

## Paravertebral hydatid cyst: A rare case report

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### Abstract

Hydatidosis is a common disease in cattle-raising areas and mostly involves liver (65-75%), lungs (25-30%) and less commonly bones, spine, spleen, pericardium, myocardium and muscles. Muscular hydatidosis especially in paravertebral muscles is very rare. This article presents a case of paravertebral hydatidosis without spinal cord involvement which she was treated by surgery and medication. Therefore, hydatid cyst should be considered as one of the differential diagnoses of all cystic lesions especially in endemic areas. This provides an opportunity to being technically prepared to choose the right approach of intervention and treatment.

**Keywords:** Paravertebral; hydatid cyst; muscle; echinococcus.

### Background

Hydatidosis is a common disease in cattle-raising areas and which caused by the Echinococcus Granulosus [1, 2]. This tape-worm infestation leads to cysts formation in live stocks. Canids are definitive hosts and human could be an intermediate and accidental host [3]. Australia, New Zealand, Mediterranean Countries, India, Africa and South America are endemic areas in term of this disease. Involved organs in human are liver (65-75%), lungs (25-30%) and less commonly bones, spine, spleen, pericardium, myocardium and muscles [4]. Therefore, muscular hydatidosis is very rare and there are only few literatures of these cases especially in paravertebral muscles. This article presents a case of paravertebral hydatidosis without spinal cord involvement.

### Case Presentation

AA fifteen years old woman presented with complaints of pain and mass palpation between scapulas in paravertebral area from 1 months ago. There was no history of trauma, weight loss, fever, gastrointestinal or urinary tract complication. In physical examination a solitary, non-tender, immobile, non-erythematous and well-defined cystic mass was detected. This mass presented on about T6-T7-T8 level of left paraspinal area. The Valsalva maneuver did not change the size of mass. Neurological examinations were normal. There was no organomegaly. Laboratory evaluations including serology of

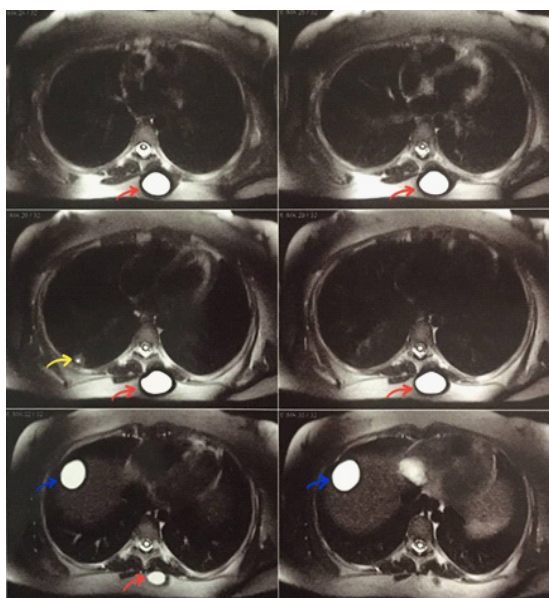
Echinococcus were normal. Spiral Chest Computed Tomography (CT) revealed a mass in inferior lobe of right lung and another larger cystic mass in left thoracic paraspinal muscles without vertebral involvement. According to high prevalence of hydatid disease in Iran, especially in northwest of this country Echinococcus was in the top of differential diagnoses. Magnetic Resonance Imaging (MRI) of thorax showed a 5mm cystic lesion at apical segment of lower lobe of right lung with consolidation around cyst. Additionally, a 58 mm cyst at left paraspinal muscle at T6 to T8 levels and a 32mm unilocular cyst at 7th hepatic segment were noted [Figure 1 and 2]. Moreover, a 14mm T2W hyposignal focus with irregular margin was seen at lower pole of left kidney, which were hypersignal on T1W1 (calcified or haemorrhagic focus) [figure 3]. There was no lymphadenopathy. Thus, hydatidosis was the most likely diagnosis.

The patient admitted for surgery. The intramuscular cyst was intactly excised by the method of En bloc resection and the area was irrigated by hypertonic saline [figure 4]. Histopathological study confirmed the diagnosis of hydatidosis.

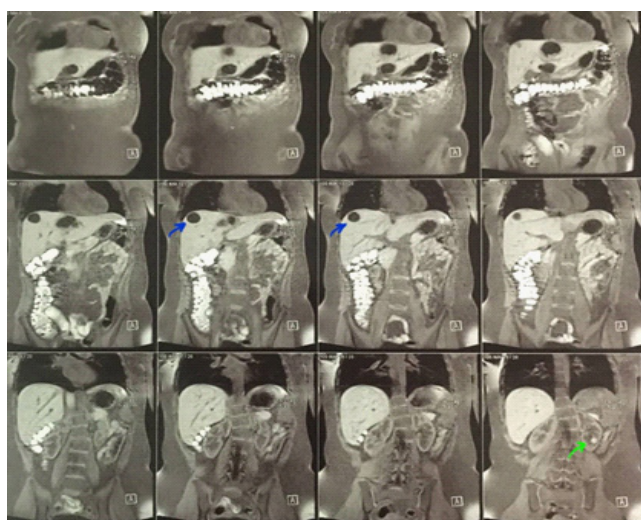
Other cystic masses did not make a serious complication. Therefore, the patient was discharged with 400mg Albendazole twice a day for 6 months. In follow up examinations after 6 months of oral Albendazole, the disease was under control and the thoracic cyst shown signs of calcification without any

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size increase and there was no need for further surgical intervention.



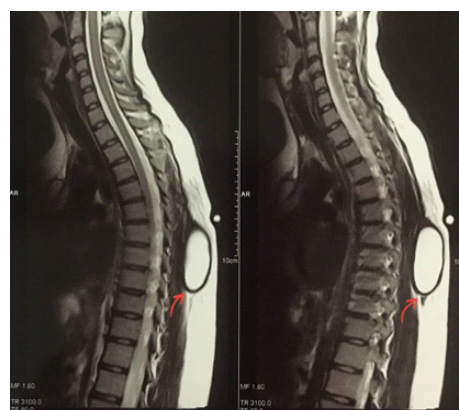
**Figure 1:** Magnetic Resonance Imaging (MRI) of thorax: a 5mm cystic lesion at apical segment of lower lobe of right lung with consolidation around cyst (the yellow arrow). A 58 mm cyst at left paraspinal muscle at T6 to T8 levels (red arrows) and a 32mm unilocular cyst at 7th hepatic segment (blue arrows).



**Figure 2:** A 58 mm cyst at left paraspinal muscle at T6 to T8 levels (red arrows).



**Figure 3:** A 14mm T2W hyposignal focus with irregular margin at lower pole of left kidney, which were hypersignal on T1W1 (green arrow) and an unilocular cyst at 7th hepatic segment (blue arrows).



**Figure 4:** Ahe intramuscular cyst was intactly excised by the method of En bloc resection and the area was irrigated by hypertonic saline.

## Discussion

Presentation of hydatid disease in muscles is very rare and it is due to contractility of muscles which prevent cyst formation in an unstable area. Another reason could be high level of lactic acid in muscles that leads to not proper area to cyst growing [5, 6]. The theory of the larva escaping from two filter of pulmonary and hepatic circulation is penetrating of intestine wall by larva and entering to Inferior Vena Cava (IVC) and systemic circulation through venous plexus of intestine [1, 4, 6, 7]. Regarding slow growing behaviour of the cyst, it is possible to be asymptomatic even for 5 to 20 years. Symptoms of the cyst depend on the location, compressive effect on adjacent organs, probable rupture effect and immunological and infectious complications [1, 3, 8]. Therefore, intramuscular cysts could present with local swelling, pain and tenderness. Fifteen percent of spinal involvement was reported [6, 8]. Symptoms of spinal involvement are low back pain (85%), radicular pain (5% to 25%) and paraparesis (25% to 77%) [2]. In the presented case, a palpable mass between two scapulas without tenderness, erythematous or signs of spinal involvement was detected. The most common differential diagnosis for these cases are pseudocysts, congenital cysts, cystic tumours, abscess haematomas [1] and myositis [6].

The main diagnosis methods are serology and imaging. ELISA (Enzyme Linked Immunosorbent Assay) for Echinococcus IgG with sensitivity of 95% and specificity of 94%, Immunoelectrophoresis (IEP) and Haemagglutination test are some of serological studies [3]. None of these studies were positive in our case and it could be explained by isolation of the parasite from the host immune system by cyst capsule (in 50% of cases). Additionally, inadequate T-cell activation and cytokine production is another explanation [1, 4]. About Imaging modalities, it is possible to benefit from plain X-Ray, Ultrasonography (USG), CT and MRI. There is Gharbi's classification for hydatid cyst masses in USG. The main features of hydatid cysts on USG are daughter cysts, detached membrane, and double-line sign [6]. CT could discover smaller cysts which are in different organs simultaneously, differentiate the parasitic cysts from non-parasitic, detect invasion of cyst to osseous and other structures especially when the cysts calcified and utilize in treatment follow-up. Water lily sign is a characteristic feature of hydatid

cyst in MRI as a detached laminated membrane which attenuation of linear area within the cyst was increased [6]. In this case, this feature was not detected and regarding high prevalence of hydatidosis in northwest of Iran and presentation of multiple cysts in various organs, Echinococcosis was the most probable diagnosis. Treatment of hydatidosis depends on various factors. Surgery is the most recommended and optimal method in cases like this [9]. In cysts with types 4 and 5 of Gharbi's classification, posterior or centrally positioned, presentation of more than three cysts, large cysts, cysts with heavy calcification, biliary and pulmonary communication of cysts and peritoneal rupture are indications of open cystectomy. In Gharbi's type 1 and 2 cysts, anterior or peripheral cysts, one or two cysts, small cysts and with or without minimal calcification, the laparoscopic approach is an optional method [5]. The surgery could be done by En bloc method which is defined as excision of cyst with whole and continuous shell of healthy tissue or by simple deroofing and enucleation of the cyst; especially, in firmly embedded cysts such as intraperitoneal cysts attached to viscera [3]. Irritation of area with hypertonic saline 20%, silver nitrate 0.5%, formalin, aqueous iodine and etc. is beneficial to prevent secondary and recurrent cysts [6]. PAIR is an alternative therapy for hydatid cysts. It is defined as Puncture-Aspiration-Injection-Reaspiration and performed as USG-guided percutaneous aspiration, injection of 95% ethanol and reaspiration [3]. Small studies for PAIR advocated that this is a safe technique without complication or recurrence. However, in larger studies it has been not recommended. These differences could be explained by dependency of technique to how experted is the performer [1, 10]. In the presented case according to high prevalence of hydatidosis in the area, hydatid cyst considered as the most probable diagnosis preoperatively and after whole intact cystectomy, the area irrigated with hypertonic saline. Anthelmintic drugs are suitable in sporadic small cysts and to prevent the recurrence after surgery [4]. In this case 6 months of Albendazole prescribed.

There have been few literatures of paraspinal hydatidosis which two of them presented as primary and solitary cyst [1, 3]. Some of them raised in cervical [1,7] and some in lumbar [2,3,4,5,8,9,10] areas. But in our case the cyst presented in thoracic area. In conclusion, hydatid cyst should be considered as one of the differential diagnosis of all cystic lesions, especially in endemic areas which it provides the opportunity of being technically prepared for the type of intervention and the way of treatment.

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