

Successful Treatment of a Symptomatic Unicameral Calcaneus Bone Cyst by Cement Injection Using a Double Needle Technique under CT Guidance: A Case Report

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In this case presentation, we discuss the successful management of a calcaneal UBC with a new minimally invasive technique utilizing 2 interosseous needles with the injection of cement into the cyst without aspiration.

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Case Presentation

A 16- year old girl presented with chief complaints of pain and swelling over the right hind foot and calcaneal region and difficulty bearing weight over a period of 8 days. She had suffered from mild pain in the right calcaneus intermittently since the age of 3, which had been relieved with rest and cold compression, but approximately 3 weeks prior to her coming to our center, the pain had become constant. The pain had increased over an 8-day period during which the patient had been playing volleyball most of the day. She did not report a history of trauma to the calcaneal region and there was no family history of other pathological conditions.

On physical examination, the patient appeared relatively healthy and well nourished. She did not suffer from any other medical conditions and took no medications. On local examination, tenderness over the right calcaneal region was the only noteworthy sign; there was no muscle atrophy and the limbs appeared symmetric with full active and passive range of motion. There was no right ankle edema and initial plane radiographs of the right ankle and foot showed a well-demarcated cystic lesion without fractures, new bone formation, cortical disruption, scalloping or periosteal reaction in the right calcaneus. Contralateral radiographs from the left ankle and foot were also taken and no abnormalities were observed. An MRI of the right ankle and foot demonstrated a homogeneous low T1 signal and a hyperintense T2 signal, suggestive of a simple bone cyst, which measured approximately 18.2 x 21.5 x 14 mm (L x W x H), with an estimated volume of 2.86 ml, in the anterior process of the calcaneus (Figure 1).

Laboratory evaluation consisting of a complete blood count, erythrocyte sedimentation rate (ESR) levels of calcium, phosphate and serum albumin, renal function tests (blood urea nitrogen [BUN] creatinine), urinalysis, coagulation tests (partial thromboplastin time [PTT], prothrombin time [PT] and international normalized ratio

immediately after the intervention. 3 weeks after the procedure, the injection site healed smoothly and the patient reported pain with weight bearing activities and limping after prolonged standing. On patient follow-ups conducted approximately 6 months and one year after the procedure, there were no reports of itching or warmth at the site of the procedure and no complaints of limping. The patient had experienced a few scattered episodes of mild pain after prolonged standing, which had been relieved with rest.

Discussion

Unicameral bone cysts (UBCs) are non-neoplastic fluid-filled

