

Hydatid disease of the pelvis and the femur

A case report

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We report a case of left-sided extended pelvic infestation of hydatid disease. The destruction of the hip joint, os pubis, larger parts of os ileum and the femoral head made pelvic resection and prosthetic replacement necessary. Recurrence of a hydatid cyst 5 years later in the left groin originating in the femur was treated with a second femoral resection

and total hip replacement. Because of instability, the pelvic replacement also had to be changed to a custom-made CAD replacement. This surgical procedure was combined with chemotherapy by mebendazole. The need for radical resection in osseal hydatid disease is discussed.

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A 49-year-old Yugoslav was admitted to our hospital in 1994 because of the continued enlargement of a 1-year-old swelling in the left groin. This lesion began in 1974 with a central acetabular fracture caused by a car accident. At that time the fracture was not recognized as pathological. The nature of the lesion was first understood in 1979, when osteolytic lesions in the os ileum and os pubis occurred and soft tissue swellings in the left groin required surgical excision. Histological examination confirmed the diagnosis of osseous hydatid disease. No liver and lung manifestations of the disease were detected.

The patient was now treated with mebendazole (0.5 g 3 times daily over a period of 5 years). In 1989, progressive destruction of the hip with central dislocation was treated with partial pelvic resection and a polyacetal prosthetic replacement.

In 1993, 1 year before admission to our hospital, the patient noticed a new swelling in his left groin. Until then he had been asymptomatic and had no clinical or radiographic signs of a recurrence. Ultrasonography in April 1993 revealed a hypoechoic, 5 cm cystic structure in the left groin, but the patient refused operative treatment because he had no pain. Treatment with mebendazole was started again.

8 months later, the tumor in the left groin had grown, with intercurrent swelling of the whole left leg. Radiographs showed no progress, but sonography now revealed an enlarged, 15 × 8 cm hypoechoic structure in the left groin. The femoral vessels were displaced medially and ventrally, but not compressed. There were no clinical signs of thrombosis. CT and

MRI could not be performed because of the metallic endoprosthesis. Chest radiographs and ultrasonography of the abdomen were normal.

In March 1994, the cystic structure in the left groin and proximal femur was exposed, using a ventral approach. Intraoperatively we found that the encapsulated lesion arose from the proximal femur. Scoleces were detected between the femoral corticalis and the bone cement around the prosthesis. The hydatid cyst was completely removed, the bone lesion was curetted and the defect was sealed with bone cement.

2 months later, in May 1994, a second femoral resection with implantation of a total hip of Wagner type was planned. Intraoperatively, after resection of 22 cm of the proximal femur, we saw that the polyacetal pelvic replacement had loosened and therefore a safe implantation of the prosthesis was impossible; the polyacetal pelvic replacement was instead removed.

1 month later, a custom-made CAD pelvic replacement (Howmedica®, Kiel, Germany) and total hip with revision-shaft of Wagner type were implanted. The pelvic component was fixed with screws ipsilaterally on the sacrum and contralaterally on the iliac and pubic bone. A snap-fit acetabular cup and the femoral shaft were fixed with bone cement. The loss of the proximal femur was compensated with a corticocancellous bone graft (Figure). No hydatid lesions were detected macroscopically. Mebendazole treatment was continued.

The postoperative course was uneventful. Mobi-

lization was started 2 weeks postoperatively and full weight bearing was possible after 3 months. 9 months after the operation the patient can walk without aid; up to this date he used 1 crutch. Clinical, radiographic and sonographic controls 9 months postoperatively showed no signs of a recurrence of the hydatid disease. The patient had no pain; his left hip was stable and had an active flexion of 70°.

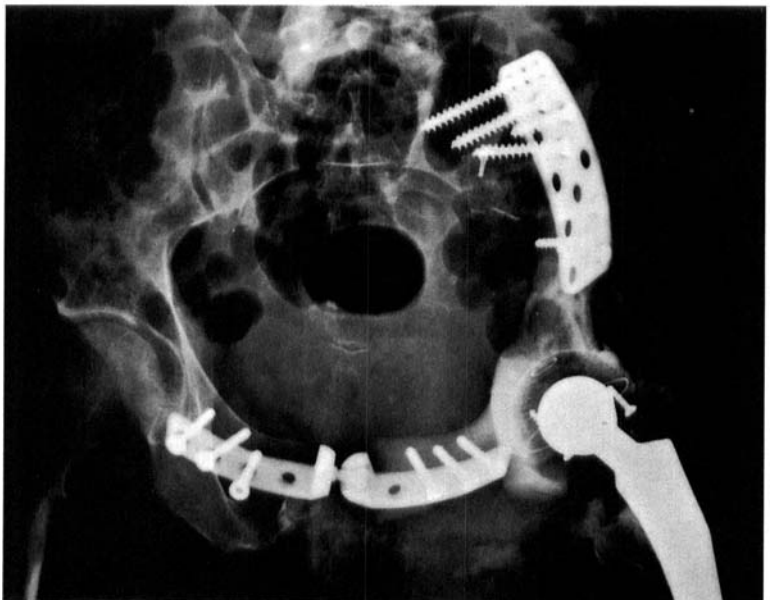
Pathological anatomical examination after the proximal femur resection in May 1994 showed macroscopically cystic structures in the 22 cm long part of the proximal femur. In the cysts along the proximal femur some scoleces, partly degenerated, were present. Histologically, fragments of the lamellar membrane of the hydatid cyst were found. Some areas were accompanied by a dense mixed inflammatory infiltrate. The resected bone was partly necrotic. In other areas it was vital, with activated osteoblasts and a newly formed layer of lamellar bone.

Discussion

Lung and liver are commonly affected in human hydatid disease. Bone involvement is rare, possibly because of mechanical resistance, and accounts for only 1-2 percent of human hydatidosis (Fernandez et al. 1978, Argawal et al. 1992). Bone manifestations have been reported in the vertebrae (30-40 percent), the long bones of the lower limbs, the pelvis and the hip joints, the ribs and the scapulae and rarely in the calvarium and the



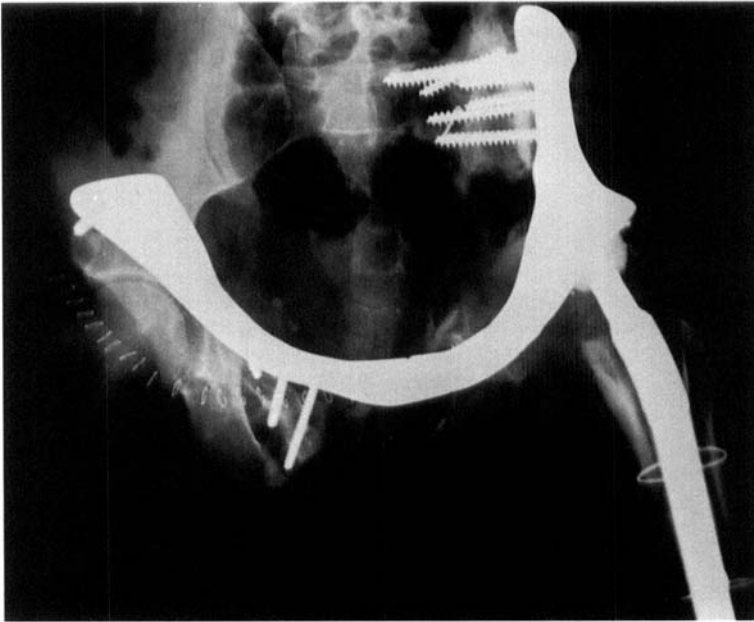
1989, before surgery. Extensive osteolytic lesions involve the left pubic rami and os ileum and there is destruction of the hip joint, with central dislocation.



After pelvic resection and prosthetic replacement in 1989. A polyacetal pelvic replacement was fixed with screws. A standard prosthesis was implanted with bone cement. The acetabular cup was augmented with a special ring to prevent dislocation.

phalanges (5 percent) (Fernandez et al. 1978, Otgut et al. 1992). The cysts may lie dormant in the bone for as long as 10-20 years (Argawal et al. 1992, Otgut et al. 1992).

The commonest radiographic characteristics of the osseous lesions are a combination of multilocular



After a new femoral resection. A new CAD pelvic replacement was fixed with screws. A snap-fit acetabular cup of Brunswick type and femoral shaft of Wagner type were fixed with bone cement. The loss of the proximal femur was made good with a corticocancellous, allogeneous bone graft.

cysts and reactive sclerosis (Fernandez et al. 1978, Otgut et al. 1992, Booz 1993). CT scan is considered to be best for recognizing the extension of bone lesions, whereas MRI scan facilitates the detection of soft tissue lesions (Otgut et al. 1992, Booz 1993). The differential diagnosis includes primary cyst-shaped tumors of the bone and cartilage, metastatic disease and tuberculosis (Fernandez et al. 1978, Argawal et al. 1992, Otgut et al. 1992). The hydatid disease is diagnosed before operation in only half of the patients (Booz 1993).

Surgical treatment combined with chemotherapy (mebendazole) or albendazole is recommended (Cancrini et al. 1992). Chemotherapy should be given for longer periods up to 2 years after surgery (Argawal et al. 1992, Cancrini et al. 1992).

Echinococcal larvae seem to behave differently in bone than in soft tissue (Fernandez et al. 1978, Otgut et al. 1992), with no fibrous membrane around the osseous cysts. Curettage removes only macroscopic cysts and the local recurrence rate is 70-80 percent (Fernandez et al. 1978, Argawal et al. 1992, Cancrini et al. 1992). As in our case, the recurrence may not become clinically manifest first for several years. The only promising therapy for bone manifestations of hydatid disease is the combination of radical surgery and parasitocidal drugs over a period of up to 2 years.

References

- Argawal S, Shah A, Khadi S K, Rooney R J. Hydatid bone disease of the pelvis. A report of two cases and review of the literature. *Clin Orthop* 1992; 280: 251-5.
- Booz M Y. The value of plain film findings in hydatid disease of bone. *Clin Radiol* 1993; 47 (4): 265-8.
- Cancrini A Jr, Belotti C, Quagliarini L, Santoro A, Tossini A, Ciappetta P, Delfini R. The osseous location of echinococcal cysts: comments on a clinical case. *G Chir* 1992; 13 (11-12): 548-51.
- Fernandez L, Gomez-Castresana F, Lopez-Duran L, Mata P, Brandau D, Sanchez-Barba A. Osseous hydatidosis. *J Bone J Surg (Am)* 1978; 60: 685-90.
- Otgut A G, Kanberoglu K, Altug A, Cokyukse O. CT and MRI in hydatid disease of cervical vertebrae. *Neuroradiology* 1992; 34 (5): 430-2.