Case Report

Recurrent Flexor Tenosynovitis in a Diabetic Patient: A Rare Candida Infection

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Abstract

Background: Fungal infections of the hand are relatively rare but can lead to significant morbidity, especially in individuals with underlying risk factors such as diabetes. Candida species, while commonly associated with mucosal and systemic infections, are less frequently implicated in tenosynovitis or other soft tissue infections. In diabetic patients, the risk of fungal infections is elevated due to altered immune function and poor wound healing.

Case presentation: A 52-year-old diabetic male presented with pain, swelling, and numbness in his left hand, diagnosed with compound palmar ganglion, flexor tenosynovitis, wrist arthritis, and carpal tunnel syndrome. Following surgery, symptoms recurred four months later with swelling, redness, and exudate, and Candida albicans was identified as the causative pathogen. Antifungal therapy with voriconazole and fluconazole successfully treated the infection, though the patient experienced residual limitations in finger flexion. This case highlights the importance of considering fungal infections in diabetic patients with hand complications.

Conclusion: This report highlights the rare occurrence of Candida tenosynovitis and underscores the importance of considering fungal pathogens in patients with hand infections, especially those with risk factors like diabetes, even when initial cultures are negative. Prompt diagnosis and tailored antifungal treatment can prevent severe complications in such cases.

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Introduction

Flexor tenosynovitis is a condition characterized by the inflammation of the synovial sheaths surrounding the flexor tendons, most commonly affecting the hand and wrist. While often associated with inflammatory conditions such as rheumatoid arthritis or bacterial infections, fungal pathogens are an infrequent cause of flexor tenosynovitis. The vast majority of cases involve bacterial infections, with fungi like Candida being a rare but potentially significant etiological agent, especially in immunocompromised individuals. Diabetes mellitus, an immunocompromising disease, predisposes patients to a higher risk of opportunistic infections, including fungal ones, due to altered immune responses, increased glucose levels, and compromised wound healing. These factors highlight the importance of considering fungal infections in patients presenting with atypical symptoms of hand infections.

Candida species, particularly Candida albicans, are most commonly recognized as causative agents of superficial infections such as chronic paronychia and nail infections. However, deep tissue infections involving synovial sheaths and tendons due to Candida are exceedingly rare. A search of available literature reveals only a handful of reported cases of Candida tenosynovitis, underlining the unusual nature of such infections. Notably, these cases often involve patients who are immunocompromised or have had prior invasive medical interventions, which suggests that these factors may increase the susceptibility to fungal infections in deep tissues. Among the limited number of cases reported, some have involved patients with acquired immunodeficiency syndrome (AIDS), while others have been linked to surgical trauma or local injections, further emphasizing the role of predisposing factors in the development of such infections.

In the rare cases of Candida tenosynovitis documented, the infection has been diagnosed in patients with a variety of risk factors. For example, one case involved a patient with AIDS[1], while another involved a patient with a history of intravenous drug use[2]. Candida has also been implicated in post-surgical infections, such as those following ganglion cyst excision or joint replacements[3]. Despite being a rare occurrence, these infections have a potential for significant morbidity if left undiagnosed or improperly treated. Given the rarity of Candida tenosynovitis, clinicians may not always consider it in the differential diagnosis, especially in the absence of initial positive cultures or obvious signs of fungal infection.

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This case report presents the unusual occurrence of recurrent flexor tenosynovitis caused by Candida albicans in a 52-year-old diabetic male. The patient initially underwent surgical intervention for carpal tunnel syndrome and synovitis, but four months later, he experienced a recurrence of symptoms, which ultimately led to the identification of a Candida infection. The report underscores the need for clinicians to maintain a high index of suspicion for fungal infections in patients with atypical hand infections, especially those with diabetes or other immunocompromising conditions, and highlights the role of antifungal therapy in preventing complications.

Prompt recognition of such rare infections is critical, as it can prevent prolonged symptoms, irreversible tendon damage, or the need for further invasive surgical interventions. This case serves as an important reminder to healthcare professionals about the potential role of fungal pathogens, specifically Candida, in causing tenosynovitis and the importance of comprehensive diagnostic approaches, including fungal cultures, even when initial bacterial cultures are negative.

Case Report:

An 52-year-old man visited our clinic due to pain and swelling in his left hand. He also had complaints of numbness in his fingers. On examination, local temperature was raised, fingers were slightly flexed. There was a palpable, firm, mobile mass in distal forearm. Carpal compression test was positive. His medical history included diabetes. No other systemic abnormalities were present.

We advised him a musculoskeletal ultrasonogram of left hand. USG showed compound palmar ganglion with flexor tenosynovitis with wrist arthritis with median nerve entrapment. So, we diagnosed this condition as compound palmar ganglion with flexor tenosynovitis with CTS. We decided to perform carpal tunnel release with tenosynovectomy with synovial biopsy. Synovial proliferation around the flexor tendons were observed. Pathological examination of synovial tissue did not reveal findings specific to rheumatoid arthritis or acid-fast bacteria. A culture of synovial tissue tested negative for bacteria.

Four months later, pain was again triggered. The patient complained of pain with a handgrip. Fingers had limited flexion, and the wound site became swollen, tenderness, and redness was present. A serous exudate from the surgical wound was seen and sent for culture and sensitivity. Culture was positive for Candida albicans.

Oral Voriconazole (400 mg/day) was administered. The swelling reduced, and the serous exudate decreased gradually. Two months later, the fluconazole dose was reduced to 300 mg per day and was continued for another month. The patient informed us that the level of disability in flexing the ring finger was more acceptable than undergoing additional surgery for flexor tendon reconstruction.

Discussion:

Candida species are recognized as a cause of cutaneous and subcutaneous hand infections, such as chronic paronychia. (1) However, deep hand infections due to Candida are exceptionally rare. According to available literature, only six cases of Candida tenosynovitis have been documented in English. In these cases, the patients' medical history appears to have played a crucial role in predisposing them to the condition. Among the six cases, three involved individuals who were immunocompromised due to conditions such as acquired immunodeficiency syndrome, Buckley's immunodeficiency, or treatment with cyclosporine and methylprednisolone. (2-4) The remaining three cases occurred in patients who experienced invasive events before developing tenosynovitis. One patient with extensor tenosynovitis in the wrist and forearm had a history of recreational intravenous drug use, with visible injection marks on the forearm. (5) Another patient developed finger flexor tenosynovitis following surgery to remove a ganglion cyst and subsequent triamcinolone injections. (6) The final case involved flexor tenosynovitis extending from the wrist to the little finger, which occurred after a total thumb replacement. (7)

Our study highlights the need to consider infections caused by low-virulence pathogens, such as fungi, even when culture results are negative. In cases of hand tenosynovitis, Candida infection should remain a diagnostic consideration, even in the absence of positive bacterial or fungal cultures.

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