



## THE DIAGNOSIS AND TREATMENT OF NAIL DISORDERS

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**ABSTRACT** **Background:** Nail disorders can arise at any age. Most of the nail disorders are of infectious origin, around 15% are due to inflammatory or metabolic conditions, and 5% are due to malignancies and pigment disturbances. The differential diagnosis of nail disorders is often challenging clinically. **Methods:** This review is based on publications and guidelines retrieved by a selective search in PubMed, including Cochrane reviews, meta-analyses. **Results:** Nail disorders are a common reason for dermatologic consultation. They are assessed by clinical inspection, dermatoscopy, diagnostic imaging, microbiological (including mycological) testing, and histopathological examination. Some 10% of the overall population suffers from onychomycosis, with a point prevalence of around 15%. Bacterial infections of the nails are rarer than fungal colonization. High-risk groups for nail disorders include diabetics, dialysis patients, transplant recipients, and cancer patients. Malignant tumors of the nails are often difficult to diagnose at first. For subungual melanoma, the mean time from the initial symptom to the correct diagnosis is approximately 2 years; this delay is partly responsible for the low 10-year survival rate of only 43%. **Conclusion:** Evaluation of the nail organ is an important diagnostic instrument. Aside from onychomycosis, which is a common nail disorder, important differential diagnoses such as malignant diseases, drug side effects, and bacterial infections must be considered.

## KEYWORDS :

## INTRODUCTION

The mature nail organ comprises the nail matrix, the nail bed, the nail plate, and the nail fold. The proximal portion of the nail matrix is immediately adjacent to the distal interphalangeal joint and the insertion of the extensor tendon. The latter gives rise to a dense superficial connective-tissue lamina enveloping the nail matrix. The distal portion of the nail matrix is attached to the nail bed. The nail bed is distally delimited by the nail isthmus, which is continuous with the hyponychium lying under the free edge of the nail. The most distally located structure is the distal groove (1). The nail plate consists mainly of parallel keratin filaments, which give it mechanical stability.

## MATERIALS AND METHODS.

This review is based on pertinent articles retrieved by a selective search in PubMed and the Cochrane Library.

## NAIL INVOLVEMENT IN INFLAMMATORY SKIN DISEASES

Nail involvement in psoriasis often points to the diagnosis. It is independent of the severity of skin involvement. Nail symptoms are seen in two-thirds of all patients with psoriatic arthritis and in about 40% of psoriasis patients without arthritis (2).

## NAIL SYMPTOMS IN MEDICAL DISEASE

Inspection of the nail organs is part of the routine physical examination in internal medicine. It can reveal a number of conditions:

- In the differential diagnosis of rheumatoid vs. psoriatic arthritis, the nails should be inspected for typical psoriatic changes (speckled nails, psoriatic oil spot, psoriatic onychomadesis) (3).
- As many as 60% of persons with chronic renal disease have nail manifestations. The double transverse white lines known as Muehrcke lines are a sign of hypoalbuminemia (<2.2 g/dL) (4).
- Distal ischemia of the acral skin in scleroderma is a cause of acquired irreversible pterygium inversum unguis (1)

## DRUG-INDUCED NAIL DISEASES

Nail symptoms arise in 10–60% of patients undergoing anticancer treatment (5). Chronic paronychia causes pain which restricts fine motor activity (6). Immunosuppressants and chemotherapeutic agents can damage the nail plate, leading to Beau-Reil transverse grooves and onychomadesis.

## Subungual And Periungual Tumors

Warts due to HPV are the most common type of benign growth affecting the nails. About 10% of all children and adolescents have ungula warts; precise data on the epidemiology of ungula warts are unavailable. Combination therapy is more successful than monotherapy; for example, cryotherapy plus topical salicylic acid is more effective than salicylic acid alone (risk 1.24) (7).

## BACTERIAL INFECTIONS OF THE NAILS

Bacterial infections of the nails often arise out of acute or chronic

paronychia, from which *Staphylococcus aureus* bacteria or streptococci can spread under the nail. Subungual bacterial infection can also be caused by *Pseudomonas aeruginosa*. Risk factors include repetitive minor trauma, working in damp conditions, onychotillomania (compulsive nail-picking or nail-tearing), psoriasis, thumb-sucking, diabetes mellitus, and immunosuppression.

## DIAGNOSTIC EVALUATION

Onychomycosis has broad differential diagnosis and cannot be diagnosed on clinical grounds alone. Mere inspection has the highest false-positive rate of any diagnostic method. Rather, the diagnosis should be based on mycological laboratory tests—either a potassium hydroxide preparation or an optical fluorescence preparation, along with growth of the pathogenic fungus in culture (the diagnostic gold standard). The histologic demonstration of fungi causing nail infections by means of the periodic acid Schiff (PAS) reaction after a punch biopsy of the nails, or nail clippings, is likewise highly sensitive. Neither the native preparation nor the histologically examined specimen enables determination of the genus or species of the responsible fungus; culture alone enables identification down to the species level.

## CONCLUSION:

Evaluation of the nail organ is an important diagnostic instrument. Aside from onychomycosis, which is a common condition [a common nail disorder?], important differential diagnoses such as malignant diseases, drug side effects, and bacterial infections must be considered.

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