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(CASE REPORT)

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Tinea capitis with kerion complicated by keloid formation in a 34-year-old man: A case report

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Abstract

A kerion, also known as a dermatophyte, is a type of inflammatory tinea capitis caused by an exaggerated immune response to a fungal ringworm infection primarily affecting the scalp. A keloid is an abnormal scar tissue proliferation occurring at the site of tissue injury or spontaneously. It occurs more commonly in darker-skinned individuals. The coexistence of kerion and keloid is rare. This case involves a 34-year-old man who presented with a four-year history of scalp swelling, itching, and occasional fluid discharge. There is a history of keloids in multiple parts of the body. Examination revealed multiple keloids on the scalp alongside a purulent, oozing rash with satellite nodules. Skin scraping for KOH microscopy was positive for fungal spores and hyphae. This case highlights the rare complication of keloid formation in kerion which can hinder effective treatment of the underlying fungal infection.

Keywords: Kerion; Keloid; Tinea capitis; Scalp

1. Introduction

Tinea capitis, commonly known as 'ringworm', is a fungal scalp infection commonly seen in children. Occasionally, it affects adults. This infection is initially asymptomatic and present in many fomites, including hairbrushes, pillows, and beddings, so it spreads easily [1]. It could present in different ways including scalp itching, hair loss, and inflammatory responses. In a more severe form, it can manifest as a kerion, an inflammatory, pus-filled sore (abscess) that sometimes oozes [2]. This can complicate treatment and lead to secondary issues, such as scarring and keloid formation.

Keloids are benign fibrotic growths brought on by an abnormal wound-healing process, where excessive collagen deposition extends beyond the original injury site [3]. They are more prevalent in individuals with darker skin tones, especially those who are of African descent. Keloids can be painful or itchy but are not usually dangerous to a person's health. However, depending on where they are located, they can be of cosmetic and or functional concern.

This case report details the presentation, diagnosis, and management of a 34-year-old Nigerian male with tinea capitis complicated by kerion and subsequent keloid formation. The patient presented with a four-year history of scalp swelling, persistent itching, and occasional fluid discharge. The age of presentation, duration, and severity of his symptoms prompted the need for a comprehensive approach to his treatment, addressing both the infectious and scarring components of his condition.

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2. Case report

On July 4, 2024, a 34-year-old male patient who works as a bank teller presented to the outpatient department of a local hospital with complaints of scalp swelling, itching, and occasional fluid discharge, which began four years ago. The swelling began as a rash that was said to be dry, itchy, and associated with scaling of the scalp. At the time, he thought little of the rash and applied steroid cream and an antifungal cream. The rash got worse and spread to other areas, and this prompted him to discontinue over-the-counter medications for herbal treatment.

After commencing the herbal treatment, the itching resolved, but he noticed swelling, which was said to be replacing the rash, and a discharge of clear-colored fluid. This development prompted him to present to a nearby hospital, where a diagnosis of keloid was made, and he was placed on a steroid cream as well as a 4-week course of triamcinolone injection given weekly to the swelling. This treatment only seemed to increase the itch, spread the rash, and fail to reduce the swelling. He continued with the steroid applications with no relief, which prompted him to seek care at another facility. At this facility, another diagnosis of keloid was made, and he received another course of triamcinolone with little reduction in the swelling; however, the itching remained. He then asked for a review by a specialist and a referral to a tertiary center as a result of this.

He still complains of itching and swelling, which seemed to be spreading, as well as a clear fluid discharge. The patient has a history of keloids in multiple parts of his body. No prior history of rash, fever, allergies, weight loss, diarrhea, increased fluid intake, excessive urination, or paraesthesias is present. There is no medical history of sickle cell disease, diabetes, asthma, hypertension, or epilepsy, but he has a family history of diabetes mellitus. He has never been admitted to a hospital or undergone any surgical operation. He is single and lives alone, does not smoke or drink alcohol. He is currently using a mixture of clotrimazole, betamethasone, and neomycin on the rash.

On physical examination, multiple keloids were seen on the scalp with a coexisting rash that oozed purulent material with satellite nodules at the periphery. The patient was not ill-looking and had no palpable lymph nodes. On Wood's lamp examination, some areas of the scalp appeared green. A review of systems was non-contributory. A diagnosis of tinea capitis with kerion complicated with keloid formation and coexisting bacterial folliculitis was made.

Investigations such as full blood count, swab for culture and sensitivity, skin scraping for KOH microscopy, serology for HIV, VDRL, and glycated hemoglobin were all done.

The patient was placed on terbinafine 250 mg daily for a month, 3% salicylic acid with clotrimazole to the scalp twice daily for a month, Ciprofloxacin 500mg twice daily for 10 days, and Nizoral shampoo and was asked to follow up in two weeks.

On 30/07/2024, the patient reported reduced itching and scalp discharge. On examination, he was well-looking and hydrated with no fever, cyanosis, digital clubbing, jaundice, pedal edema, lymphadenopathy, or pallor. Microscopy, culture, and sensitivity revealed growth of S. aureus, sensitive to Erythromycin, Gentamicin, Ciprofloxacin, Levofloxacin, and Clindamycin. Skin scraping for KOH microscopy was positive for fungal spores and hyphae.

He was asked to continue Ciprofloxacin 500mg twice daily for 10 days, 3% salicylic acid + gentamycin + mycoten twice daily for the scalp rash for one month. A follow-up visit was scheduled in one month.

On 21 August 2024, during a follow-up visit, he reported feeling better especially when the hair was cut and pustules on growing the hair which resolved after a haircut. On examination, he was well-looking with no abnormalities on general examination. The nodules were noted to be further diminished on examination of the scalp rash and he was continued on the previous medication with a one-month appointment.

3. Discussion

Tinea capitis is a fungal infection commonly found in children, with a high prevalence among Africans. It can also occur in immunocompromised individuals, those with anemia, and diabetics [1]. It is spread by close contact or by sharing personal belongings. Tinea infection may go unnoticed for a long time and can sometimes be misdiagnosed, leading to a delay in proper management. It can present in two ways: endothrix and ectothrix pattern. The endothrix pattern is found within the hair shaft, and the ectothrix pattern involves the entire surface of the hair. Tinea capitis can also present as inflammatory or non-inflammatory. The ectothrix pattern is the most common cause of the non-inflammatory presentation. The inflammatory subtype can become purulent and lead to the formation of Kerion. This

purulent form of Tinea capitis may be misdiagnosed as a bacterial abscess, leading to misdiagnosis and ineffective management.

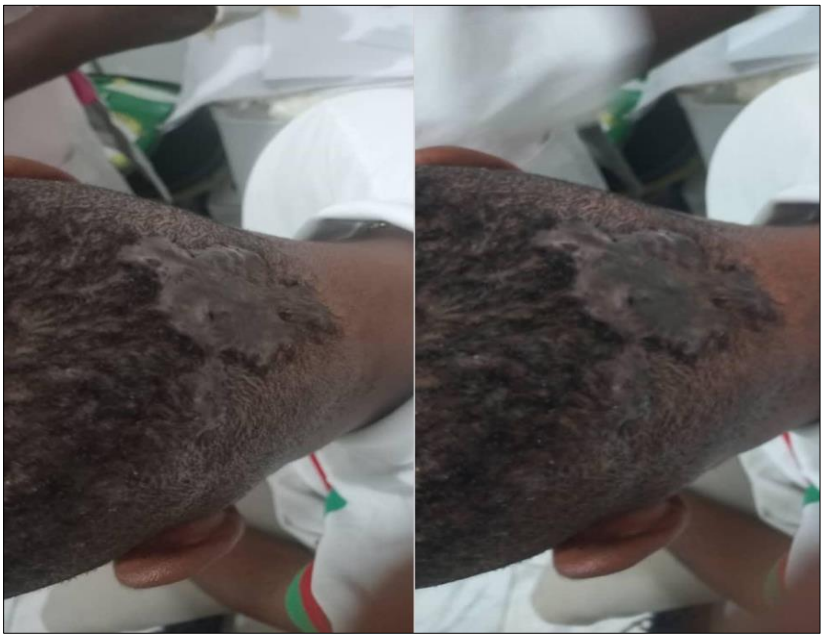

Figure 1 On initial presentation

Initially, the patient self-treated his scalp lesion with antifungal and steroid cream to alleviate itching. Subsequently, he developed a keloid from scratching and scaring in the affected area. Our patient consulted with different providers and was constantly diagnosed and treated for Keloid with topical triamcinolone. Various studies have explored the findings, diagnosis, differential diagnosis, treatment, and complications of Tinea capitis. This patient had an interesting presentation of kerion with superimposed keloid, complicating the treatment of the fungal infection. His current treatment includes oral terbinafine 250 mg daily, Nizoral shampoo, and topical betamethasone. Although not compliant with follow-ups, the patient is currently responding well to treatment.

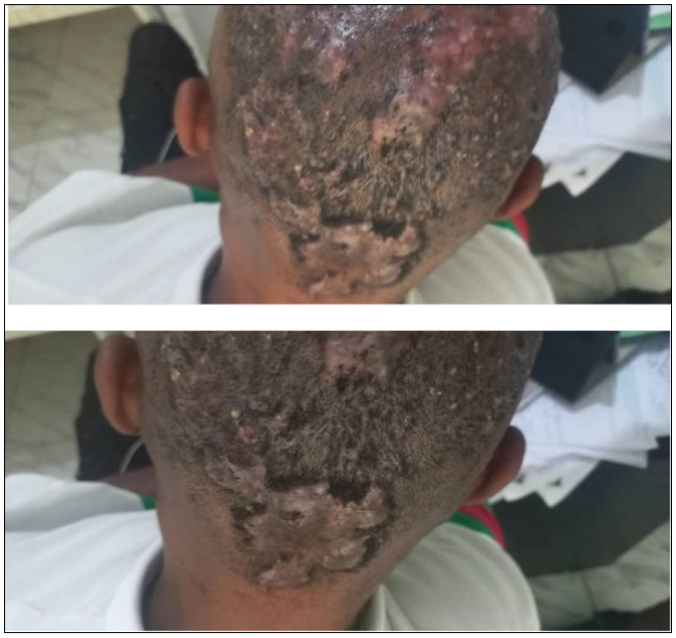

Figure 2 Improved state

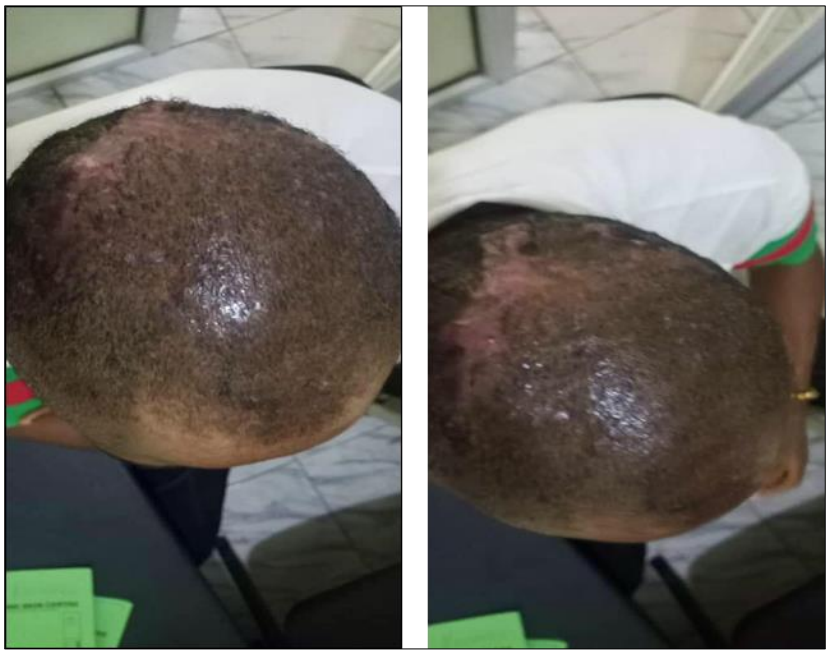

Figure 3 Current state- 21st August, 2024

4. Conclusion

This case report details the management of a 34-year-old Nigerian male with tinea capitis complicated by kerion and keloid formation. The patient's four-year history of scalp swelling, itching, and occasional fluid discharge shows the chronic nature of his condition and the challenges associated with delayed or inadequate treatment. One challenge that was noted in this case is ensuring the patient continues with follow-ups and adheres to care given the extended duration of treatment.

The current management plan, involving oral terbinafine and ketoconazole shampoo, aims to address the underlying fungal infection and reduce inflammatory symptoms. While the treatment seems promising in controlling the fungal infection, the presence of keloid formation should include the intervention of a dermatologist and plastic surgeon to effectively manage scarring. The importance of early diagnosis and comprehensive treatment strategies in managing tinea capitis should also be emphasized, particularly in adults who may present with atypical complications such as keloid formation. Continued monitoring and a tailored treatment plan are important factors in improving the patient's quality of life and preventing further complications.

Compliance with ethical standards

Disclosure of conflict of interest

There are no conflicts of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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