilis; and severe atypical hyperkeratotic seborrheic dermatitis. VDRL and HIV-1 and HIV-2 serologic tests were negative. Histology showed hyperkeratosis with focal parakeratosis, focal erosions in the cornified layer, mononuclear perivascular inflammation with exocytosis of lymphocytes, but a histopathological diagnosis of hyperkeratotic dermatitis did not help ascertain the specific cause of keratoderma. Review by the otorhinolaryngologist revealed bilateral otitis media with effusion but showed no keratotic debris in the auditory canal.

He was treated with antibiotics, antifungal and antipruritic agents and made remarkable improvements.

After a few follow-up visits, he defaulted and returned four years later with a marked deterioration in his skin condition and total hearing loss. Facial papules had coalesced to form an expansive dirty brown verrucous plaque covering the whole face but sparing the hairline and periorbital regions. This was worse in the centrifacial area, with haemorrhagic fissures cutting through the tan-coloured plaques and creating a 'tree-bark' appearance, as shown in Figure 2.

A review by the otorhinolaryngologist confirmed bilateral severe sensorineural hearing loss (SNHL), and a repeat biopsy showed histopathologic features of dyskeratosis, and suprabasal acantholysis, which together with the clinical features led to a diagnosis of Darier-White disease with associated SNHL and spondyloarthropathy.

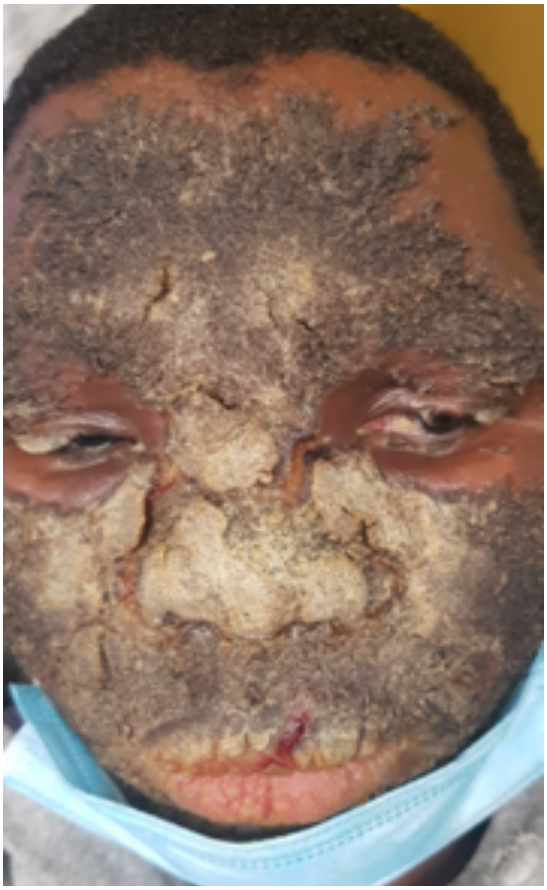

Figure 2: Fulminant lesions with 'Tree bark' appearance on the face

He received Isotretinoin at a dose of 0.5mg/kg/day in addition to antifungal, antiviral and antibacterial treatment for secondary infections.

The treatment was well-tolerated and produced no side effects. Within 6 weeks, there was a marked improvement in skin lesions (Figure 3). However, there was no change in tinnitus and hearing loss. He was discharged after extensive patient education, emphasizing strategies to prevent prolonged sun exposure; and the importance of continuous follow-ups.

DISCUSSION

Darier-White disease has an autosomal dominant mode of inheritance. There are reports of supposedly sporadic occurrences as was observed in our patient [3,4,8]. However, the expressivity can be so varied that mild localized disease or barely perceptible presentations in other family members are missed, unless intentionally sought [2]. Thus, in the absence of a thorough examination of other family members, it is difficult to state conclusively that this is a sporadic case.

The disease has a worldwide distribution, with just a handful of reports from Africa [12-14]. This is despite the description of a unique variant – guttate leukoderma – exclusively found in persons with pigmented skin [14-15]. The rarity of reportage may account for the diagnostic delay of over a decade, which severely affected the patient's quality of life.

An increased susceptibility to bacterial, fungal and viral infections has been reported [3,4,8]. However, these infections are limited to the skin; as was experienced by the index patient who in addition had recurrent otitis media. A thorough search of available literature revealed no report of DWD in association with SNHL. However, Almeida et al. [9] reported chronic middle ear infection consequent to recurrent lesions in the ear, causing damage to the eardrum and reduced hearing capacity of the left ear. Pickard and Mandy also observed impaired auditory perception in a patient who developed occlusion of the external ear canal by keratinous debris, which improved with debridement [11]. On the other hand, our patient had recurrent otitis media in the absence of lesions in the ear canal, and with an intact eardrum, went on to develop severe bilateral SNHL. The predisposition to infection might be the reason for the chronic otitis media that eventuated in SNHL.

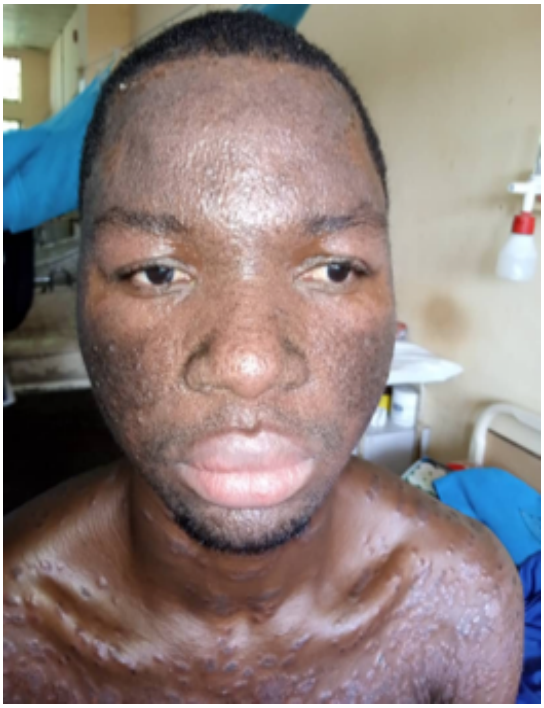

Figure 3: Marked improvement after six weeks on Isotretinoin

A prominent clinical feature was that of spondyloarthropathy, which coincided with periods of disease flare. This is one of several such reports [4,6,9,10]. Further studies are needed to determine if it is a definite or incidental association. Other associations reported in at least two or more articles include epilepsy, mental retardation, depression, nephritis and hidradenitis suppurativa [3-5,8,9].

In conclusion, this may be the first reported case of sensorineural hearing loss coexisting with spondyloarthropathy in a patient with Darier-White disease.

Reports like this are necessary to increase awareness of DWD, especially in regions of the tropics where there is abundant sunshine. The unremitting lesions, exacerbated by sun exposure, become progressive, fulminant, and may lead to a life-altering event in the face of diagnostic delays, lack of thorough patient education and appropriate treatment, as was the case in our index patient.

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