

Bone cyst: Case report and implications for the anaesthesiologist

INTRODUCTION

Bone cysts are rare but a definite cause for pathological fractures, and hydatid cyst should be considered as one of them.^[1,2] Symptoms associated with bone echionococcosis are non-specific and often missing, making the diagnosis difficult.

Thirty-nine years old male, diagnosed case of non-union subtrochanteric femur fracture was posted for open reduction and internal fixation (ORIF). After 3 h of subarachnoid blockade (SAB), patient had anaphylactic shock due to the rupture of a cyst in the thigh, which was thought to be chronic collection and turned out to be hydatid cyst. Radiological imaging techniques like ultrasonography (USG), and magnetic resonance imaging (MRI) help in the identification of extra hepatic hydatid cyst, and thereby preventing accidental puncture and rupture of the cyst, while performing neuraxial and peripheral nerve blocks (PNBs).

CASE REPORT

A 39-year-old male patient presented with history of pain in the right lower limb. Patient had history of fall 4 years back and sustained subtrochanteric fracture of right femur. He was operated under SAB and proximal femoral nailing (PFN) was done without any complication. Post-surgery, patient was having pain in the operated limb and was able to walk only with the help of crutches. X-ray revealed non-union of fracture site with PFN implant *in situ* and lytic lesion in the trochanteric region. USG and computed tomography (CT scan) revealed hypodense collection (13 cm × 5 cm) in the anterolateral aspect of thigh in the muscle plane reaching up to the bone surface. It was thought to be chronic infection. Cyst fluid was aspirated and sent for microscopic examination and culture sensitivity. All the reports were unremarkable. Erythrocyte sedimentation rate and C-reactive protein levels were within normal limits. Patient was posted for ORIF and bone grafting.

In the operating room, standard monitoring was attached to the patient. Combined spinal epidural block was performed by needle through needle technique. Three

hours later, patient had sudden episode of hypotension (blood pressure decreased from 110/70 to 76/36 mmHg), bradycardia (heart rate decreased from 92 to 36 beats/min), vomiting, without desaturation (SpO₂: 98%). Surgical manipulations were stopped. Intravenous atropine 0.6 mg and ephedrine 12 mg were given in two divided doses. No skin rashes were noted on the body. Normal breath sounds were heard on auscultation. Blood loss was approximately 600 ml. A second peripheral line was secured, and fluid resuscitation was done. Haemodynamic parameters became normal. Subsequently the surgeons were asked to proceed. The surgeons noted clear fluid draining from the ruptured cyst which was thought to be an abscess pre-operatively. A presumptive diagnosis of ruptured hydatid cyst and subsequent anaphylactic shock was made. A bolus of 100 mg of hydrocortisone, 45.5 mg of pheniramine and 4 mg of ondansetron were administered. The surgical procedure lasted for 4 h. Rest of the intraoperative and post-operative course was unremarkable.

Histological examination of the cyst wall confirmed the diagnosis of hydatid cyst. Post-operatively, USG of abdomen did not reveal any cystic lesion in the liver. MRI of the thoracolumbar spine found no evidence of extra-dural cyst, including the site of epidural catheter insertion. Hence, we decided to keep epidural catheter in position for post-operative pain relief. Patient was put on antihelminthic treatment and discharged from the hospital.

DISCUSSION

Hydatidosis of the bone occurs in 0.5–3% of all the cases.^[3,4] As the symptoms are non-specific and often missing, diagnosis becomes difficult and sometimes overlooked. Hydatid disease can involve any organ in the body and often discovered as an incidental finding.^[5] Bracanovic *et al.*^[2] investigated the skeletal manifestations of hydatid disease. Pain, pathologic fracture and paraplegia were the major symptoms. Pathological fractures occur due to cyst enlargement and consequent cortical thinning. Sites most frequently affected are spine and femur. Fracture line is the only visible radiological sign, followed by cyst and tumefaction. Therefore, pre-operative diagnosis of skeletal hydatid disease is difficult, and conclusive diagnosis is often made intraoperatively and by histological verification.

Due to non-specific findings, radiological diagnosis of bony hydatid is difficult.^[6,7] Among the imaging techniques, USG is the method of choice for screening.

CT detects the largest number of lesions and characteristic cyst wall calcifications. MRI facilitates the identification of hydatid cyst in the extra-dural spinal space.^[7] Presence of hydatid cysts in the extra-dural space has been reported in the literature.^[8-10] The diagnosis remains obscure until symptoms resulting from complications due to root and cord compression appear. Pre-operative diagnosis is essential as the rupture and dissemination of cyst, while performing neuraxial block may result in anaphylaxis. Not only orthopaedic surgeons, anaesthesiologist should also be alert to this condition, and it should be suspected in cystic lesions and pathological fractures with non-union, especially in endemic areas of the world.^[1]

Our patient was an adult male with non-union of fracture femur. He had persistent pain after the surgery. USG and CT had revealed well defined collection in the muscle plane reaching up to the bony surface. In hindsight, we feel that the near catastrophe we encountered would have been prevented if the possibility of hydatid cyst was considered pre-operatively.

CONCLUSION

Apart from anaphylactic shock management, pre-operative considerations in bony hydatid disease should include MRI of the thoracolumbar spine to rule out hydatid cyst in the extra-dural spinal space if neuraxial anaesthesia is planned for. For PNBs, use of USG will be superior to paraesthesia and nerve stimulator techniques as it helps in the identification of cyst in the muscle plane and thereby help in preventing the accidental puncture and rupture of the cyst and unforeseen complications.

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