



Case Report

Extrapulmonary tuberculosis in the wrist presenting as a ganglion cyst-like mass: A case report

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ABSTRACT

There has been recent interest in tuberculosis of the hand because of its rising incidence. Musculoskeletal tuberculosis accounts for only 20% of cases of tuberculosis. The most common musculoskeletal sites are the spine, hip and knee. Hand involvement is seen in 10% of patients with musculoskeletal tuberculosis. This study reports an unusual case of extrapulmonary tuberculosis in the soft tissues of the wrist, presenting as a ganglion cyst-like lesion with concurrent lung cancer. The condition occurred in a 55-year-old woman with underlying rheumatoid arthritis that had been diagnosed 3 years previously and was under control with regular medication. For several months the patient had noted a metapharyngeal joint mass in her right wrist and hand. The unmovable soft mass was approximately 2 cm × 2 cm in the metapharyngeal joint and 4.5 cm × 4.5 cm in the wrist, and displayed local tenderness and limited range of motion. Under the impression of a ganglion cyst-like soft tissue mass, the patient underwent marginal excision. However, the pathological report indicated tuberculosis. Antituberculosis treatment was prescribed. Simultaneously, lung cancer was also diagnosed. The patient then received chemotherapy and regular follow-up. Although the case described here is rare, preoperative evaluation can help considerably in early detection of cancer. Additionally, postoperative pathology can help define tuberculosis. Medical treatment plays a major role in tuberculosis.

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1. Introduction

There has been recent interest in tuberculosis of the hand because of its rising incidence, owing to an aging population, and increasing numbers of immunocompromised patients, such as those with human immunodeficiency virus [1,2]. Tuberculosis is endemic in certain areas such as Asia, the Middle East, and Africa. In Taiwan in 2002, the incidence of tuberculosis was 74.6 per 100,000 population [3]. Musculoskeletal tuberculosis accounts for only 20% of cases of tuberculosis. The most common musculoskeletal sites are the spine, hip and knee. Hand involvement is seen in only 10% of patients with musculoskeletal tuberculosis [4]. According to the type of tissue involved, hand tuberculosis can usually be classified into cutaneous tuberculosis, tuberculous tenosynovitis, bursitis, osteomyelitis, arthritis, and tuberculous hypersensitivity reactions [2].

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This study reports an unusual case of extrapulmonary tuberculosis in the soft tissues of the wrist, presenting as a ganglion cyst-like lesion in a patient with concurrent lung cancer.

2. Case report

A 55-year-old woman had been diagnosed with underlying rheumatoid arthritis 3 years previously and her condition was controlled by medication. No family history or smoking history were noted, although the woman was noted to have a mild but persistent cough. The woman was also a worker involved with lifting heavy loads. The woman identified a metapharyngeal (MP) joint mass in her right wrist and hand, which had persisted for several months (Fig. 1A). The unmovable soft mass was approximately 2 cm × 2 cm in the MP joint and 4.5 cm × 4.5 cm in the wrist, with local tenderness and limited range of motion.

Under the impression of a ganglion cyst, apparently consistent with the soft tissue mass, the woman underwent marginal excision (Fig. 1B), and the pathological report on the wrist tumor revealed it to be *Mycobacterium tuberculosis* (Fig. 2). Antituberculosis

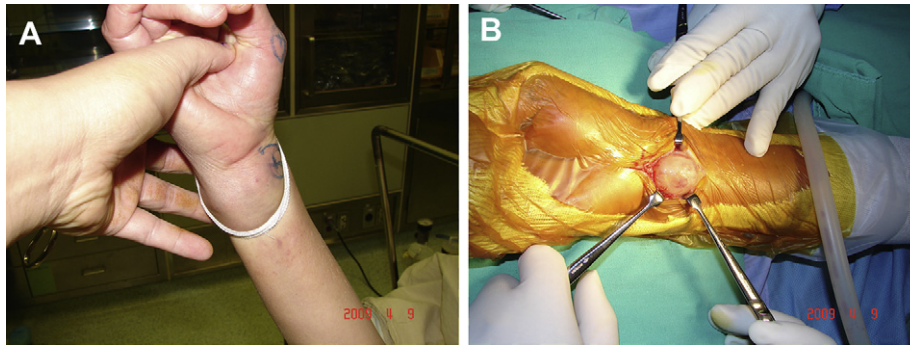


Fig. 1. Gross pictures of extrapulmonary tuberculosis of the wrist. (A) The wrist tumor preoperatively (mark). (B) The wrist tumor during surgical excision.

treatment with isoniazid, rifampin and ethambutol was prescribed. However, a preoperative chest radiograph revealed a complex mass over the left upper lung (Fig. 3A), and the patient was then referred to the chest department for further management. Chest computed tomography and positron emission tomography scans revealed a lobulated 2.4 cm × 2.5 cm mass in the left upper lung field. Lymphadenopathy in the mediastinum was also noted (Fig. 3B–D). A computed-tomography-guided parasternal biopsy revealed squamous cell carcinoma. Clinical staging of the lung cancer was T1N3M1, stage IV.

The woman then received six courses of chemotherapy with cisplatin (Pharmachemie, Haarlem, Netherlands) and gemcitabine (Eli Lilly, Indianapolis, IN, USA) and was closely observed in the outpatient department for 1 year. Recurrence was noted and the woman then received chemotherapy with taxotere (Aventis Pharma, Dagenham, Essex, UK). Wrist function remained normal throughout the postoperative period.

3. Discussion

The main causative organism of tuberculosis is *M. tuberculosis*, which is a thin, nonmotile, strictly aerobic rod. The usual site of primary infection is the lung. Extrapulmonary tuberculosis (such as of the hand) usually results from reactivation of primary foci and secondary hematogenous spread. In the musculoskeletal system,

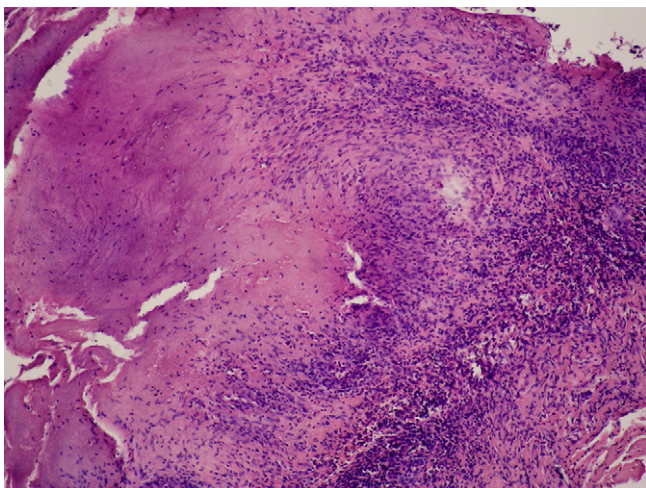


Fig. 2. Pathology of the wrist lesion shows tuberculosis with a caseating granuloma (hematoxylin and eosin stain, 50×).

the organisms are ingested by mononuclear cells that merge into epithelioid cells. A tubercle is formed when lymphocytes form a ring around a group of epithelioid cells. Caseation then occurs within the center of the tubercle [2,5].

Common symptoms of tuberculosis include low-grade fever, anorexia, weight loss, and night sweats. Specific symptoms and signs in the hand vary and include pain, stiffness, swelling, joint effusion, digital enlargement, and carpal tunnel syndrome. There is usually delay in the diagnosis of hand tuberculosis, which frequently leads to more morbidity and a worse outcome [6–9].

Radiographs are usually normal in cases of hand tuberculosis [6,7]. The erythrocyte sedimentation rate is almost always elevated. Plain radiographs of tuberculosis of the bones of the hand show various findings such as cysts, lytic lesions, joint destruction, and periosteal reaction. A bone scan shows increased uptake. Magnetic resonance imaging is also nonspecific but evaluates the extent of the lesion better than plain radiography. Hand tuberculosis is a paucibacillary lesion, and smears and cultures are frequently negative. Therefore, in patients in endemic areas with typical clinical and radiological features, a therapeutic trial with antituberculous drugs is frequently performed, and the demonstration of a positive smear or culture is not mandatory [10].

Splints may be used for a short time to relieve acute symptoms and for a longer time in specific cases of tuberculosis of the joints to prevent hand deformities. Operative treatment is usually limited and includes a biopsy and open or arthroscopic debridement, incision and drainage of abscesses, carpal tunnel release, and synovectomy [11]. The mainstay treatment of hand tuberculosis is appropriate drug therapy [12]. First-line drugs are more efficacious and less toxic than second-line drugs. First-line drugs include isoniazid, rifampin, pyrazinamide, ethambutol and streptomycin.

Tenosynovial disease is the most common presentation of hand tuberculosis. Tuberculous tenosynovial disease has a gradual onset and is slowly progressive. Presentation is usually swelling with mild pain and limitation of movement. Classic presentations include a compound palmar ganglion, “sausage digit” and carpal tunnel syndrome [2]. However, we could find no previous reports of tuberculosis causing a ganglion cyst-like lesion over the wrist.

Lung cancer is the leading cause of cancer deaths in Taiwan and worldwide [13,14]. The major forms of lung cancer are non-small cell lung cancer (about 85% of cases) and small cell lung cancer (about 15%). Despite advances in early detection and standard treatment, non-small cell lung cancer is often diagnosed only at an advanced stage and has a poor prognosis. The treatment and prevention of lung cancer are key problems that can probably be improved by better understanding of the molecular origins and evolution of the disease [14].

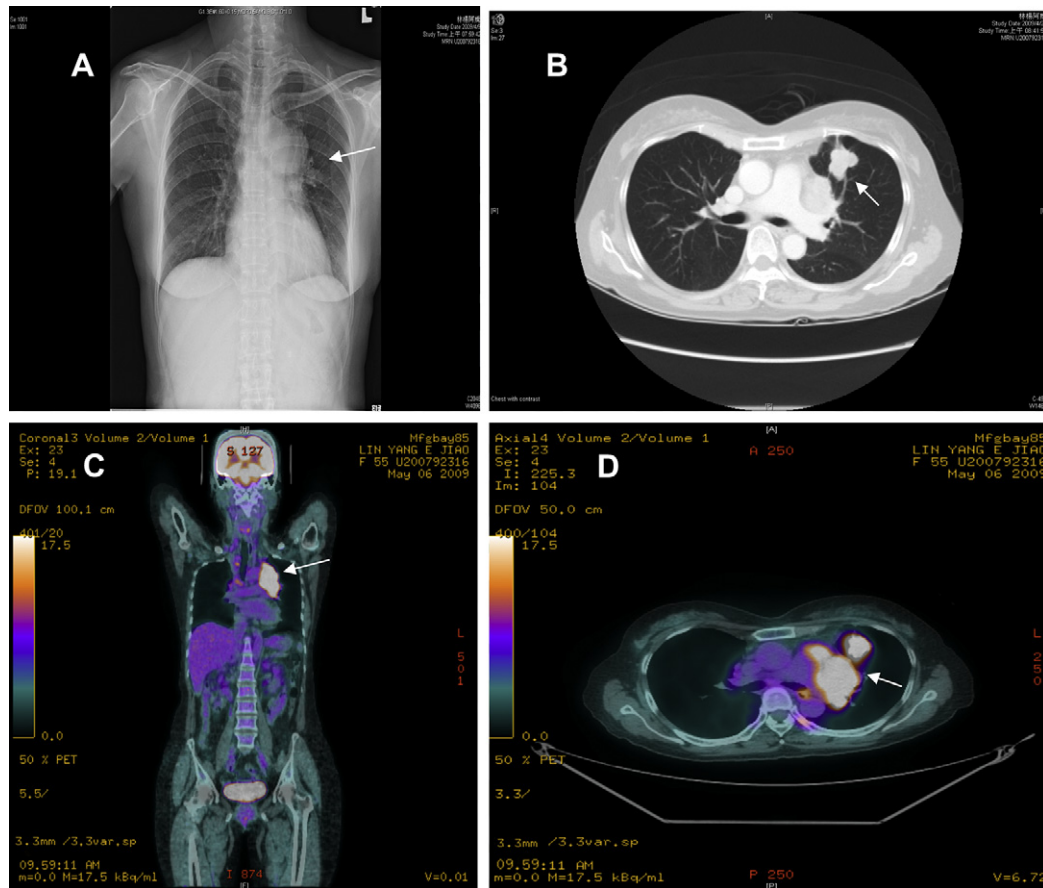


Fig. 3. Imaging studies of lung cancer. (A) Chest radiography revealed increased soft tissue density in the left hilar region with a left hilar nodule (arrow). (B–D) A lobulated mass, approximately 2.4 cm × 2.5 cm, was seen in the left upper lung field. Lymphadenopathy in the mediastinum was also noted (arrow). (B) Computed tomography image. (C and D) Positron emission tomography images.

To summarize, the patient underwent local excision, which found extrapulmonary tuberculosis. The patient then received antituberculosis therapy. Chemotherapy was prescribed for the lung cancer, but it recurred 2 years later. Although cases such as that described here are rare, preoperative evaluation can help significantly in early detection of cancer. Furthermore, post-operative pathology can help define tuberculosis. Medical treatment plays a major role in the treatment of tuberculosis.

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