



## Images in clinical practice

## Masquelet's induced membrane technique for the treatment of bone hydatid disease.

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### Abstract

Bone Hydatid disease is a rare entity even in endemic areas. Insidious symptoms onset is due to progressive infiltration of the parasite into bony tissues. The frequent pseudo-tumoral presentation of bone parasitosis made its surgical treatment closer to carcinologic procedures. We report a case of hydatid disease of the femur managed in two-steps induced membrane surgical technique.

#### Keywords:

Hydatid cyst; femur; surgical technique.

### Introduction

Bone echinococcosis represents only 0.5 to 3% of all hydatid cyst's locations [1]. This parasitosis is usually initially asymptomatic. The natural evolution of the parasite is insidious in such hostile location. The diagnosis is almost always delayed and made when the lesions are already locally advanced [2]. The aim of this report was to highlight the pathological characteristics an extended parasitosis of the femur and the challenging surgical management.

### Observation

We present the case of a 57-year-old male, who presented with spontaneous oozing fistula of the lateral side of the right thigh. On his history, we noted a previous incision and drainage of abscess in the right thigh one year ago. No germs were identified in the swab. He consulted us for recurrence of pain, swelling and persistent discharge. On the examination, Hip and knee range of motion were within normal. The external fistula orifice was in the distal corner of the previous surgery scar with serous liquid discharge. There were no inflammatory signs.

Femur X-rays showed multilocular lesion of the diaphysis with cortical deformation. These characteristics were confirmed by hip MRI scan (Figure 1). Tru-cut biopsy of the mass confirmed its parasitological origin. Chest and abdomen were free of cyst on the computed tomography (CT) scans. The diagnosis of peripheral bone echinococcosis affecting the femur was retained and surgery was indicated.

The plan was to perform a segmental femoral resection excising the lesion and the surrounding invaded soft tissues; followed by a two-step reconstruction according to the induced membrane technique. Resection of infected bone and adjacent soft invaded tissues was performed through femur lateral approach. The surgical site was abundantly washed with hypertonic saline solution. Bone fixation was performed with gamma nail. The substance defect was replaced by bone cement (figure 2).

Post-operative course was uneventful and pathological examination of the resected specimen confirmed the diagnosis of echinococcosis. The patient started oral antiparasitic treatment course. Six weeks later, he was scheduled for the next procedure step. Bone cement was removed and replaced by bone autograft from fibula, anterior and posterior iliac crests. At Twenty months of follow-up, the patient had no complaints with normal right hip and knee range of motion. X-rays showed satisfactory evolution (figure 3).

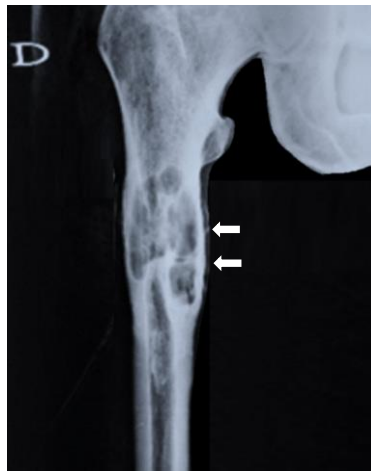


Figure 1: Plain roentgenogram showing proximal right femur cystic pseudo tumoral mass deforming the cortex.



Figure 2: Intraoperative aspect of the femoral mass.

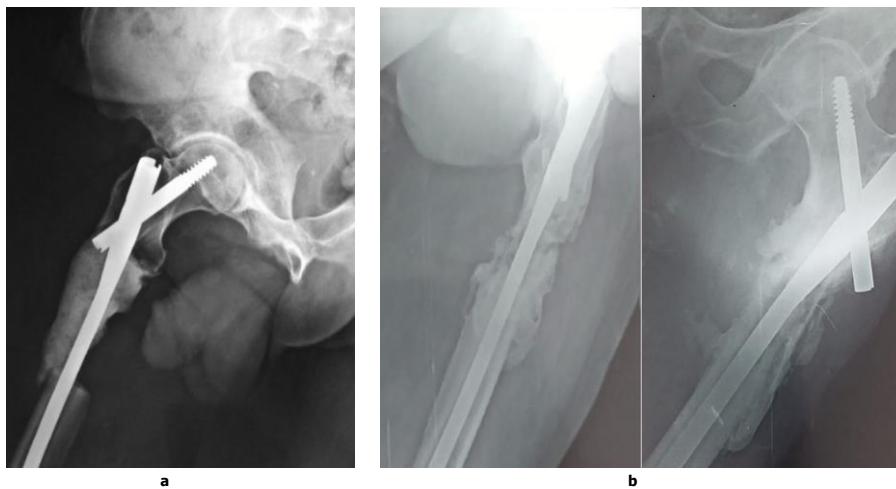


Figure 3: post-operative follow-up X-rays  
a: after first procedure  
b: after second procedure

### Discussion

Masquelet's induced membrane technique is a two-stage procedure described first for the reconstruction of long segmental bone defects [1]. The first stage requires radical excision and debridement of all devitalized tissues. The bone defect can be replaced temporarily and fixed internally or externally. The foreign-body immune response created after the first stage is crucial for the success of the second step [2]. Healthy and well supplied tissues kept in the first stage will contribute to the formation of vascularized induced membrane and produces multiple growth factors. This membrane will support bone grafting and accelerate the healing [3]. Masquelet's technique is simple, effective and reproducible technique for the treatment of several bone diseases such as infection, tumors or complex traumatism [4]. This technique allowed us to control the hydatid disease in one of its rarest presentation.

**Conflict of Interest:** None

### References

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