

## DISSEMINATED COCCIDIOIDOMYCOSIS WITH RADIOGRAPHIC IMAGING OF THE INVOLVED BONES

Patchrin PEKANAN, Boonchuay SATAPATAYAVONGS,  
Pimjai SIRIVONGPAIRAT, Virat NGERNYAM

### ABSTRACT

Bony lesions of a case of disseminated Coccidioidomycosis was presented. The lesions were observed to be small, ill defined border, and osteolytic. There was no periosteal reaction. The lesions usually located at either end or at the lateral or medial margin of the involved long-tubular bones. Roentgenographic arthritis or bursitis was evident at both ankle joints.

### INTRODUCTION

Coccidioidomycosis results from inhalation of the fungus *Coccidioides immitis* in endemic areas of the Southwestern portion of the United States, in Mexico, and in some regions of South America. The fungus, which is an inhabitant of soil, is disseminated in dust. Following inhalation, the organisms lodge in the terminal bronchioles and alveoli of the lungs where an inflammatory reaction may ensue. In some individuals, disseminated disease may develop, with spread of infection to the liver, spleen, lymph nodes, skin, kidney, meninges, pericardium, and bones, as well as other sites. Men and women are affected equally, although the disseminated form is more common in men. Blacks, Mexican Indians and Filipinos are especially susceptible. Pregnancy has a detrimental effect on the course of the disease. Patients younger than 5 years of age or older than 50 years of age account for a large proportion of cases with the disseminated form of the disease. Clinical manifestations vary in accordance with the distribution of the lesions, and in cases of wide dissemination, the mortality rate is high (1).

### CASE REPORT

A Thai-male patient, age 27-years old, resided in the USA for a certain period. He was a

known case of coccidioidomycosis for a year and was treated with Amphotericin B for 6 months. He was referred to his home-country for further treatment. He also had swelling of the wrist and ankle and decreased elasticity of the skin. Skin biopsy showed scleroderma. Bone biopsy at the medial malleolus, and the distal end of the 2nd metacarpal bone revealed coccidioidomycosis. During the hospital stay, multiple subcutaneous abscesses, meningitis and abrupt personality change were observed. Finally he was cardiac arrested. The autopsy revealed generalized coccidioidomycosis involving the pituitary gland, brain, lungs, liver, spleen and both kidneys.

Plain film of both elbows showed ill defined border osteolytic areas at supracondylar region of both distal humeri. Similar osteolytic lesions were seen at the left distal clavicle, both acromions, medial and lateral malleolus of both sides, distal metaphyses of metacarpal bones of both hands, proximal part of proximal phalanx of right 5th one (Fig. 1-4).

Other bones were not involved and the lungs appeared without infiltration.

Noteworthy mention was that this case was presented to us 27 years ago (in 1969).

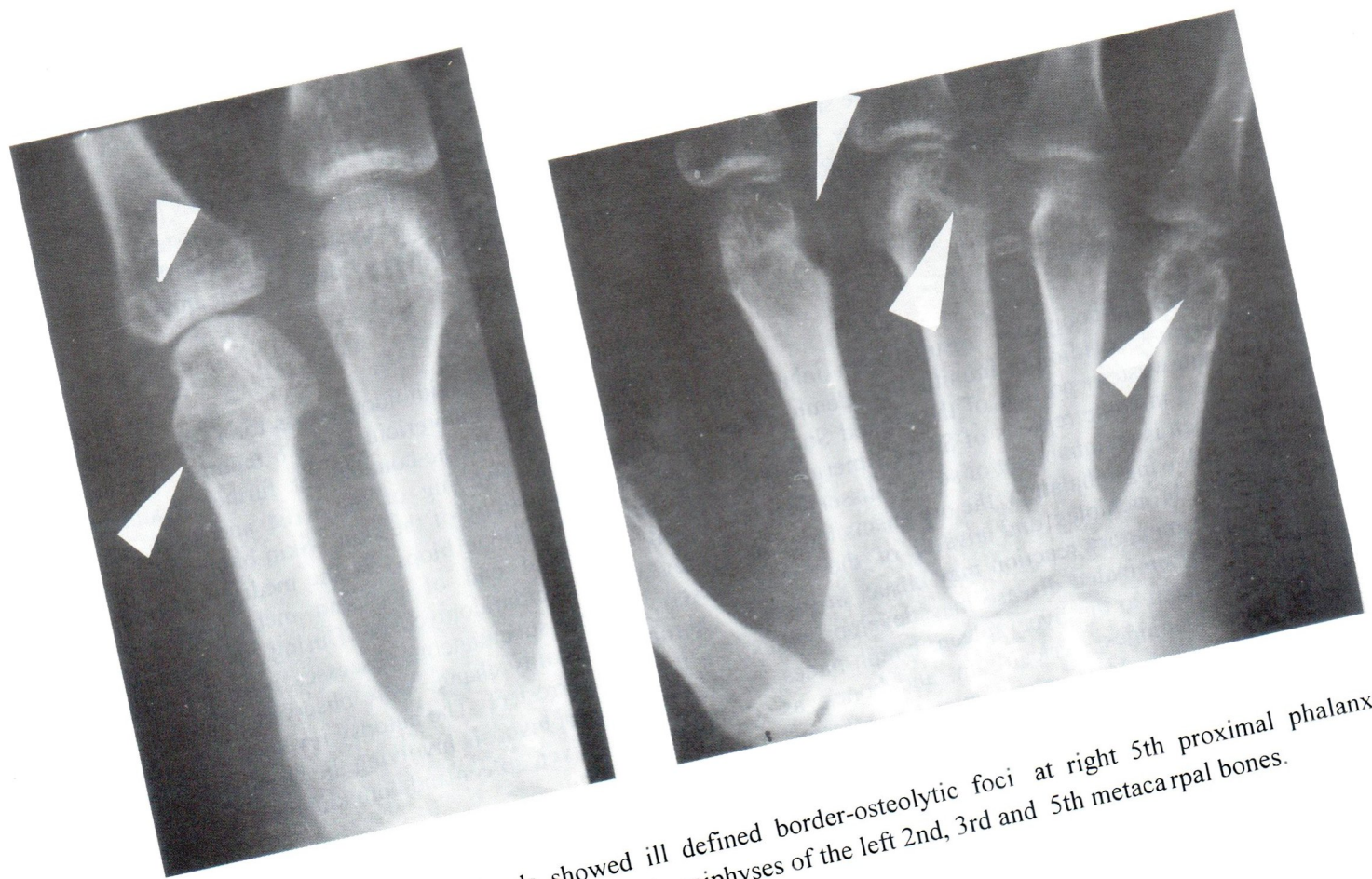


Fig. 1 AP view of both hands showed ill defined border-osteolytic foci at right 5th proximal phalanx, right 5th metacarpal bone, distal epiphyses of the left 2nd, 3rd and 5th metacarpal bones.

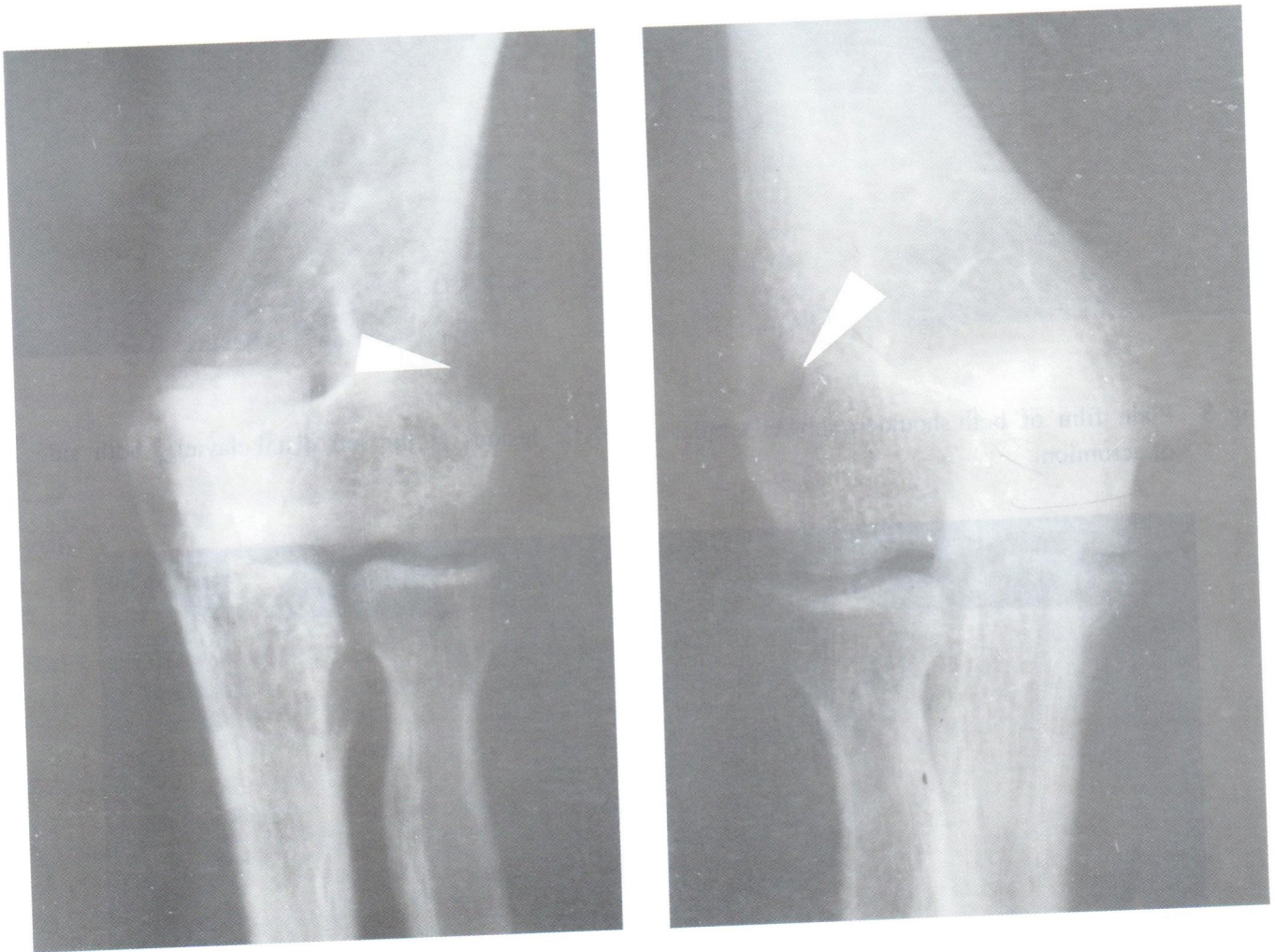


Fig. 2 Plain film of both elbows in AP view showed ill defined border small osteolytic foci at lateral supracondylar areas of both distal humeri

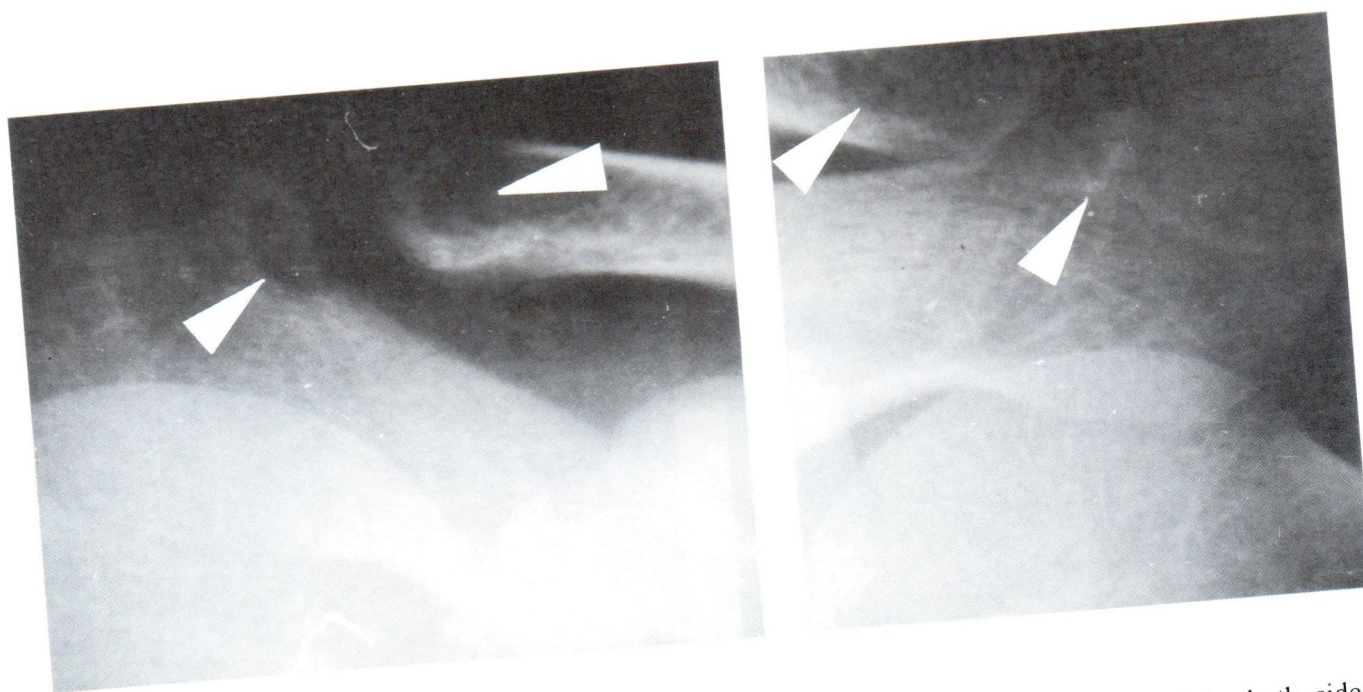


Fig. 3 Plain film of both shoulders showed similar osteolytic lesions at the left distal clavicle, both sides of acromion.

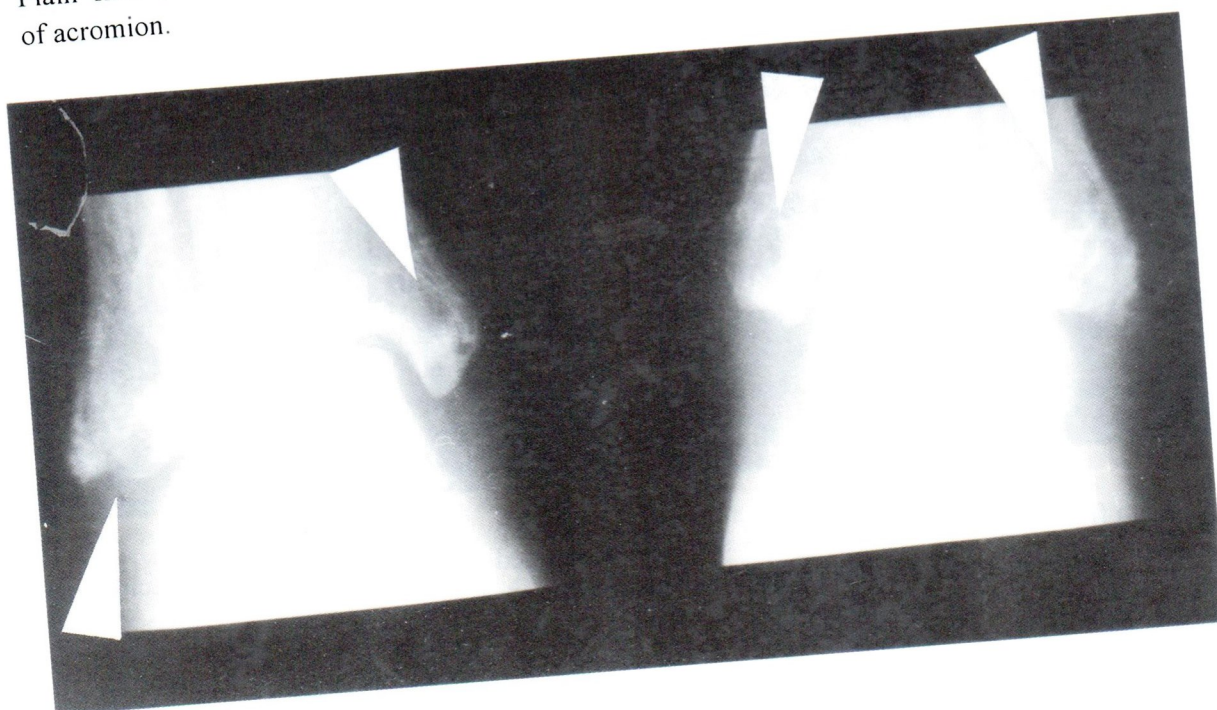


Fig. 4 AP view of both ankles revealed soft tissue swelling around both ankle joints. Small osteolytic areas are noted at the lateral and medial malleoli of both ankles, medial margin of the talus. The joint spaces appeared normal.

## DISCUSSION

An acute, self-limited arthritis may develop in about 33 per cent of cases of coccidioidomycosis (1,2). Ten to 20 per cent of patients develop granulomatous lesions in the bones and the joints. In most cases, bone alterations relate to hematogenous spread, although cutaneous infection can lead to contamination of subjacent bones (and joints). Osseous involvement can be confined to a single bone (1,3,4) or multiple, symmetrically distributed bony foci (5). Involvement of the spine, the ribs, and the pelvis predominates, although any bone can be affected (1,5-8). Symptoms and signs can be prominent, even in the initial phases of the disease, and consist of pain, swelling and draining abscesses (1,9).

Radiographs frequently reveal multiple osseous lesions in the metaphyses of long tubular bones and in bony prominences (patella, tibial tuberosity, calcaneus, ulnar olecranon) (1). In the bones of the hands and the feet, diaphyseal alterations are also common. Well demarcated lytic foci of the spongiosa are typical. Periostitis can be seen, but bony sclerosis and sequestration are unusual. Lesions involving the ribs are typically marginal in location and can be associated with prominent extrapleural masses (5). In the spine, abnormalities of one or more vertebral bodies with paraspinal masses and contiguous rib changes are typical. There is relative sparing of the intervertebral discs, and vertebral collapse and fistulous tracts are uncommon and late manifestations. Rarely, significant vertebral sclerosis in coccidioidomycosis may simulate the changes that accompany neoplasm (metastatic disease from prostate carcinoma) (8,10).

Joint involvement is most common in the ankle and the knee, although other articulations of the appendicular and axial skeleton may be the site of an infective arthritis (11-13). In general, articular changes result from extension of an osteomyelitic focus, although, rarely direct hematogenous implantation of the organisms into a joint can occur. Monoarticular involvement is most typical. Synovial inflammation and cartilaginous and osseous erosion lead to radiographic findings (osteoporosis, effusion, joint space narrowing, bony destruction) similar to those in other granulomatous articular infections. In other cases, a sterile migratory polyarthritis without radiographic changes may be representative of a hypersensitivity syndrome (13).

Coccidioidal bursitis and tenosynovitis of the hand and wrist have been reported (14-16).

Biopsy of skeletal or articular foci in this disease reveals granulomatous lesions similar to those of tuberculosis (17); monocytes, giant and epithelial cells, necrosis, and caseation are identified (18). Accurate differentiation of coccidioidomycosis and tuberculosis requires isolation of the causative agent.

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