

MANAGEMENT PRINCIPLES AND TREATMENT STRATEGIES IN
TENOSYNOVITIS

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Abstract: Tenosynovitis is an inflammatory condition affecting the synovial sheath surrounding tendons, commonly caused by overuse, infection, or systemic diseases. Timely diagnosis and appropriate management are essential to prevent functional impairment and complications. This article provides an academic overview of treatment approaches, clinical principles, and evidence-based management strategies for tenosynovitis.

Keywords: Tenosynovitis, tendon sheath, inflammation, antibiotic therapy, surgical treatment, rehabilitation

Introduction

Tenosynovitis refers to inflammation of the synovial sheath that surrounds a tendon, most frequently affecting the hand, wrist, and ankle. It may be classified into infectious and non-infectious forms. Infectious (septic) tenosynovitis represents a surgical emergency, while non-infectious forms are usually associated with repetitive strain or systemic inflammatory disorders. Understanding appropriate treatment strategies is crucial for optimal patient outcomes.

Etiology and Pathophysiology

Tenosynovitis may result from mechanical overuse, trauma, autoimmune diseases, or infection. In septic tenosynovitis, bacterial pathogens—most commonly *Staphylococcus aureus*—invade the tendon sheath, leading to purulent inflammation, increased pressure, and impaired tendon gliding. Delayed treatment can result in tendon necrosis and permanent dysfunction.

General Principles of Management

Management depends on the underlying cause and severity. Early diagnosis, differentiation between septic and non-septic forms, and timely intervention are essential. Treatment aims to reduce inflammation, eliminate infection, relieve pain, and restore function.

Conservative (Non-Surgical) Treatment

1. Immobilization

Affected limbs should be immobilized using splints to reduce tendon movement and inflammation.

2. Pharmacological Therapy



Non-steroidal anti-inflammatory drugs (NSAIDs) are used to reduce pain and inflammation. In selected cases, corticosteroid injections may be administered for non-infectious tenosynovitis.

3. Physical Therapy

After the acute phase, gradual physiotherapy is recommended to restore mobility and prevent stiffness.

Antibiotic Therapy in Septic Tenosynovitis

1. Early Empirical Therapy

Immediate initiation of broad-spectrum intravenous antibiotics is critical in suspected septic tenosynovitis. Empirical therapy should cover Gram-positive organisms, particularly *Staphylococcus aureus*, including MRSA.

2. Targeted Therapy

Once culture results are available, antibiotics should be adjusted according to sensitivity patterns.

3. Duration of Therapy

Treatment typically continues for 7–14 days, depending on clinical response and severity.

Surgical Management

Surgical intervention is indicated in cases of septic tenosynovitis or when conservative therapy fails. Procedures include incision and drainage of the tendon sheath, removal of necrotic tissue, and irrigation. Early surgery is associated with better functional outcomes.

Complications

Delayed or inadequate treatment may result in complications such as tendon rupture, adhesions, chronic pain, and loss of function. Septic cases may progress to systemic infection if untreated.

Conclusion

Tenosynovitis requires a structured and timely approach to management. Distinguishing between infectious and non-infectious forms is critical in determining appropriate therapy. Combined use of pharmacological treatment, antibiotics when indicated, and surgical intervention ensures optimal patient outcomes.

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