PREGNANCY RELATED TRANSIENT HIP OSTEOPOROSIS

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INTRODUCTION

Two cases of transient osteoporosis of the hip in pregnancy are reported as an illustration of this self limiting condition. The importance of early diagnosis and avoidnce of a biopsy is stressed in the appropriate clinical setting.

Regional osteoporosis is an uncommon condition which may present following disuse or as a transient osteoporosis occuring de novo. It may affect one joint, usually the hip, or less commonly, as a migratory condition, affecting many joints in turn, usually confined to the lower extremities.

The cause of non-disuse osteoporosis in not known, although many theories have been proposed, denervation of the hip by compression of the obturator nerve, as observed originally in cattle during birth, was the first cause to be postulated. We present two patients presenting as originally described in pregnancy, with transient osteoporosis of the hip, both of whomehad unequivocally normal electromyographic studies.

CASE 1

A 24 year old Libyan woman presented in the third trimester of pregnacy with a painful right hip and a limp; the pain was exacerbated by movement and was worse at night. The disability was marked; at presentation she was unable to beas her weight. On examination there was slight tenderness over the femoral head, an almost full nange of movements with pain at the extremes. Thers was no weakness or newrological deficit. The alkaline phosphatase was slightly raised 162 I.U./l, (normal range 35-105 I.U./l), all initial laboratory investigations were otherwise normal.

A radiograph of pelvis showed marked demineralisation of the right femoral head, with a lesser degree of demineralisation of the adjacent femoral neck and acetabulum. A second radiograph 3 weeks later showed almost complete resorption of the femoral head. Tc 99m MDP bone scan showed markedly increased uptake of istope at the right hip with a less pronounced increase of uptake at the right knee.

Because of strong clinical uspicion of tuberculous arthritis, anti-tuberculous chemotherapy was started. An open biopsy of capule synovium was performed, and Hamilton-Russel traction applied.

At arthrotomy the capsule and synovium were thickened and there was an effusion. The synovium was biopsied, the femoral head was intact, but felt soft, and hence wasnot biopsied. Histopathological exami-

nation of the capsule and synovium showed low grade active inflammatory changes of uncertain cause. No evidence of infection was found either in the histological specimens or the joint aspirate. The anti-tuberculosis therapy was stopped.

Electromyography of the adductor muscles was normal bilatyerally; there was no evidence of denervation and no asymmetry between the left and right sided nerve potentials.

The patient made a gradual and complete recovery over the next three months; at follow-up five months later there as no residual disability or pain and repeat rediograph showed a normal hip joint.

CASE 2

A 27 year old German woman presented in the last week of pregnancy with an acutely left hip and marked limp On examination there was tenderness over the femoral head and over the buttock. Some days after admission the patient delivered a healthy baby. An episiotomy was performed which became infected. Laboratory investigations showed elevation of the sedimentation rate lllmm/lst. hr. and a raised white celly count 17.9 x10^9/1. These returned to normal following anti-biotic treatment of the infected episiotomy site; the hip pain and the limp however persisted.

Radiographs of the femoral head showed slight but difinite demineralisation of the femoral head. Tc 99M bone scan showed an increase in isotope uptake at the left hip and greater trochanter. Aspiration of the effusion in the left hip yielded normal synovial fluid; which was sterile. Electromyuography of ghe adductort muscles was normal.Following three months conservative treatment there was a complete clinical and radiological recovery.

DISCUSSION

There are many possible causes of a panful hip. Hippocrates ascribed pain in the hip during pregnancy to the womb settling against it and causing pain there.[2] In their original paper describing transient osteoporosois of the hip in three pregnant women, Curtiss and Kincaid suspected a not dissimilar cause: compression of the obtruator nerve by the descent ofthe obtruator by the descent of the engaging foetal head. They offered no evidence of denervation of the obturator innervated muscless the adductors of the hip; nor of paraesthesia in the area of its sensory distriburion the medial aspect of the thigh[3].

Although originally described in pregnancy, transient osteoporosis of the hip has been subsequently observed to occur most frequently in young to middle aged males[4], a pattern of occurance which gives less weight to the theory of intermittent obturator nerve compression.

Electromyogaphic evidence of denervation in transient osteoporosis has rerely been reported, McCord and Nies recorded a case of regional migratory osteoporosis, followed for nine years, with unequvocal electromyographic findings of denervation cause of which they considered a matter for speculation, but possibly due to small vessel ischaemia of the proximal nerve roots.[5]

Regional migratory osteoporosis is a closely related condition with a relapsing mode of presentation in which the knee and ankle are predominately affected.[4] However, patients may present with hip involvement at first presentation[5,6] not untill other joints become involved is differentiation possible. The clinical presentation of transient osteoporosis of the hip is typified by the two patients reported here; there is disability out of all proportion to the pain complained of and the signs eliicited. The laboratory findings are usually normal but may showslight elevation of the sedimentation rate,[7] and alkaline phosphatase[8] both may be raised in the last trimester of pregnancy, however, the cases described in whome alkaline phosphatase has been raised have

all had pregnancy associated disease. Transient osteoporosis may also be associated with an effusion often necessitating joint aspiration to exclude septic arthritis.

Radiological findings are of demineralisation of the femoral head, which may be marked as in case 1, or slight as in the second case. In all cases an isotope bone scan will be positive, and the pattern is characteristic; there is a large area of uptake, very intense at the epophysis, extending to the acetabulum and often the femoral neck. Contour mapping shows a target like appearance.[9]

The presentation may suggest an arthritis of infectious or inflammatory origin. The clinical and laboratory findings are different however, as is the progression of changes radiologically.

The importance of the early diagnosis of the condition, is paramount; the patient may well, as here, be pregnant and since the process is self limiting elaborate investigations must be avoided. Biopsy of the affected femoral head is contra-indicated; there is an appreciable risk of collapse of the femoral head post-operatively.[8]

The condition, once diagnosed, responds best to non-intervention and supportive measures are all that is usually required.[8]

There has been a single report of denervation in regional migratory osteoporosis,[5] but none in transient osteoporosis of the hip. Both patients presented here had unequivocally normal electromyograms; we conclude that whatever the cause of transient osteoporosis of the femoral head, in these two patients at least, denervation played no part.

MRI provides an elegant demonstration of regional osteoporosis. The abnormality is shown as an illdefined area of uniformly decreased T1 weighted signal intensity and increased signal or T2 weighted sequences. These appearances are similar to those of infection or neoplasm but the absence of soft tissue abnormality and the involvement of the epophysis favour transient osteoporosis.[10,11,12]

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