MATTERS ARISING

Coffee or decaff?

This potentially valuable information about a relation between coffee consumption and the presence of rheumatoid factor¹ is difficult to evaluate because of a lack of clarity in definitions. What is meant by "coffee"? Is coffee, caffeinated or decaffeinated? This is an obvious distinction that readers need when considering these findings. It would have been interesting, also, to have had information about other beverage consumption, such as colas or teas, or both. This might or might not have affected or clarified the results, which, currently, have no theoretical underpinnings. However, the information is an exciting start towards understanding factors that contribute to this disabling and prevalent illness.

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Authors' reply

The surveys were conducted in 1970s. At that time most Finns drank traditional boiled coffee. The use of decaffeinated coffee was exceptional. In the Mini-Finland Health Survey, there was a negative correlation between daily cups of tea and coffee (age and sex adjusted partial $r=0.30$, $p<0.001$). However, tea consumption showed no association with the presence of rheumatoid factor (age and sex adjusted odds ratio per one cup of tea = 0.91, 95% confidence interval 0.73 to 1.13) and did not confound the results we reported. Unfortunately, we had no information on the consumption of colas, but according to indirect information on sales of cola beverages the contribution of caffeine from this source was minimal in Finns at that time.

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LETTER TO THE EDITOR

Stress fracture of the sacrum in a child

Low back pain in children can be a diagnostic dilemma. Stress fractures affecting the sacrum should be considered in the differen-

Figure 1 Skeletal scintigraphy, posterior projection, showing increased activity in relation to the right sacral ala.

tial diagnosis of low back pain in children. We report a rare case of sacral stress fracture in a 10 year old that healed with rest, and discuss the pertinent clinical and radiological findings. The diagnosis is often delayed because plain radiographic findings are typically normal and it is best made with skeletal scintigraphy. Computed tomography (CT) or magnetic resonance imaging (MRI) is indicated if there is concern over malignancy or intraspinal pathology.

CASE REPORT

A healthy 10 year old child presented with a two week history of insidious onset and worsening of his mechanical low back and right sided buttock pains. He gave no specific history of trauma but actively participated in school physical education. He described constant pain that worsened with activity and improved with bed rest. He remained doubly

Figure 2 Axial magnetic resonance images taken through the sacrum. (A) T_1 weighted (TE 15, TR 818) and (B) T_2 weighted (TE 30, TR 1500) images show respective areas of low and high signal changes in the medullary region of the right sacral ala surrounding a central linear very low signal void (arrows).

Figure 3 Axial computed tomography scan showing a band-like medullary sclerosis in the right sacral ala that extends into the S1 sacral foramen.

continent and there were no associated lumbar radiculopathy or systemic symptoms.

Physical examination disclosed restricted lumbar spine flexion and extension, and diffuse tenderness in the right buttock over the sacroiliac joint. Right straight leg raise was restricted to 70 degrees, but no nerve root tension signs were present. He was neurologically intact and there was no leg length discrepancy.

Full haematological, biochemical, bone, immunological, and inflammatory profiles, including autoantibody screen, were entirely normal. Plain radiography of the lumbosacral spine and pelvis were also normal. Skeletal scintigraphy disclosed increased uptake in the region of the right sacral ala (fig 1). MRI of the lumbar spine, sacrum, and pelvis showed no evidence of a soft tissue mass, lumbar disc, or vertebral pathology. However, T₁ and T₂ weighted images showed respective areas of low and high signal changes in the medullary region of the right sacral wing surrounding a central linear very low signal void (figs 2A and B). CT scans showed a band-like sclerotic lesion in the same region (fig 3), the above overall appearances of which were consistent with a stress fracture.

His symptoms settled over the course of one week after bed rest and analgesics. He was allowed to return gradually to normal activities over the next four weeks and was symptom free at clinical review five months

later. A repeat CT scan confirmed full fracture healing.

DISCUSSION

"Stress fracture" of the sacrum must be distinguished from "insufficiency fracture", which occurs after pelvic irradiation or in elderly patients with osteoporosis.¹ In healthy subjects, stress or fatigue fracture of the sacrum may result from the cumulative effect of repeated cyclic loading and therefore is recognised to be a potential cause of low back pain after strenuous activity in running athletes and military recruits.²⁻⁵ However, stress fracture of the sacrum is a rare event in normal active children. Only three cases of sacral stress fracture have been reported in skeletally immature children similar to ours who were fit and active children but not of elite sporting status.⁶⁻⁸

Patients are generally healthy and active with no history of preceding trauma. They often present with the symptom triad of diffuse low back, buttock, and thigh pains. The sacrum is in essence a weightbearing bone, such that stress fractures often present with historical qualities similar to those affecting the leg—namely, insidious pain onset that intensifies with activity and improves with rest. Pertinent physical findings may not provide reliable signs and are limited to palpable buttock and sacral tenderness with restricted low back motion. Patients remain neurologically intact, though the occurrence of groin pain is usually a referred pain⁶ and sciatica if the fracture line affects the S1 sacral foramen.⁴ Our patient presented with the typical features of insidious pain onset with diffuse mechanical low back and buttock pains made worse with activity.

Pain that is insidious in origin often can be alarming to both parents and treating clinician. The differential diagnoses include sacroiliitis, juvenile disc herniation, vertebral apophysial ring fracture, pars interarticularis fracture, and osteoid osteoma. Of major concern, however, are infection, bone, and soft tissue malignancy. Consequently, it is paramount to make a prompt and accurate diagnosis so as to avoid unnecessary invasive investigations. Because a plain radiograph is universally normal, the diagnosis is best made with skeletal scintigraphy. This imaging technique has been evaluated to be the most sensitive method of investigation, though non-

specific, and can detect stress fractures as early as several days from their onset.⁹ Although both CT and MRI can be helpful in the diagnosis of a stress fracture, the clinician should be guided towards MRI evaluation when concerned about malignancy or infection. Typical MRI features of sacral stress fractures are well described by Rajah *et al*⁶ and Grier *et al*⁸ and have characteristics similar to those described above.

The diagnosis of stress fracture of the sacrum should be considered whenever a healthy and active child presents with unexplained low back and buttock pain. A clear history, clinical assessment, high index of suspicion with appropriate investigations will result in its timely diagnosis and help allay any anxiety of both child and parents.

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