Avulsion of the anterior superior iliac spine complicating bone biopsy

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Summary: We present a case report of avulsion of the anterior superior spine following a transiliac crest biopsy, a previously unreported occurrence.

Introduction

Avulsion of the anterior superior iliac spine is well documented in young adults, usually occurring as a result of forcible contraction of the sartorius muscle during a sporting event. In the present report we describe a case of avulsion of the anterior superior iliac spine in a post-menopausal female following a transiliac crest bone biopsy.

Case report

A 53 year old female with primary biliary cirrhosis of 4 y duration was admitted for iliac crest biopsy as part of the investigation of metabolic bone disease. The biopsy was obtained at the standardized site (Meunier *et al.*, 1971) 2 cm below and 2 cm posterior to the anterior superior iliac spine, using an 8 mm modified Bordier trephine under local anaesthesia and intravenous diazepam sedation. Twenty-four hours later when she departed from the hospital she developed sudden pain around the biopsy site and was unable to bear weight on her right leg. Examination revealed marked tenderness around and anterior to the biopsy site with flexion of the hip and straight leg raising exacerbating the pain. A radiograph of the pelvis (see Figure 1) revealed avulsion fracture of the right anterior superior iliac spine. The patient was placed on bed-rest and given analgesia for the subsequent 2 d and was gradually mobilized, becoming completely pain free and fully ambulant 12 d after the event. Subsequent histology of the biopsy revealed no evidence of osteoporosis or osteomalacia.

Figure 1 Radiograph of right hip showing an avulsion fracture of the anterior superior iliac spine

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Discussion

Iliac crest biopsies carried out as part of the investigation of patients with metabolic bone disease are usually obtained by a lateral (transiliac) route (Meunier *et al.*, 1971) or a vertical approach (Beck & Nordin, 1960) to the iliac crest, using a trephine of between 3–8 mm in diameter. A retrospective study of the complications following 14,810 iliac crest biopsies from 14 centres revealed one fracture of the ilium which had occurred in a patient with severe osteomalacia (Duncan *et al.*, 1980). The overall rate of complications including local haematomas, lateral cutaneous nerve neuropathies and pain in excess of 7 d duration amounted to 0.63%, and complications were more frequent when the larger 8 mm trephine was

used. This is not only the first reported case of avulsion of the anterior superior iliac spine following a transiliac crest biopsy, but it occurred in a patient in whom no osteomalacia or osteoporosis was detected histologically; it has to be assumed that the biopsy caused sufficient weakness in that region for the avulsion fracture to result when the patient became ambulant. No other major complication has been experienced in the 170 iliac crest biopsies performed to date in this unit. The use of a smaller trephine may give a lower complication rate but the sample obtained, although adequate for the detection of osteomalacia, may not be sufficient for bone volume measurements.

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