

Diagnosis of Paget's disease from chest radiographs : The "dense coracoid sign"

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Abstract

Incidental Paget's disease of the shoulder as detected on chest radiographs is considered. Five patients demonstrated typical proximal humeral pagetoid involvement, but involvement of the acromioclavicular or glenohumeral parts of the scapula was twice as frequent. The dense coracoid was a constant feature and this sign should be sought on chest radiographs especially in the older patient.

Introduction

The radiological features of Paget's disease of the shoulder were noted on chest radiographs in 16 patients. The parts of the shoulder girdle involved were analysed and the prevalence of humeral and scapular involvement determined.

Methods and results

The chest radiographs of 16 patients with shoulder girdle involvement due to Paget's disease were retrospectively

reviewed. In five patients (30%) the diagnosis of Paget's disease was made incidentally from chest x-rays with a localized view of the shoulder. A frontal radiograph of the pelvis and a lateral film of the skull confirmed the diagnosis. In a further 11 patients, radiographs of the pelvis and/or skull were available in conjunction with chest x-rays, and shoulder girdle involvement was seen as part of widespread Paget's disease.

The patients ranged in age from 44-79 years (average 65 years), 12 males and 4 females. One patient was black, 4 were Caucasian and 11 of mixed descent. Chest radiographs were requested for further evaluation of pulmonary or cardiac disease and no shoulder complaints were mentioned on the request forms.

The shoulder girdle involvement was carefully analysed in each patient. In one patient both proximal humeri and clavicles were involved symmetrically and extensively by coarse sclerotic Paget's disease. In five patients only the proximal humerus was involved, unilateral in two patients and bilateral in three patients. In ten patients the scapula only was affected, bilateral acromioclavicular involvement in one patient, and unilateral involvement in the remainder. (Five left side, four right side). The unilateral disease included: acromioclavicular only (five patients), glenohumeral only (three patients) and acromioglennohumeral disease (one patient). Sclerosis of the coracoid, whether accompanied by acromial or glenoid involvement, was detected in all cases of scapular involvement.

Radiographs of the pelvis demonstrated Paget's disease in 13, were normal in one and not available in two patients. The lateral skull x-rays showed involvement by Paget's disease in eight, were normal in three and not available in five patients.

The above features are illustrated (Figures 1-3). A chest x-ray in a 62 year old man demonstrated incidental sclerosis of the

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coracoid and acromial processes of the left scapula (Figure 1). Pelvis and skull x-rays demonstrated extensive Paget's disease. Eight years later features on chest



Figure 1: Chest radiograph demonstrates increased density and expansion of the acromioclavicular aspect of the left scapula (arrow) without the humeral head being affected. Features are consistent with Paget's disease.

radiographs remained unchanged but the pagetoid involvement of the pelvis and skull had become far more advanced.

A 52 year old man presented with a spontaneous left pneumothorax and increased density of the right acromioclavicular scapula was noted on a chest radiograph (Figure 2). A frontal



Figure 2: Predominant involvement of acromioclavicular part of right scapula due to Paget's disease. Glenoid affected to a lesser degree and humerus normal. Note expansion and sclerosis of coracoid process discovered incidentally on chest x-ray.

pelvic radiograph demonstrated involvement by Paget's disease but the lateral skull x-ray was normal.

A 65 year old man was referred for a chest x-ray because of respiratory symptoms. Infective changes were noted in the left lower lobe but incidental increased density and expansion of the left glenocoracoid scapula was also noted (Figure 3). A radiograph of the pelvis confirmed



Figure 3: Marked pagetoid involvement of glenocoracoid aspect of left scapula with acromion less affected and proximal humerus unaffected. Incidental finding on chest radiograph and x-ray pelvis confirmed diagnosis of Paget's disease but radiographs of the skull demonstrated unsuspected multiple myeloma.

signs of Paget's disease. A lateral skull x-ray showed no pagetoid features but instead demonstrated signs of co-existing multiple myeloma. The latter diagnosis was subsequently confirmed clinically.

Discussion

Paget's disease may affect one bone or many and its distribution tends to be widespread and haphazard. The bones most often affected are the pelvis, femur, tibia, lower part of the spine and the skull, whereas the clavicle, ribs, sternum and the bones of the arm are less often affected.¹ The scapula and the humerus have been identified as unusual sites of involvement.^{2,3,4} Our experience has been different, with shoulder involvement being more common, however only a small number of patients has been

considered. The prevalence of Paget's disease in South Africa has previously been assessed.⁵ It is considered to be rare amongst the black races of the African continent.

Of specific interest is that Paget's disease of the shoulder can be diagnosed from chest radiographs, and the diagnosis can then be confirmed by taking x-rays of the pelvis and skull.

In five out of 16 patients involvement was limited to the proximal humerus, but in 120 patients the scapula was involved, and in particular the coracoid part. The latter part would always be included on a chest x-ray, and a sclerotic, expanded coracoid process with coarse trabeculation should alert one to the possible diagnosis of Paget's disease. Acromioclavicular involvement was found to be more common than glenocoracoid disease but both types were associated with pagetoid features of the pelvis and/or skull.

As chest radiographs form the largest part of the workload of radiology departments, specific attention should be given to the shoulder girdle, especially in the older patient. Therapeutic implications of establishing a diagnosis of Paget's disease are of definite importance.

References

1. Renton P. Paget's disease. In: Sutton D. *A textbook of radiology and imaging*, Vol I. Edinburgh: Churchill Livingstone, 1993: 79-82.
2. Yochum TR & Rowe LJ. *Essentials of skeletal radiology*, Vol II. Baltimore: Williams & Wilkins, 1987: 865-866.
3. Hamdy RC. *Paget's disease of bone: assessment and management*, Eastborne, England: Armour Pharmaceutical Company Limited, 1981: 44-49.
4. Barry HC. *Paget's disease of bone*. Edinburgh and London: E&S Livingstone Ltd, 1969: 42-43.
5. Guyer PB & Chamberlain AT. Paget's disease of bone in South Africa. *Clinical Radiology* 1988; 39: 51-52.