A case that's hard to put a finger on: Recurrent hand cellulitis and paronychia in a healthy 30-year-old

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Introduction

Hand infections are commonly seen in primary care offices. The types of infections primary care physicians may see are broad, ranging from superficial to deep infections. Some examples of superficial infections include paronychia, felon, cellulitis, and subcutaneous abscesses. Deep infections include necrotizing fasciitis, deep space abscesses, septic joints, and osteomyelitis.[11] Recurrent hand cellulitis can occur even after successful treatment. The hand is exposed to infection due to its anatomy and necessity for daily activity.[1] Hands consist of many compartments and allow pathogens to spread easily. Also, trauma or injuries to the hand can happen during common daily activities which could range from nail biting to gardening to animal bites.[11] This is an interesting case of multiple different types of hand infections in a healthy 30-year-old female, over a 9-year span, with no other risk factors except for a previous medical history of cellulitis, illustrating the need for preventive measures and further evaluation for other risk factors of hand infections.

The Case

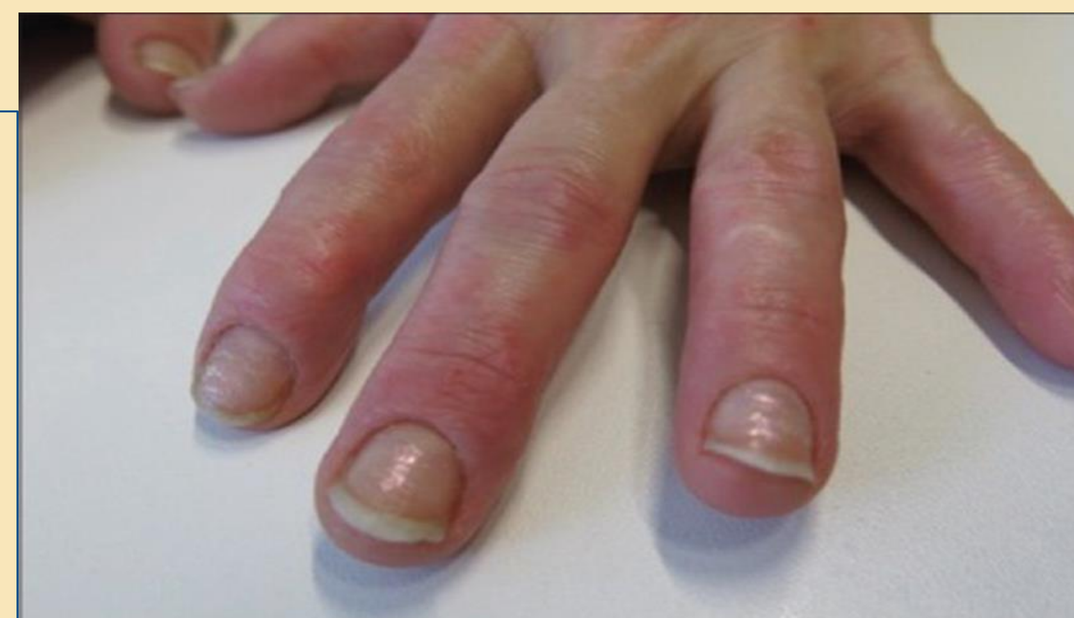
A 30-year-old female presented with left hand pain and right 3rd and 4th finger pain. The patient reported an extensive history of left hand (dorsal side) cellulitis. The patient stated that she first had cellulitis on her left 4th finger 9 years ago. She had no triggering event that could have led into that first episode of cellulitis. The only trigger she reported was that she always had dry skin due to dish washing and frequent exposure of her hands to water. Of note, the patient only recently started to use gloves when dishwashing. Since then, the patient had multiple episodes of cellulitis in the same area. All her episodes happened in the same spot and never involved nail infections. The patient's most recent hand cellulitis was treated with Keflex 500 mg t.i.d. for 5 days and 0.1% triamcinolone ointment in September 2023.

She was seen in our clinic in July 2024. Her current symptoms began 1 week ago with left fourth finger pain similar to the previous cellulitis episode. Then new symptoms of pain and warmth in her right 3rd and 4th finger started 3 days ago. She had no obvious triggers for this episode, such as trauma or outdoor activity. Our patient spends most of her time at her home as a stay-at-home mom. Upon initial questioning, the only relevant activity that could have contributed to developing the infection is frequently washing dishes. She has no history of diabetes, smoking, eczema, or lymphedema.

The Case(cont.)

Our physical examination revealed warmth and erythema of the patient's right 3rd and 4th finger lateral nail fold. The nail folds were swollen and tender to palpation. The nail folds' borderline was banishing as the finger was swollen. The 3rd finger lateral nail fold appeared somewhat fluctuant, and the patient reported she saw pus draining out of the finger. Examination also revealed that her right 3rd and 4th finger pulp had tenderness to palpation. Unlike the right hand, the left 4th finger only showed dry skin and minor tenderness around the distal tips of the finger. During range of motion and strength testing, the patient demonstrated a normal range of motion of her finger joints bilaterally, as well as normal strength.

We determined this patient had a right finger acute paronychia and felon. We treated her with Bactrim(sulfamethoxazole-trimethoprim) 800-160 mg twice daily for 7 days, topical Chlorhexidine, advised her to do warm compresses, and had her use Mupirocin 2% cream for her right fingers. She was also diagnosed as having a left finger chronic paronychia, which we treated with betamethasone valerate (Valisone) 0.1 % cream. The patient was seen for a follow up visit after 7 days. At that time her affected fingers were still slightly swollen, but no other symptoms were present, indicating that the treatment was working.



This picture is not the actual patient involved in this case, but rather a similar depiction of what our patient looked like. Picture credit:

Wollina U. Systemic Drug-induced Chronic Paronychia and Periungual Pyogenic Granuloma. Indian Dermatol Online J. 2018 Sep-Oct;9(5):293-298. doi: 10.4103/idoj.IDOJ_133_18. PMID: 30258794; PMCID: PMC6137670.

Discussion

Most well-known risk factors of recurrent episodes of cellulitis include dermatomycosis, venous insufficiency, and chronic edema which are all conditions related to the location of the body.[4, 10] Risk factors for chronic paronychia include repeated exposure to irritants or allergen, with secondary colonization by fungi and bacteria. Some of the other more systemic conditions that are associated with recurrent episodes of cellulitis include obesity, COPD, hypertension, hyperlipidemia, cancer, peripheral vascular disease, and diabetes.[5,9,10] However, these are not the only risk factors for recurrent cellulitis. Our patient had none of these.

Some lesser-known risk factors of recurrent cellulitis include a previous history of cellulitis, smoking, homelessness, dermatitis, and previous tonsillectomy.[3,7,8] There has been some work done to identify an association between these lesser-known risk factors to recurrent cellulitis. One study showed that the history of cellulitis is the only sole factor that could predict future recurrences.[6] Our patient had no other risk factors except for frequent dishwashing and a previous history of cellulitis.

Serious complications of cellulitis such as deep infections and extension into joints is more common in hands due to presence of multiple compartments in a tight space.[11] Thus, it is important to identify risk factors for recurrent cellulitis and paronychia to prevent, diagnose, and treat infection in the hand. The best way to treat recurrent infection is prevention. There is no single method to prevent recurrent infection, but risk factors must be managed properly.

Conclusion:

This case illustrates that recurrent hand cellulitis and paronychia can happen due to lesser-known risk factors like insufficient skin care and a prior history of infection even after successful treatment.

When it comes specifically to hand cellulitis and other infections, more exploration is needed to identify patients at risk and to employ strategies to mitigate that risk. Although there is no standard criterion for prevention and treatment of recurrent hand cellulitis, our case report demonstrates the need to identify various risk factors for better outcomes and to reduce recurrence of infection. In our patient, in particular, more work-up is needed to determine if there are any other possible connections between pre-disposing conditions to her recurrence of disease.

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