

Case Report

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Rare hydatid cyst in spinal canal with pulmonary embolism

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Abstract

Hydatid cyst is a zoonotic disease with various clinical presentations based on the affected organ. The human spine is the most commonly affected part of the body, which presents as back pain and subsequent neurological manifestations depending on the cyst's location and size. The surgical management of removable cysts is a common therapeutic approach but may provide life-threatening complications for patients. Provoked pulmonary embolism is among these complications. The present report demonstrates a case of a hydatid cyst of the spine successfully managed by surgical resection but complicated by pulmonary emboli 2 weeks following the surgery.

Keywords: Hydatid cyst; Pulmonary embolism; Echinococcus granulosus.

Introduction

The hydatid cyst caused by the *Echinococcus granulosus* is the main differential diagnosis of cystic lesions in almost every body system, in particular the liver and lungs [1]. Bone involvement has been reported in 0.5% to 5% and the spine is among the common locations in the thoracic cage [1]. The hydatid cyst of the spine may present with different clinical manifestations ranging from mild low back pain to an asymptomatic bulging of the skin over the spine [1]. Depending on the location of the cysts and their compression effect on the spinal cord, patients may experience variable neurological signs [2]. Surgery is the treatment of choice for the symptomatic hydatid cyst of the spine and patients may experience life-threatening complications following the surgery [2]. The present report demonstrates a case of a hydatid cyst of the spine in a young male managed by surgical resection developing provoked pulmonary embolism following the treatment.

Case report

A 27 years old male patient without any remarkable history of previous medical illness referred because of thoracic spine pain started 2 years ago. The back pain had spastic nature with-

out radiation relieving by using analgesics. Since 6 months ago, the patient experienced occasional paresis of both lower limbs. The paresis gradually becomes more severe making the patient unable to walk independently.

Therefore, the patient was admitted to the neurology yard and the physical examination revealed paralysis and decreased sensation over both legs without any other specific finding. Doppler ultrasound of the lower limbs was unremarkable and the laboratory analysis demonstrated anemia (Red Blood Cell: 3.84 ml/mm³; Normal range: 4.5-6.3, Hemoglobin: 11.4 g/dl; 14-18, Hematocrit: 33.2; Normal range: 39-52), increased erythrocyte sedimentation rate (22 mm/hr.; Normal range <15), increased liver enzymes (aspartate aminotransferase: 42 IU/L; Normal range: 5-40 and alanine aminotransferase: 79 IU/L; Normal range: 5-40) and increased alkaline phosphatase (569 IU/L; Normal range <500). A Magnetic Resonance Imaging (MRI) of the spine was ordered and a cystic lesion was seen in the thoracic spine compressing the spinal cord (Figure 1). The patient was a candidate for surgical removal of the cysts. After cystectomy, the microscopic study of the resected cyst suggested the diagnosis of a hydatid cyst of the spine (Figure 2). After the operation, oral Albendazole (400 mg) was started twice daily. The

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patient discharged from the hospital after 10 days of admission. However, about 2 weeks later, the patient was readmitted because of sudden episodes of dyspnea, cough, and hemoptysis. The cardiac transthoracic echocardiography did not reveal any remarkable finding but the Computed Tomography (CT) angiography revealed a filling defect in right segmental branches as well as sub-pleural haziness indicating possible infarction (Figure 3). Therefore, the diagnosis of Pulmonary Thromboembolism (PTE) was made, consequently subcutaneous enoxaparin (80 mg) and warfarin therapy (5 mg daily) immediately initiated. The patient's clinical symptoms improved after a week of anticoagulant therapy and the patient discharged with the prescription of daily 7.5 mg warfarin. The follow-up after 6 months revealed no complications or symptoms. Arterial biopsy for R/O embolism of hydatid cyst was not performed due to patient refusal, lack of proper equipment, and general improvement in patient symptoms as a result of anticoagulant therapy.

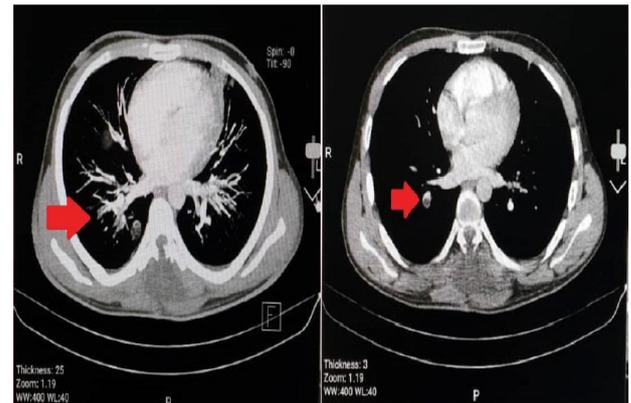


Figure 3: The computed tomography imaging illustrates partial filling defect in superior segments of the lower lung lobe indicating pulmonary thromboembolism.

Discussion

The present report demonstrated a case of a hydatid cyst of the spine successfully removed by surgical resection and complicated by pulmonary embolism 2 weeks following the surgery.

The Hydatid cyst of the spinal cord will become symptomatic when providing pressure effect on the adjacent tissue, similar to the hydatid cysts of other organs becoming diagnosed even as an incidental finding [1,3]. The cysts may compress the spinal cord or even cause pathologic fractures to the spine resembling the clinical feature of disc herniation and acute back pain [1]. The untreated cyst may gradually replace the osseous tissue destroying the adjacent cortex and spreading to the adjacent tissue [1]. Similar to our patient, the hydatid cyst may present as a multi-loculated lesion with a well-defined border in imaging studies [1]. While the intra-osseous lesions may become classified, the extra-osseous lesions do not usually show calcification [1]. The most common differential diagnosis of hydatid cysts of the spine is metastasis, tuberculosis, and bone cysts [1]. Microscopic assessment of the resected cyst clearly rule out such possible differential diagnosis [1]. After confirming the diagnosis of a hydatid cyst, the patient may be managed by anti-infective drug treatment, surgical management, or a watch and wait approach [4]. Similar to the previously reported case with the compression effect of the cyst on the spinal cord and because of considerable morbidity of the cyst in our patient, we choose surgical resection [5]. The surgical management of the cyst is the treatment of choice in most operable patients, but the recurrence rate has been reported to be up to 22% [6]. Although our patient did not experience recurrence of the clinical symptoms, however, the true recurrence of the disease should be assessed by evaluating the appearance of live cysts at the site of previous treatment or new distant disease indicating the spillage [6]. The main complication following the surgical resection of the hydatid cyst in our patient was the development of pulmonary embolism. Hydatid pulmonary embolus is a life-threatening event requiring prompt management as its clinical features are usually uncharacteristic requiring a high index of suspicion [7]. Imaging techniques including both CT and MRI studies of lungs as well as cardiac echocardiography are the pillars of in-time diagnosis in those with suggestive clinical findings [7]. Receiving appropriate surgical management and Albendazole is the treatment of choice for hydatid pulmonary emboli [7]. However, in our patient, we may consider the pul-

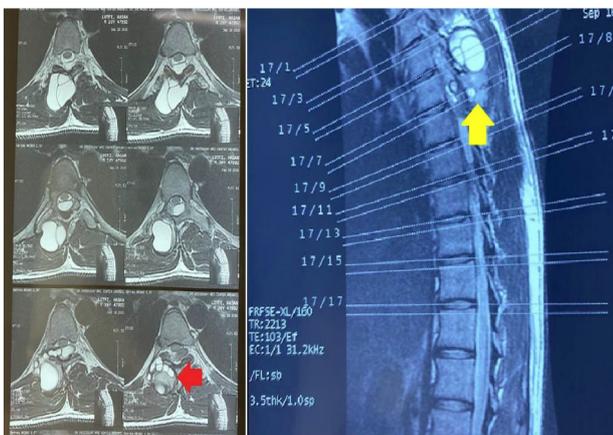


Figure 1: T2 signal images show a hypersegmented lesion with internal septation daughter peripheral cysts within the paravertebral muscles. The cysts have a pressure effect on the spinous process providing slight erosion indicating a hydatid cyst.

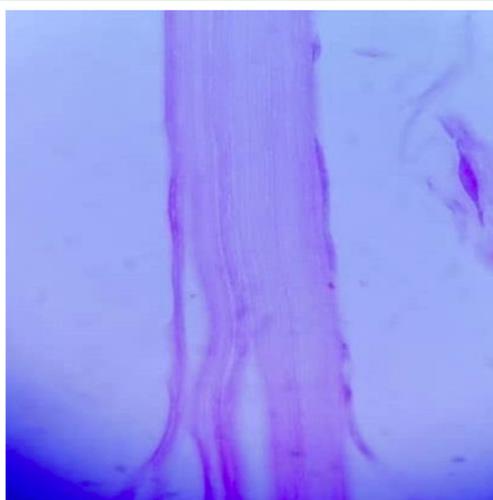


Figure 2: The laminated layer of cellular hyaline tissue.

monary embolism as a provoked pulmonary embolism and not the hydatid pulmonary emboli. There are various risk factors for provoked pulmonary emboli including active malignancy, coagulation disorders, trauma, and immobilization [8]. Surgery and infectious diseases are the 2 main causes of provoked pulmonary embolism which were present in our patient [8].

Conclusion

In conclusion, hydatid cyst is a common zoonotic disease in the Middle East and should be considered as a differential diagnosis of chronic back pain. Surgical management of the spine cyst, as well as treatment with Albendazole, is the main management of the disease, and patients present with respiratory symptoms including hemoptysis and dyspnea should be evaluated for the possible provoked pulmonary embolism.

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