The Interesting Case

Apparent neoplasm of the clavicle of a dialysis patient, ultimately revealed as tuberculosis

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Introduction

Extrapulmonary tuberculosis is uncommon in the United States, skeletal involvement accounts for 1–2% of all cases of tuberculosis and about 10% of extrapulmonary tuberculosis [1]. Involvement of the ribs in skeletal tuberculosis, although extremely uncommon, has been reported [2,3]. The incidence of tuberculosis among haemodialysis has ranged up to 16 times the incidence in the general population [4,5]. The symptoms and signs seen in these patients are non-specific, and commonly include fever of unknown origin, anorexia, weight loss, lymphadenopathy, hepatomegaly, and gastrointestinal disturbance [1–5]. Bone and joint tuberculosis are uncommon events in these patients and systemic manifestations are usually absent without disseminated disease or associated pulmonary involvement [6]. We present a case of the clavicular tuberculosis with involvement of adjacent soft tissues and sternoclavicular joint. The characteristics of the lesions were highly suggestive of neoplasm or metastatic tumour.

Case report

A 34-year-old female, with a 11-year history of chronic glomerulonephritis, was on maintenance haemodialysis for 6 months. There was no previous history of tuberculosis. Progressive enlargement of a painless mass lesion over the left sternoclavicular joint area was noted over a period of 3 months. The patient did not complain of fever, weight loss or night sweating. The physical examination revealed a well-developed and moderately nourished woman. Body temperature was 37.2°C, pulse rate 78/min, respiration rate 18/min, and blood pressure 124/70 mmHg. There was no cervical or axillary lymphadenopathy. The thorax was symmetric. A non-tender, elastic mass lesion which measured 3 x 3.5 cm was noted over the left sternoclavicular joint. Both lung fields were clear and the heart sounds were normal. Abdominal examination revealed a normal sized liver and spleen. There was no pitting oedema, cyanosis, or clubbing of fingers.

Laboratory tests showed haemoglobin 8.4 g/dl, haematocrit 26.8%, white blood cell count 5000 cell/mm³ with normal differential count, blood urea nitrogen 62 mg/dl, creatinine 10.9 mg/dl, SGOT 19.0 IU/l, SGPT 14 IU/l, alkaline phosphatase 45.0 IU/l. A chest roentgenogram showed clear lung field with an increased density of left paraspinal and resorption of proximal clavicle. Computer-assisted tomography of the chest revealed a heterogenous enhanced tumour in the medial portion of the left pectoris major muscle which engulfed the medial end of the left clavicle with direct erosion to the left clavicle and posterior aspect of the left-side manubrium (Figure 1). The diagnosis of a left sternoclavicular tumour with superior mediastinal involvement was made. The possibilities of primary malignancy, e.g. chondrosarcoma, or of metastatic bone disease were entertained. Bone scan with Tc-99m methylene diphosphonate (MDP) showed a focal area of increased uptake of radioactivity involving the proximal portion of the clavicle.

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Fig. 1. Computed tomography of the chest showed a heterogenous enhanced tumour engulfing the medial end of the left clavicle with direct erosion to the clavicle and adjacent soft tissue.
Tuberculosis mimicking neoplasm of the clavicle in an HD patient

Fig. 2. Radionuclide scanning by Tc-99m MDP showing focal area of increased uptake of the radioisotope involving the proximal portion of the left clavicle.

Fig. 3. Histological section of the clavicular bone showing the typical caseating granulomas and the Langhans' giant cells (H&E, original magnification, x400).

of left clavicle (Figure 2). Total resection of the tumour including left proximal clavicle and adjacent soft tissues was performed. Against all expectations, histological examination revealed granulomatous inflammation with caseating necrosis and multinuclear Langhans' giant cells in the clavicle bone and the surrounding soft tissue (Figure 3), which was consistent with mycobacterial infection. No malignancy was seen. Cultures of sputum and tissues did not grow mycobacterium. The postoperative course was uneventful and wounds healed satisfactorily. The patient was started on an antituberculosis regimen comprising isoniazide 200 mg, rifampicin 450 mg, ethambutol 800 mg prior to dialysis only (dialysed 3 times each week), and pyridoxine 50 mg daily [7].

Discussion

Tuberculosis is still a common illness worldwide. This patient displayed an unusual form of extrapulmonary tuberculosis. It involved clavicular bone and surrounding soft tissue only, with complete absence of any systemic manifestations. Primary bone malignancy or metastatic tumour were suspected initially based on the results of bone scan and computed tomography. The end histological examination yielded the surprising diagnosis of tuberculosis. Atypical skeletal tuberculosis mimicking neoplasm has been described in non-renal patients [8]. Because skeletal tuberculosis is often mistaken for neoplasm, a tissue specimen should always be sent for culture. Abdelwahab et al. [8] suggested that any confusing bone lesion in a non-white patient may be caused by tuberculosis. A biopsy may be necessary to obtain tissue, and a pathology report of granulomatous inflammation with caseating necrosis compatible with tuberculosis is sufficient evidence to begin therapy, even if mycobacterium is not grown. In our patient, histology was consistent with tuberculosis and we began antituberculosis chemotherapy, although the culture was negative. In patients with renal failure, the dose of antituberculosis drugs must be adjusted [7].

Why did reactivation of tuberculosis occur in our patient? In past reports, tuberculosis was diagnosed in the majority of patients before dialysis or within the first 6 months of dialysis, i.e. at a time when the impact...
of azotaemia on cell-mediated immunity is presumably profound [4,5]. In our patient the diagnosis of tuberculosis was made 6 months after the start of haemodialysis. Absence of pulmonary tuberculosis does not exclude the possibilities of osteoarticular tuberculosis. Systemic manifestations such as fever, night sweating, and weight loss may occur, but are uncommon in absence of lung involvement [9,10]. Our patient demonstrated an asymptomatic tumour mass only, without evidence of systemic symptoms, signs, and pulmonary tuberculosis. Hence, differentiating tuberculosis in such a patient from a neoplasm is not possible based on radiological findings. Histopathological examinations and microbiological evaluations are diagnostic rules.

In summary we report a uraemic case with skeletal tuberculosis involving the proximal clavicle bone and adjacent soft tissues that mimicked a neoplasm. 'Great imitator' is justified for tuberculosis.

References


Received for publication: 31.1.96
Accepted in revised form: 27.2.96