

Splenic Localization of Primary Hydatid Cyst in a 27-Year-Old Sportsman Treated by PAIR Technique: Imaging Anatomy Assessment

Dzenan Jahic¹, Eldan Kapur²,
Edin Begic³, Enver Zerem⁴

¹Orthopaedics and Traumatology Clinic,
University Clinical Center Sarajevo, Sarajevo,
Bosnia and Herzegovina

²Department of Anatomy, Faculty of Medicine,
University of Sarajevo, Sarajevo, Bosnia and
Herzegovina

³Faculty of Medicine, Sarajevo School of
Science and Technology, Sarajevo, Bosnia and
Herzegovina

⁴Department of Gastroenterology and
Hepatology, University Clinical Center Tuzla,
Tuzla, Bosnia and Herzegovina

Corresponding author: Dzenan Jahic, MD.
Orthopaedics and Traumatology Clinic, University
Clinical Center Sarajevo, Sarajevo, Bosnia and
Herzegovina, Faculty of Sport and Physical Education,
University of Sarajevo, Sarajevo, Bosnia and
Herzegovina. ORCID ID: <http://www.orcid.org:0000-0002-0033-7418>. E-mail: djahic@gmail.com

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ABSTRACT

Introduction: In this paper, we report our experience with a case of primary hydatid cyst involving only the spleen in a 27-year-old sportsman treated by PAIR technique. **Case Report:** Five years before, a 27-year-old handball player being admitted to our hospital, it was detected the cyst in his spleen which size was 35 x 30 mm in diameter, by abdominal ultrasound during a systematic examination. There was no pain or any other symptoms at that time. Tests on the presence of echinococcus cysts were negative. After a period of 5 years, and regular check-ups, the patient began to feel a dull pain in the left upper quadrant area. The Echinococcus test was again negative. Puncture and aspiration of content was performed and sent to cytological analysis that confirmed the presence of Echinococcus. The CT finding showed the spleen in a normal position, shape, enlarged, 185 mm in longitudinal diameter (splenomegaly), with inhomogeneous parenchyma on the expense of rounded area with hyperdense halo, which did not opacify after contrast, located in the dorsal area of the spleen, 100x98 mm in diameter and which corresponded to the echinococcal cyst in differential diagnosis—clean dense contents (protein / haemorrhagic). **Conclusion:** The reported case is very specific, considering that handball is contact sport, where it is almost impossible to avoid the physical contact between players, which is sometimes even rough. Due to rough contacts, spleen trauma is something we should be very aware about, especially in cases of splenomegaly with hydatid cyst, where the spleen rupture might lead to fatal outcome. According to all this, careful follow up of this patient is necessary.

Keywords: primary hydatid disease, spleen, rare localization, PAIR technique.

1. INTRODUCTION

Hydatid disease caused by *Echinococcus granulosus* exists in endemic cattle- and sheep-raising areas worldwide. Humans are intermediate hosts and become infected by handling infected dogs or other carnivore hosts. *Echinococcus* usually is asymptomatic, but many cause morbidity and occasional mortality. Infestation by hydatid disease in humans most commonly occurs in the liver (55–70%) or the lungs (18–35%) (1–4). Localization of hydatid cyst in the spleen is rare, especially when the spleen is the primary and single organ affected by the infection of the parasite *Echinococcus*. This occurs in about 2% of cases of cystic echinococcosis and occurs when the parasite avoids hepatic and pulmonary filters (5, 6, 7). The ultimate goal of treatment is to eliminate the germinal layer of the hydatid cyst. Currently, three treatment options are available: surgery, medical treatment, and percuta-

neous drainage (2, 3). Surgery, the only treatment option available until the mid 1980s, is still performed. Although radical excision of the cyst is recommended whenever possible, conservative surgery may be needed in a select group of cases (2,8). Preoperative prophylaxis with benzimidazoles is commonly advised, although there are no published data establishing its efficacy (2). A percutaneous treatment known as PAIR (puncture, aspiration, injection, reaspiration) is minimally invasive and very effective treatment for hydatidosis. As compared with surgery, PAIR is a simpler, less invasive procedure, with low complication, recurrence, and mortality rates (9, 10).

2. AIM

In this paper, we report our experience with a case of primary hydatid cyst involving only the spleen in a 27-year-old sportsman treated by PAIR technique.

3. CASE REPORT

Five years before, a 27-year-old handball player being admitted to our hospital, it was detected the cyst in his spleen which size was 35 x 30 mm in diameter, by abdominal ultrasound during a systematic examination. There was no pain or any other symptoms at that time. Tests on the presence of echinococcus cysts were negative. All clinical and laboratory tests were very normal. Regular check-up visits were recommended every 6 months to one year to monitor the condition of the cyst. During follow up, spleen cyst was gradually becoming larger, about 10mm per year. Patient did not have any specific clinical symptoms.

Six months before admission to our hospital, patient felt moderate pain and pressure in the left upper quadrant. At ultrasound examination, cyst was 100x98mm in the longest diameter. Two months ago, percutaneous evacuation of cyst was performed. Cyst content was sent for cytological analysis, which revealed scoleces of echinococcal cyst. Devisceration of the cyst was performed by PAIR method using 10% hypertonic saline. On control examination, CT scan (Figure 1) showed the spleen in a normal position, shape, enlarged, 185 mm in longitudinal diameter (splenomegaly), with inhomogeneous parenchyma on the expense of rounded area with hyperdense halo, which did not opacify after contrast, located in the dorsal area of the spleen, 100x98 mm in diameter and which corresponded to the echinococcal cyst in differential diagnosis - clean dense contents (protein / hemorrhagic).

4. DISCUSSION

Splenic hydatid cyst is a diagnostic challenge and treatment challenge (11, 12). It occurs in spleen for 0,5-8% of all cystic echinococcosis cases, associated with the appearance of cyst in liver and other intra-abdominal organs. In about 2% of cases, the spleen is the only organ involved (primary infection) (13, 14). The disease is endemic in cattle breeding areas, in South America, Africa, Middle East, South Europe, India and Australia, and also in our country (Bosnia and Herzegovina), particularly in region of Herzegovina (4, 11). The mentioned athlete lives in a place that is surrounded by highlands (city Tuzla, region of Bosnia). While taking the anamnesis, he stated he did not have any contact that could lead us to the thought of direct parasite infection with Echinococcus. However, that does not exclude the possible infection with Echinococcus, what was actually later on confirmed. It happens that people who once lived in highlands areas get the infection with this parasite. Also, migration patterns and transport of animals might lead to the foci of infection in seemingly non-endemic towns/cities (10). In endemic areas, 50-80% of splenic cysts are Echinococcus origin (11).

The diagnostic challenge starts with setting up the diagnosis, actually, with process of differentiating these cysts from other similiar splenic lesions, verified by the Ultrasonography (US) and Computed Tomography (CT). The diagnosis of splenic hydatidosis should be favored if daughter cysts are present within a large cystic lesion or if cystic lesion

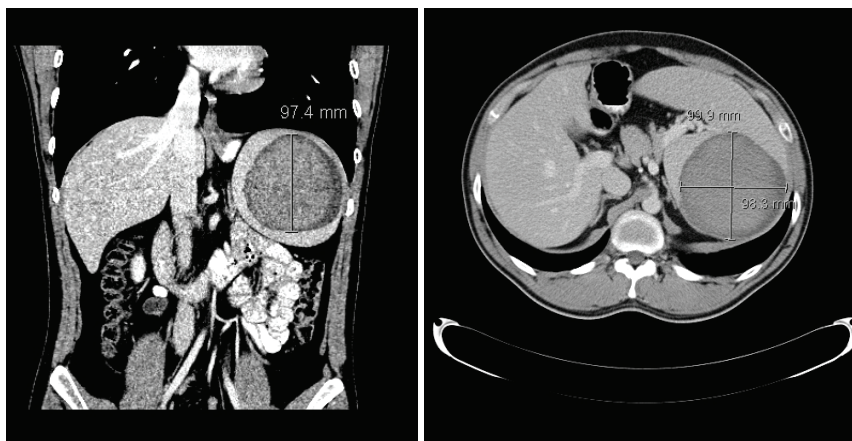


Figure 1. CT scan- axial view (on left) and coronal view (on right)-after injection of hypertonic saline and reaspiration

are present also in other organs such as liver (9). In our case, lesions were not present in other organs, and that is very specific and rare.

CT scan of the abdomen was necessary in order to get the better view of all anatomical and pathological variations, since CT is the method for detection of number, size and anatomical locations of cysts (9). In case of unsure serological confirmation, US and CT scan, MRI is the method of choice, that could help us in setting up the diagnosis.

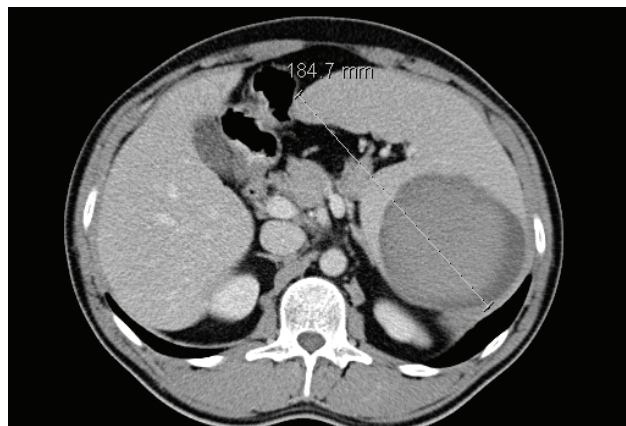


Figure 2. CT scan-splenic length 184,7 mm

In these cases, surgical procedures can be done (either laparoscopic or open) in addition to drug treatment, or PAIR method - (Puncture - Aspiration - Injection - Reaspiration). Within surgical procedures, partial, subtotal and total splenectomy can be done (12). All these methods have their own advantages and disadvantages (10). In our case, PAIR method was conducted. It was diagnostic and therapeutic, considering the fact that the Echinococcus detection test was negative. Long term results show that this method applied to splenic hydatidosis is effective and a safe method and causes no major complications (13). However, it is essential to follow up these patients a longer period of time, due to unsure recurrence rate. In such cases, the cooperation between surgeon and interventionist is very important. At some past time, percutaneous drainage of hydatid cyst seemed as a dangerous procedure, due to the potential risk of anaphylaxis and dissemination. Fillice and Brunetti, found out no anaphylaxis and peritoneal dissemination in 231 cysts in 163 patients (10). The athlete in this case, had no discomforts, either seven months after the conducted PAIR method. Additionally, as shown on

the CT scan, his splenic length was 185 mm (Figure 2) - representing significant splenomegaly (14).

5. CONCLUSION

The reported case is very specific, considering that handball is contact sport, where it is almost impossible to avoid the physical contact between players, which is sometimes even rough. Due to rough contacts, spleen trauma is something we should be very aware about, especially in cases of splenomegaly together with hydatid cyst, where the spleen rupture might lead to fatal outcome). According to all this, careful follow up of this patient is necessary.

- **Conflict of interest:** none declared.
- **Authors contributions:** All authors made substantial contribution to conception and design (acquisition of data, analysis and interpretation of data). All authors revised it critically and gave final approval of the version to be submitted.

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