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Case Report

A Case Report of Necrotizing Fasciitis of the Hand in a Returning Traveler

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Abstract

Necrotizing fasciitis is a rapidly progressive, life-threatening soft tissue infection characterized by extensive fascial necrosis and systemic toxicity. Involvement of the hand is uncommon but poses a high risk of functional loss if not promptly managed. Travelers returning from endemic or resource-limited regions may present with atypical pathogens and delayed diagnosis. We report a case of necrotizing fasciitis of the hand in a returning traveler, emphasizing clinical presentation, diagnostic challenges, management, and outcomes.

Keywords: Necrotizing fasciitis; hand infection; returning traveler; soft tissue infection; case report

Introduction

Necrotizing fasciitis (NF) is a surgical emergency associated with high morbidity and mortality. It is characterized by rapidly spreading infection of the fascia and subcutaneous tissues, often with minimal early skin changes. The condition most commonly affects the lower extremities, abdominal wall, and perineum, while involvement of the hand is relatively rare.

Travel-associated necrotizing fasciitis presents additional diagnostic challenges due to potential exposure to uncommon or highly virulent organisms. Delayed recognition can result in devastating outcomes, including limb loss or death. This case highlights the importance of early suspicion, prompt surgical intervention, and multidisciplinary management in a returning traveler presenting with hand necrotizing fasciitis.

Case Presentation

Patient Information

A middle-aged adult presented to the emergency department with acute pain and swelling of the right hand following recent international travel. The patient reported minor skin trauma sustained during travel but did not seek medical attention at that time. There was no significant past medical history, including diabetes mellitus or immunosuppression.

Clinical Findings

On examination, the patient exhibited:

- Severe pain disproportionate to clinical findings
- Rapidly progressive swelling of the hand
- Erythema extending beyond the initial site of injury
- Skin warmth and tenderness
- Reduced range of motion of the fingers

Systemic signs included fever, tachycardia, and malaise. Crepitus was absent at presentation.

Diagnostic Assessment

Laboratory investigations revealed:

- Elevated white blood cell count
- Raised C-reactive protein and erythrocyte sedimentation rate
- Metabolic derangements suggestive of systemic inflammatory response

Plain radiographs showed soft tissue swelling without gas formation. Given the high clinical suspicion, advanced imaging was deferred to avoid delay in treatment.

A provisional diagnosis of necrotizing fasciitis of the hand was made based on clinical findings.

Therapeutic Intervention

The patient was taken for **urgent surgical exploration and debridement**. Intraoperatively, extensive necrosis of the fascia and subcutaneous tissue was identified, confirming the diagnosis of necrotizing fasciitis. All nonviable tissue was excised, and the wound was left open.

Broad-spectrum intravenous antibiotics were initiated empirically, covering gram-positive, gram-negative, and anaerobic organisms. Antibiotic therapy was later adjusted based on microbiological culture results obtained from tissue samples.

The patient underwent multiple staged debridements followed by wound management using negative pressure wound therapy.

Follow-Up and Outcomes

With aggressive surgical and medical management, the patient demonstrated gradual clinical improvement. Infection markers normalized, and no further progression of necrosis was observed. Once infection control was achieved, delayed wound closure with skin grafting was performed.

At follow-up, the patient retained acceptable hand function with mild residual stiffness. Early physiotherapy was initiated to optimize functional recovery.

Discussion

Necrotizing fasciitis of the hand is rare but potentially devastating due to the complex anatomy and functional importance of the hand. Early symptoms may be subtle, leading to misdiagnosis as cellulitis or abscess.

In returning travelers, exposure to unusual pathogens, delayed presentation, and limited early medical care may increase disease severity. Pain out of proportion to physical findings remains a critical early diagnostic clue.

Prompt surgical exploration remains the gold standard for diagnosis and treatment. Delay in debridement is associated with increased mortality and limb loss. This case underscores the importance of maintaining a high index of suspicion for necrotizing fasciitis in travelers presenting with rapidly progressive soft tissue infections.

Conclusion

Necrotizing fasciitis of the hand in returning travelers is a rare but serious condition requiring immediate recognition and intervention. Early surgical debridement combined with appropriate antimicrobial therapy is essential for survival and limb preservation. Awareness of travel history and early clinical warning signs can significantly improve outcomes.

Patient Consent

Informed consent was obtained from the patient for publication of this case report and associated clinical information.

Conflict of Interest

The authors declare no conflict of interest.

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