Recurrent hydatid disease of bone and muscle: CT and ultrasound finding

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Abstract A case of hydatid disease of bone: the tibial bone previously mis-diagnosed as chronic osteomyelitis is presented. Definitive diagnosis was made on demonstrating daughter cysts of hydatid on the ultrasound of the soft tissue swelling surrounding the knee joint. The role of ultrasound and computed tomography (CT) in the diagnosing of bone hydatid disease; and more importantly the value of ultrasound in demonstrating daughter cysts within the soft tissues in ruptured bone hydatid disease, are highlighted.


Keywords: Hydatid disease, hydatid cyst.

Hydatid disease is a well known disease usually diagnosed by its clinical presentation especially in an endemic area. Serological tests and plain films of the chest, abdomen or bone were carried out as appropriate.

The modern imaging modalities in hydatid disease of long bone have not been fully explored. Our case demonstrates the use of CT scan and ultrasound in defining the extent of involvement of hydatid disease in the bone, as well as in the surrounding soft tissues. Furthermore, both modalities are capable of demonstrating daughter cysts pathognomonic for the diagnosis of hydatid. Where there is doubtful pathology regarding bone lesions, it is recommended that computerized tomography (CT) and/or ultrasound should be carried out for a more accurate diagnosis.

Case history The history of this 45-year old driver started five years ago with mild pain and swelling on the popliteal fossa with medial and lateral extensions. The patient was treated with voitran tablets for a total period of two years.

Subsequently, a cyst was discovered in the radiograph of the right knee. The patient was therefore operated upon. During surgery the cyst was ruptured. The cyst turned out to be a hydatid cyst and since then his symptoms have worsened.

One year ago he was re-operated upon and the bone was cleaned with formalin. Since then he has had a discharging sinus with swelling around the right knee.

In October 1990, he reported to our hospital because of this complaint. On examination, there was a scar of previous surgery with a sinus discharging a seropurulent fluid over the medial aspect of the right knee.

Plain films of the right knee showed a large destructive lesion of the proximal tibia which extended from the articular surface of the medial tibial plateau to the proximal shaft. It had a predominantly expansile, lytic appearance proximally, although there was extensive sclerosis more laterally and distally and there was a large defect in the metaphysis (Fig. 1). No new bone formation was present. Soft tissue mass was seen in the popliteal fossa.

Computed tomography of the knee showed cortical destruction of the tibial metaphysis with invasion of the medulla by cystic soft tissue masses. Furthermore, multiple enhancing cysts of various sizes, with some appearing concentric, were seen within the soft tissues posteromedially (Figs. 2 a,b).

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Fig. 1: Destruction of the upper diaphysis and metaphysis of the tibia with classical “expansile, sclerotic”; appearance cystic cavities.

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Fig. 2a: CT of tibia demonstrating destruction of the cortical ring and invasion of the medulla with soft tissue cystic masses. Posteriorly multiple cysts are seen within the soft tissue (see asterisks).
*Fig. 2b:* An enhanced CT of the distal femur showing pathological enhancement around multiple intramuscular hydatid cysts.
At ultrasound, large cysts with intraluminal multiple daughter cysts were seen within the soft tissues of the popliteal fossa region posteriorly (Fig. 3). Fluid level was also noted in one of the cysts.

The upper end of the tibia was explored through an anteromedial skin incision excising the sinus. On exploration, it was found that the upper end of the tibia was full of multiple hydatid cysts and granulation tissue. The infected cavity in the tibia was communicating with the knee joint as well as with the cyst lying in the soft tissues on the posteromedial aspect of the upper leg. All the cysts were removed as far as practically possible and the bone was thoroughly curetted. The wound was irrigated with hypertonic saline and the cavity was packed with gauze. The patient was then placed on mebendazole 1.5 gm twice daily. Seprin was added when the aspirate culture grew proteus mirabilis sensitive to seprin.

Discussion Hydatid disease is seen in the cattle rearing countries of the world such as Australia and the Middle East. The sheep act as intermediate hosts. The disease occurs when a host ingests the eggs. The embryos escape from the eggs, penetrate the intestinal mucosa and enter the portal circulation from where they are filtered by liver, where hydatid cysts develop. Some of the larvae reach the lungs, brain, kidneys, spleen and bone. Bony lesions are uncommon. Only about two percent are involved. The spine is the most common site of bone hydatid.2,3,4 The long bones epiphyses are the next most common site.5

The typical films show expanded lesions with multiple cysts in the metaphysis and epiphysis described as being spongy or a bunch of grapes. Sometimes calcifications and bony fragments are seen.1,5 These features mimic giant cell tumors, brown tumors or metastasis. It is therefore difficult to differentiate the lesion from others, however, soft tissue involvement in bone hydatid is usual and cysts within soft tissues are easily demonstrated.6,7 Since plain films are incapable of showing cysts within soft tissue, CT or ultrasound is of diagnostic value in demonstrating hydatid cysts, with or without daughter cysts, within the soft tissues or bone. In bone involvement ultrasound is of little value whereas CT is helpful due to its ability to demonstrate bone detail.

Both CT and ultrasound are used in the follow-up of hydatid cases to monitor regression.

Fig. 3: Ultrasound of the popliteal region with a large cavity containing daughter cysts (see arrows).
or recurrence. It is therefore suggested that in any suspicious bone lesion with soft tissue extension especially when hydatid disease is suspected or endemic, CT and ultrasound examination of the lesions should be carried out for early and correct diagnosis.

References


ملخص

نعرض حالة كيسة مائية في العظم، شُخصت سابقاً كحالة النهاية عظم ونقي مزمن في عظم الركبة، لقد تم تأكيد هذا التشخيص بواسطة الأمواج فوق الصوتية والتي بُنيت وقوع كيسات صغيرة (نبات) داخل النورم النسيجي أخيل بمفصل الركبة، نتبين هنا دور كل من الأمواج فوق الصوتية والتصوير الظيفي في تشخيص داء الكيسات المائية وتركز بشكل خاص على أهمية الأمواج فوق الصوتية في توضيح وقوع الكيسات الصغيرة (النبات) داخل النسيج الرخوة في حالة تمزق الأكياس.