

Recognizing and Treating Tuberculosis in the Wrist Joint

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DESCRIPTION

Mycobacterium tuberculosis (*M. tb*), primarily affects the lungs, but it can also spread to other parts of the body, including the musculoskeletal system. When tuberculosis involves the joints, it is referred to as tuberculous arthritis or osteoarticular tuberculosis. While any joint can be affected, the wrist joint is an unusual site for TB infection, representing a diagnostic challenge due to its rarity and nonspecific symptoms. Osteoarticular tuberculosis accounts for approximately 1-3% of all TB cases, with the spine (Pott's disease) being the most commonly affected site. The involvement of peripheral joints, such as the wrist, is less common but significant because it can lead to chronic pain, disability, and joint destruction if not promptly diagnosed and treated. TB infection of the wrist joint typically results from hematogenous spread from a primary focus, usually in the lungs or lymph nodes. The bacterium can remain dormant in the joint for years before reactivation, often triggered by immunosuppression or other risk factors.

Clinical presentation

The clinical presentation of wrist joint tuberculosis is often insidious, with patients experiencing pain, swelling, and stiffness in the affected joint over several weeks or months. Unlike acute bacterial arthritis, which presents with rapid onset of symptoms, tuberculous arthritis tends to develop slowly, leading to delays in diagnosis. Common symptoms include, chronic pain in the wrist that may worsen with activity. Soft tissue swelling around the wrist joint, which may be mistaken for other conditions such as rheumatoid arthritis or tenosynovitis. Decreased range of motion in the wrist joint, leading to functional impairment. The affected joint may be warm to the touch and tender upon palpation. Some patients may exhibit low-grade fever, night sweats, and weight loss, although these symptoms are not always present.

Treatment and diagnosis

The treatment of wrist joint tuberculosis involves a combination of anti-tuberculous chemotherapy and supportive measures. The

standard treatment regimen includes a combination of four first-line anti-tuberculous drugs: isoniazid, rifampicin, pyrazinamide, and ethambutol, usually administered for six to nine months. This regimen is designed to eradicate the infection and prevent drug resistance. In addition to pharmacological treatment, immobilization of the wrist joint using a splint may be necessary to alleviate pain and prevent further joint damage. In cases where there is significant joint destruction or when medical treatment fails, surgical intervention may be required. Surgical options include debridement of the infected tissue, synovectomy, or joint fusion, depending on the extent of the disease. With early diagnosis and appropriate treatment, the prognosis for wrist joint tuberculosis is generally good. However, delayed diagnosis can lead to severe joint damage, chronic pain, and functional impairment. Even with successful treatment, some patients may experience residual stiffness or reduced range of motion in the affected joint. Diagnosing tuberculous arthritis of the wrist is challenging due to its rarity and the nonspecific nature of its symptoms.

CONCLUSION

Mycobacterium tuberculosis infection of the wrist joint is a rare but serious manifestation of extrapulmonary tuberculosis. Due to its insidious onset and nonspecific symptoms, it often presents a diagnostic challenge. Early recognition and treatment are important to prevent joint destruction and preserve function. Clinicians should maintain a high index of suspicion for TB in patients with chronic wrist pain and swelling, particularly in those with risk factors for tuberculosis. However, these imaging modalities cannot definitively diagnose TB. X-rays may show joint space narrowing, bone erosion, and osteopenia, while MRI can provide detailed images of soft tissue involvement and early bone changes. The definitive diagnosis of TB infection requires microbiological and histopathological confirmation. Synovial fluid analysis, synovial biopsy, and culture of *M. tb* from the affected tissue are essential for confirming the diagnosis. PCR-based tests can also detect mycobacterial DNA in synovial fluid or tissue, providing a rapid and sensitive diagnostic tool.

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