

IMAGING DIAGNOSIS OF HYDATID CYST IN SPLEEN –A RARE CASE REPORT WITH REVIEW OF LITERATURE

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ABSTRACT

Hydatid disease is common in the world and endemic in middle east and north Africa including Libya. The hydatid disease mainly involves the liver and lung in human being. The disease is rarely involving the other organs including heart, prostate, bone, central nervous system and spleen. Primary hydatid disease is quite rare in the spleen whereas from time to time we reported rare cases in those organs. Example of these reported cases was a rare case of primary giant hydatid disease in the spleen would be described with review of literature. Modern imaging technology was the method of choice for description and diagnosis of the hydatid cyst in spleen. US, CT scan and MRI play role in diagnosis of the hydatid cyst.

Keywords: *Primary, Hydatid cyst, Spleen, US, CT scan, MRI.*

ABBRREVIATIONS; *US: ultrasound, CT: computed tomography, MRI: magnetic resonance imaging.*

1. INTRODUCTION

Hydatid cystic disease is a zoonotic infection caused by a tapeworm of *Echinococcus granulosus* and other species. The disease is endemic in Middle East and in other geographic distribution in the world. In North Africa hydatid disease is endemic to hyper-endemic and the disease is a major zoonotic disease in Libya. Human as well as sheep, cattle and other animals are intermediate hosts where the main definitive hosts are high number of stray-dogs in Libya moving in and around cities in any time of

of high signal intensity and the triple layers of the cyst with higher in intensity of the daughter cysts.

The disease involves the other organs in very low frequency rate. The rarity of hydatid disease in some anatomical location causes diagnostic difficulty for physicians, particularly in non-endemic countries because lack of experience of clinicians. The incidence of unusual sites of hydatid cyst in India is higher than in other parts of the world, due to possibility of direct contact with animals in early childhood, beside to eating raw vegetables and drinking water contaminated with infected dogs. Diagnosis of these rare cases depending on the clinical history and biochemical tests, but the modern radiological imaging play role in diagnosis of hydatid disease as well as can be confirmed histopathologically¹⁻⁷.

Hydatid disease affects any place and organ of the human; about 70% of cases are in liver and about 30% in lungs^{8,9}. The third most involved organ with secondary infection with hydatid disease is spleen. Hydatid disease in spleen is usually occurring from spontaneous spreading from other organ after trauma or surgical intervention. The isolated primary hydatid disease affected spleen quite rare and usually occurs via arterial route after parasite passage through hepatic and pulmonary filters^{1,2,10-14}. Generally the splenic hydatid cyst is asymptomatic because grows slowly taking long duration of time to become symptomatic. The symptoms are mild and usually due to pressure on abdominal viscera or complications. The patient presented with complaint of left upper quadrant mild pain and recurrent vomiting¹². Imaging modalities of ultrasound (US), computed tomography (CT) scan

and magnetic resonance imaging (MRI) discover and diagnose the disease clearly. We reported isolated primary hydatid disease in spleen using modern imaging modalities with reviewing rare cases of large cysts in spleen in Libya.

2. PRESENTATION

Many cases referred to radiology departments in for imaging and diagnosis. One of these cases was a 40 years old Libyan female patient presented to department of radiology and medical imaging in National Institute of Oncology–Misrata referred with left upper quadrant abdominal discomfort and complaint of nausea of 4 months duration. On physical examination there were features of mild anemia and normal biochemical indices, left hypochondrium tenderness and mild palpable spleen, Justification of a high hydatid cyst suspicion due to high endemicity in Libya^{3,8}. Hydatid disease diagnosis in spleen was considered especially in endemic region. Discovery and diagnosis of our case of hydatid cyst like other hydatid cyst cases based mainly on modern imaging modalities of ultrasound (US), computed tomography (CT) scan and magnetic resonance imaging (MRI) scanning providing characteristic features of hydrated cyst resulting diagnosis of the disease.

Ultrasound of abdomen revealed an oval echo-free area of lesion with well-defined thin triple wall subcapsular cyst and with marginal partial calcification, measuring about 15.0x14.0x13.5cm occupied most of upper portion of the spleen (figure 2). Abdominal ultrasound showed no other cysts in any other abdominal places.



Figure 2: ultrasound showed giant cyst in the spleen

CT scan showed low density cystic mass of watery-fluid attenuation, measuring about 16.0x 15.5x14.0 cm with internal septation and eccentric multiple daughter cysts. The cystic wall mildly enhanced with contrast material, occupied the upper $\frac{3}{4}$ portion of the spleen. The hydatid cyst was characterized by three described layers; an outer pericyst, an intermediate ectocyst and an inner endocyst (figure 3 a, b). CT scan of chest showed no cysts or other pathological changes.

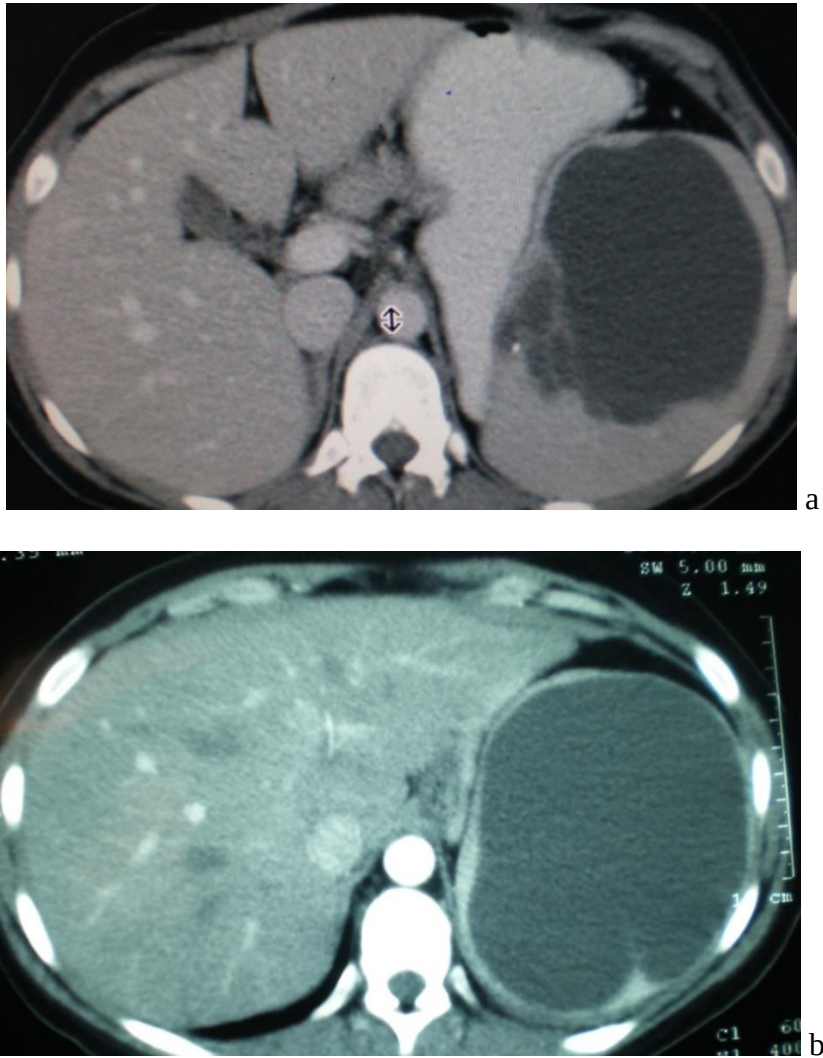


Figure 3 a, b : CT scan showed giant hydatid cyst with smooth wall and septation and multiple eccentric daughter cysts.

MRI showed the hydatid cystic-fluid could be differentiated and described by MRI scanning that showed, high signal intensity on T2WI and low intensity on T1WI technique surrounded with thin wall differentiated to triple layers (figure 4).

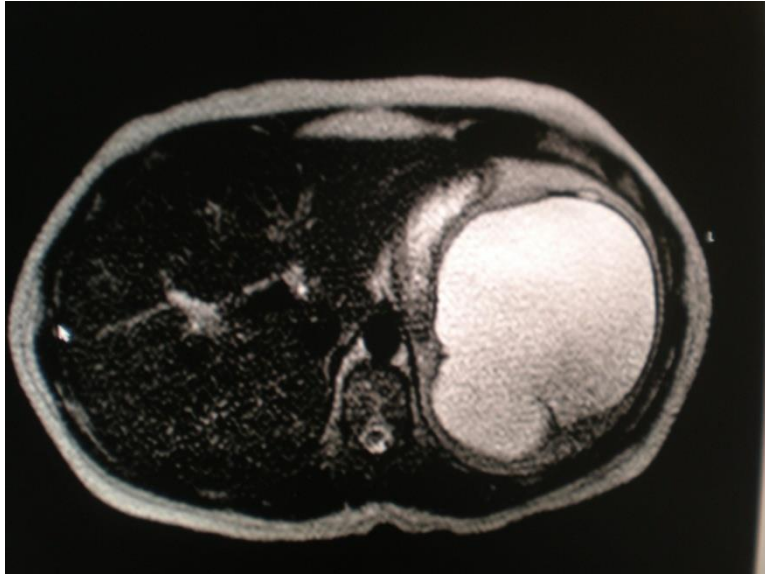


Figure 4: MRI of abdomen T2WI showed giant hydrated cyst in spleen with three layers differentiation.

3. DISCUSSION

Libya is endemic country of hydatid cysts and were reported many rare cases in many organs in the human body. The hydatid disease in Libya may affect any part of the human body. Splenic involvement with the disease is rare even in endemic zoonosis region. The splenic hydatid cyst is usually asymptomatic. Some patients presented with symptoms particularly in case of large cyst such as abdominal distention, left hypochondrium palpable abdominal soft tissue mass. The diagnosis of hydatid cysts of spleen becomes more accurate today due to the availability of the modern imaging modalities.

Libyan experience in the disease is present with review literature and reporting few rare cases in Libya which is reported as isolated massive splenic hydatidosis.

The isolated massive hydatid cyst in spleen was reported in Tripoli central hospital, Tripoli-Libya. It is the largest cyst in spleen was reported in the world. Its dimensions were 40 x 38 x 26 cm. The cyst occupied the most abdominal cavity and displaced the abdominal organs away from their normal locations. Radiography demonstrates hydatid disease as round opacity with calcified eggshell-like area in the left hypochondrium is suggestive of splenic hydatid cysts. Eosinophilia may be finding on laboratory investigation. Ultrasound study of abdomen showed well-defined spherical large cystic mass in left upper abdominal region with high foci of echoes within the cyst and bright echogenic periphery suggesting calcified cystic wall. CT scan demonstrates the cystic calcification properly. Multidetector computed tomography (MDCT) confirmed a huge cystic mass of the spleen measuring 26 x 38 x 40 cm. The enlargement of the mass shifted the bowel loops and great vessels into the right abdominal side and displaced the left kidney inferomedially. Small residual normal splenic tissue was noted along the margin of the cyst inferolaterally. The spleen with the cystic lesion was removed completely and the histopathology confirmed the diagnosis. The other largest cyst was reported in world was in India with dimensions of 45 x 35 x 20 cm. another large hydatid cyst was reported also with dimensions of 37 x 15 x 14.8 cm¹⁵⁻²¹. The reported giant cyst in spleen, which was reported in Libya is too much larger than the giant hydatid cyst in liver which reported in India,

because the size of cyst is prescribed as a giant compared of cystic size to the originated organ of the cyst. From Libya also, female patient of age 60 years living in sheep and cattle raised area in Libya presented with pain at left upper abdominal region. X-ray showed two rounded calcified lesions in the left and right hypochondria. Ultrasound examination recognized features of calcified hydatid cysts; one of these lesions was in the right lobe of the liver and the other one located at the splenic hilus compressing the hilar vessels, which resulted in perihepatic splenic varix²².

Our reported case of hydatid cyst was a primary hydatid disease affected the spleen only and the other body organs were free from this infection. The cyst size was large enough to be described as a giant hydatid cyst. Word “giant” described dependent on the place in the body and size of the organ; e.g. when size of the hydatid cyst is 2 cm in the heart, it is described as giant and when its size is 1 cm in the eye might be described as giant hydatid cyst¹⁶. Hydatid cyst of our reported case was primary because originated in spleen and not found in other places of the body as well as the size enlargement of the cyst relative to the spleen size was a giant hydatid cyst. This rarity of the case gave its importance to be reported. The modern imaging modalities play role in diagnosis of the case of hydatid cysts. In literature the classic sonography, MDCT scan and MRI describe the characteristic and diagnostic features of hydatid cysts. The our presented reported case of hydatid cyst and the other previous hydatid reported cases in spleen were large and each of them characterized by three described layers; (an outer pericyst, an intermediate ectocyst and an inner endocyst),

marginal calcification and daughter cysts as well as the cystic fluid were differentiated and described by these imaging techniques.

4. TREATMENT AND PREVENTION

Treatment of hydatid cases should be done due to the risk of rupture and the choice of treatment is surgery which is the acceptable treatment for symptomatic large splenic hydatid cysts. Chemotherapy (anti-helminthic drugs) of a mixture of medical agents highly affected and used in small cysts, in affected multiple organs or in risky locations of the cyst. Prevention from hydatid cysts; - Controlling of the cysts by preventing transmission of the disease with control areas of the stray-dogs, that disseminate echinococcal eggs and preventing the animals from consuming the infected meat. - Control dog feces by prevent dogs from roaming or soiling the immediate environment. - Prevent the grazing animals from hydatid disease infection by vaccination reducing the prevalence of infection in human. - Health education (radio, television, newspapers) education in the schools and universities. Teaching the children to prevent infection is important to wash the hands with water and soap. - Restrict home and shop slaughter of livestock. Government inspection by supervision of veterinarians on slaughter in abattoirs^{3,4,12-15,23}.

5. CONCLUSION

Hydatid disease is endemic in Libya, The most affected organs were liver and lungs. The disease is rare in spleen and the primary hydatid disease is rarer in spleen. The advancements of medical imaging technology play role in the diagnosis. Characteristic features of the reported hydatid cyst case

were described as well as reviewing rare cases in literature. Treatment and control of the disease is advised.

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