

Case Report

How Affected Nail Plate Suspected for Fungal Infection Led to the Diagnosis of Atypical Genital Scabies

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Abstract

Introduction: Scabies is an ectoparasitic infection of the skin caused by the mite *Sarcoptes scabiei var. hominis*. The aim of this presentation is to show how single nail change can unveil sexually transmitted general scabies.

Case Presentation: A 27-year old woman presented to the clinic with a complain of 4-5 weeks history of discoloration of the nail accompanied by onycholysis without paronychia. Nail scrapings from the nail were obtained and subjected to microscopy and cultivation on Blood agar, MacConkey agar, Chrom agar Candida and SDA Chloramphenicol (Becton Dickenson) for isolation and identification of bacteria and fungi. Plates were incubated at 37°C for 24-48 hours for routine microbiological testing and for additional three days at room temperature for fungi isolation. Bacteria and fungi were not identified, but *Sarcoptes scabiei* was detected. Newly performed detailed anamnesis and physical examination revealed erythematous papules distributed on the genitalia region with slight excoriations. Sexually transmitted scabies was supposed and proved. Testings for additional STD were performed. The results were negative.

Conclusions: Nail and surrounding tissues abnormalities could be symptoms of scabies. The described case shows how the nail change can unveil sexually transmitted general scabies. Anamnesis, physical examination, dermoscopy and microbiology testings can assure precise diagnosis of each skin/nail infection that would be base of adequate and on time performed treatment. If not treated nail scabies could become reservoir of reinfestation and severe clinical presentation.

Keywords: *Sarcoptes scabiei*; Nail scabies; Genital scabies; Onycholysis

Introduction

Scabies is considered a Sexually Transmitted Infection (STI) because it can be acquired through sexual or close body contact with someone infected [1]. It could be transmitted also by using contaminated personal objects. Typical scabies lesions are disseminated in typical zones skin eruptions - papules, nodules, vesicles that tend to be itchy with activation at night. We present a case of nail scabies in a young person that did not show well disseminated lesions with nocturnal itch but with minimal genital erythematous papules and slight excoriations found on secondary physical examination that revealed genital scabies after it was detected on the basis of nail changes.

Case Presentation

A 27-year old woman presented with discoloration of the nail accompanied by onycholysis without paronychia (Figure 1). A written informed consent in accordance with the ethical standards of the Ethical Committee of Medical University of Sofia was taken. Scrapings from the nail were obtained and subjected to microscopy and cultivation on Blood agar, MacConkey agar, Chrom agar Candida and SDA Chloramphenicol (Becton Dickenson) for isolation and identification of bacteria and fungi. Plates were incubated at 37°C for 24-48 hours for routine microbiological testing and for additional three days at room temperature for fungi isolation.

Sarcoptes scabiei var. *hominis* was detected. Newly performed physical examination with subsequent dermatoscopic examination revealed few erythematous papules, skin burrows and slight excoriations in the genitalia region. Obtained skin scrapings from the zone gave positive ectoparasite results. Testings for additional STD were negative.



Figure 1: Nail scabies.

Discussion

Scabies is ubiquitous, contagious infestation caused by the ectoparasite *Sarcoptes scabiei* var. *hominis*. The mite penetrates within the epidermal stratum corneum forming burrows and releasing substances that cause highly pruritic skin eruptions [1]. Their localization is between fingers, wrists, axillae, buttocks, genitals, breasts and groins. Other manifestations include excoriations and impetiginization [1].

The diagnosis of scabies is based on the clinical findings in typical areas, on the subjective feeling of itching more intense at night and on the patient's history suggestive for infection. The diagnosis could be supported by dermoscopy - non-invasive painless tool that permits more detailed visualization of the skin. Specific S-shaped burrows on the skin with *S. scabiei* mite and the „delta sign“ at the end of the burrow could be distinguished. Skin scrapings or biopsy could be further examined. Placed on a glass slide with a drop of chlorazole potassium or potassium hydroxide the samples could be microscopically analysed.

According the European guideline for management of scabies the treatment includes topical therapy (permethrin cream 5% repeated once after 7-14 days or benzyl benzoate lotion 10-25% on days 1,2 and repeated after 7 days) applied at night and left in place for 8-12 hours or Ivermectin p.o. 200µg/kg repeated after 7 days [1]. Alternative medications or regimens exist [1]. Together with this the patient's clothing and bedding must be carefully handled. Patient's family members, all persons in close contact and the sexual partners over the past 2 months must receive treatment.

A case of nail scabies is presented. A 27-year old woman complained of nail plate change with discoloration and this was the reason for her visit. The clinical findings showed brownish-

yellow-white nail color of the right middle finger accompanied by onycholysis without paronychia. In the daily practice consultations for nail changes are frequent. They could be result of traumatism, infection, neoplasia, genetic disorder or symptom of general skin disorder (psoriasis, lichen planus, contact dermatitis, alopecia areata, autoimmune disease) [2,3]. So, family and occupational history were taken and any peculiarities in the activities or trauma were revealed. Nail changes as a result of genetic disease were rejected because the nail changed 3 months ago. Due to the fact that the patient is a young with no family history of malignancies the neoplastic etiology was the least likely, and, the infectious one remained to be proven.

Infections of the nails could be induced by fungi, bacteria or their combination. Fungi account for 50% of nail disease cases [4]. *Trichophyton rubrum*, *Epidermophyton floccosum* and *Microsporium gypseum* represent the main causative agent. The dermatophytes are followed by the yeasts *Candida* spp. and the molds *Fusarium* spp [5]. Bacterial infections of the nails are not rare. Usually Gram negative bacteria are implicated - *Pseudomonas aeruginosa*, *Klebsiella* spp., but Gram positive bacteria such as *Staphylococcus aureus* or *Streptococcus pyogenes* could be protagonists [6-8]. For this reason scrapings from the nail were obtained and subjected to microscopy and cultivation for isolation and identification of bacteria and fungi. The fungal and bacterial cultures remained negative. Placed on a glass slide with a drop of potassium hydroxide the samples did not reveal fungal infection but surprisingly *S. scabiei* was detected. This made us to look for generalized scabies.

Newly performed detailed anamnesis gave information for one-time unprotected sexual intercourse 4 months ago. According to the patient's memories rashes on partner's body were there, but she did not pay much attention to them. If the partner's rash corresponded to a scabietic one the close sexual contact may explain the transfer of mites and the following disease in our patient. The physical examination of the entire body plus dermoscopy revealed few erythematous papules distributed on the genitalia region with slight excoriations. No other skin lesions were detected. The patient informed of a mild itch in the genitalia 2-3 weeks after the sexual intercourse that did not require treatment because it did not bother her.

The infestation with scabies poses a high burden on patients, often due to the intense itch. The sensation might become chronic due to persistence of pathogens after treatment or due to the dehydrating effect of the medication on the skin. The presence of pruritus is described in most of the patients with scabies and the prevalence of this symptom ranges from 90–99% [9]. In the presented case the typical intense nocturnal itching was absent. Scabies with minimal itching was described by other authors [10]. This fact may partially explain the weak subjective reaction in the person but may be is not the only reason. There must be something in the immune reaction to weaker the symptomatology. The weak reaction was presented not only by mild itch but by minimal number of erythematous papules seen on the physical examination. Commonly the typical rash is disseminated in specific zones and easily seen. Of course, cases with varying degree of papular rash are described yet [11].

Another peculiarity of the presented case was the involvement of the nail. According to our knowledge *S. scabiei* infection of the nails is not frequent [3;12,13]. Nail scabies is reported in immunocompromised patients, in patients with crusted severe scabies, who have high parasitic concentration

stimulating the infectious disease and the symptomatology [14-17]. Probably the infection in our patient was spread from the genitalia region to the nail by the scratching process. And because of the minimal clinical symptoms and the lack of treatment the mites have developed inducing color change with onycholysis.

Due to the atypical weak immune response and the fact that scabies is a STD, the patient was tested for HIV. Detection of additional STD (*N.gonorrhoea*, *C. trachomatis*, *M. genitalium*, *U. urealyticum*, *T. pallidum*, *T. vaginalis*, *HPV*, *HSV*) was performed. The results were negative.

Nail scabies management is not easy and evidence based (18). Different strategies have been described – oral treatment with ivermectin [1]; topical treatment with 5% permethrin [18]; continuous occlusive dressing of crotamiton cream [19]; 1% lindane ointment with occlusive dressing [3]; topical treatment with 5% permethrin cream after chemical destruction of the nail [20]. According the European guideline local treatment should be used to all skin zones including finger and toe web spaces and the skin beneath the ends of the nails. In the described case topical Benzyl benzoate lotion 25% was applied to all skin regions once daily at night on 3 consecutive days with new administration after 7 days. Regarding the nails the lotion was used around and over them, including their ends for 14 consecutive days. The nail started to improve in the next 2-3 weeks. And 3 months later it was successfully recovered. No signs of recurrence were detected after 6 months.

Conclusions

Nail and surrounding tissues abnormalities could be symptoms of scabies. The described case shows how the nail change can unveil sexually transmitted general scabies. Although nail disorders are relatively rare health care providers should be aware of their scope – genetic, infectious, inflammatory, neoplastic or traumatic; and their importance – they can reveal local or systemic conditions. Nail scabies is not common and easily could be mistaken or overlooked. Something else, nail scabies can mimic mycotic, bacterial or combined infection or inflammatory process as psoriasis. Therefore, the routine work should include microscopy of skin and nail scrapings, that will give precise diagnosis that would be base of adequate and on time performed treatment. If not treated nail scabies could become reservoir of reinfestation and severe clinical presentation.

Author Contribution

As the only author of thi manuscript Vessela Raykova is responsible for all its elements.

Vessela Raykova conceived and designed the evaluation and drafted the manuscript.

Vessela Raykova collected the clinical data and interpreted them.

References

- Salavastru CM, Chosidow O, Boffa MJ, Janier M, Tiplica GS. European Guideline for the Management of Scabies. *J Eur Acad Dermatol Venereol*. 2017; 31: 1248-1253.
- De Lorenzi C, Abosaleh M, Boehncke WH. Nail Changes: Diagnostic Considerations in Everyday Medical General Practice. *Revue Medicale*. 2017; 13: 691-696;
- Isogai R, Kawada A, Aragane Y, Tezuka T. Nail Scabies as an Initial Lesion of Ordinary Scabies. *Br J Dermatol*. 2002; 147: 603.
- Gupta AK, Versteeg SG, Shear NH. Onychomycosis in the 21st Century: An Update on Diagnosis, Epidemiology, and Treatment. *J Cutan Med Surg*. 2017; 21: 525-539.
- Nenoff P, Paasch U, Handrick W. Infections of Finger and Toe Nails Due to Fungi and Bacteria. *Hautarzt*. 2014; 65: 337-348.
- Chiriac A, Brzezinski P, Foia L, Marincu I. Chloronychia: Green Nail Syndrome Caused by *Pseudomonas Aeruginosa* in Elderly Persons. *Clin Interv Aging*. 2015; 10: 265–267.
- James WD, Berger TG, Elston DM, Odom RB. *Andrews' Diseases of the Skin: Clinical Dermatology*. 10th ed. Philadelphia:Saunders Elsevier, 2006.
- Cohen MS, Rutala WA, Weber DJ. Gram-Negative Coccal and Bacillary Infections. In: Goldsmith LA, Katz SI, Gilchrist BA, Paller AS, Leffell DJ, Wolff K, editors. *Fitzpatrick's Dermatology in General Medicine*. 8th ed. New York: McGraw-Hill, 2012: 2183-2186.
- Nair PA, Vora RV, Jivani NB, Gandhi SS. A Study of Clinical Profile and Quality of Life in Patients With Scabies at a Rural Tertiary Care Centre. *J Clin Diagn Res*. 2016; 10: WC01–5.
- Mahajan SA, Chhonkar A, Dave JS, Muhammed N. Unusual Presentation of Crusted Scabies with Osteolysis in Immunocompetent. *Australas J Dermatol*. 2021; 62: e563-e567.
- Søreide EH, Ravn J. Scabies. *Tidsskr Nor Laegeforen*. 2020; 140.
- Witkowski JA, Parish LC. Scabies. Subungual Areas Harbor Mites. *JAMA*. 1984; 252: 1318-1319.
- Saruta T, Nakamizo Y. Usual Scabies with Nail Infestation. *Arch Dermatol*. 1978; 114: 956-7.
- Ohtaki N, Taniguchi H, Ohtomo H. Oral Ivermectin Treatment in Two Cases of Scabies: Effective in Crusted Scabies Induced by Corticosteroid but Ineffective in Nail Scabies. *J Dermatol*. 2003; 30: 411-416.
- Weatherhead SC, Speight EL. Crusted Scabies as a Cause of Longitudinal Nail Splitting. *Clin Exp Dermatol*. 2004; 29: 315.
- McLucas P, Fulchiero GJ Jr, Fernandez E, Miller JJ, Zaenglein AL. Norwegian Scabies Mimicking Onychomycosis and Scalp Dermatitis in a Child with IPEX Syndrome. *J Am Acad Dermatol*. 2007; 56: 48-49.
- Goyal NN, Wong GA. Psoriasis or Crusted Scabies. *Clin Exp Dermatol*. 2008; 33: 211-212.
- Chinazzo M, Desoubeaux G, Leducq S, Bessis D, Droitcourt C, et al. Prevalence of Nail Scabies: A French Prospective Multicenter Study. *J Pediatr*. 2018; 197: 154-157.
- Zou Y, Hu W, Zheng J, Pan M. Nail Infestation: an Atypical Presentation of Typical Scabies. *Lancet*. 2018; 391: 2272.
- Last O, Reckhow J, Bogen B, Rozenblat M. Subungual and Ungual Scabies: Avoiding Severe Presentation in High-risk Patients. *BMJ Case Rep*. 2018; 11: bcr2018225623.