

Spontaneous intraperitoneal rupture of a hepatic hydatid cyst in a child (case report)

Abou el jaoud Hind¹, Mahfoudi Halima²

¹ department of pediatric surgery ,Mohammed V Hospital , Al Hoceima Morocco

² department of radiology ,Mohammed V Hospital , Al Hoceima Morocco

Abstract: Hydatidosis is endemic in the Mediterranean region including Morocco, the Middle and Far East, Australia, New Zealand, and South America—all areas where animal husbandry is common. Rupture into the abdominal cavity is a rare but serious complication of hydatid disease. The cysts may be ruptured after a trauma, or spontaneously as a result of increased intracystic pressure. Rupture of the hydatid cyst requires emergency surgical intervention.

We report the observation of a 7 year old child admitted for cutaneous rash, general abdominal pain with fever. The radiological assessment objectified a hydatid cyst of the liver and several intra peritoneal collection.

Surgical exploration revealed a peritonitis due to a ruptured hydatid cyst of the liver.

The cyst was completely removed combined with an appendectomy and peritoneal lavage. There were no postoperative complications.

Key words: hydatid cyst, child, peritonitis

Date of Submission: 18-08-2022

Date of Acceptance: 02-09-2022

I. Introduction

Human hydatid disease usually occurs by infestation with *Echinococcus granulosus* and less frequently with *Echinococcus multilocularis* [1]. Although reported from several countries, the disease is endemic in the Mediterranean region, Far East, South America, and Middle East [2, 3]. In humans, 50% to 75% of hydatid cysts occur in the liver, 25% are found in the lungs, and 5% to 10% are distributed along the arterial system [4]. Complications of hepatic hydatid cysts are rupture and secondary bacterial infection [4-5]. Primary peritoneal hydatidosis is rare (2%), and the mechanism of this infection is unknown [3]. The cyst may be ruptured after a trauma, or spontaneously as a result of increased intracystic pressure. Superficially located cysts, large cysts, and viable cysts with high pressure are especially prone to rupture into body cavities such as the pleural space and peritoneal cavity, or they may drain into the biliary tract or the gastrointestinal system. The main diagnostic methods are ultrasonography (US) and computed tomography (CT). Presentation is usually dramatic with acute abdominal signs, such as guarding, rebound, and tenderness, are generally present. This complication should be included in the differential diagnosis of acute abdomen, especially in the endemic areas. In patients with peritoneal perforation, specific management has not been evaluated sufficiently, and no clear guidelines are available. The main treatment modalities for uncomplicated cases are also valid for complicated ones, such as peritoneal perforation. Rupture of a hydatid cyst requires emergency surgical intervention [6].

II. Observation

A 7 year old child with negative past medical or surgical history, who presents with cutaneous rash, abdominal pain and fever enduring for a week.

The clinical examination objectified a febrile child at 39°C with presence of a cutaneous rash of all his body, general abdominal tenderness.

The preoperative biological assessment revealed white blood cells count at 18600/mm³ and CRP at 200mg/l.

An abdominal ultrasound combined with an abdominal CT scan revealed a hydatid cyst of segments II and III of the liver measuring 51*62mm with a peritoneal fluid effusion, the probability of a combined complicated appendicitis was possible.

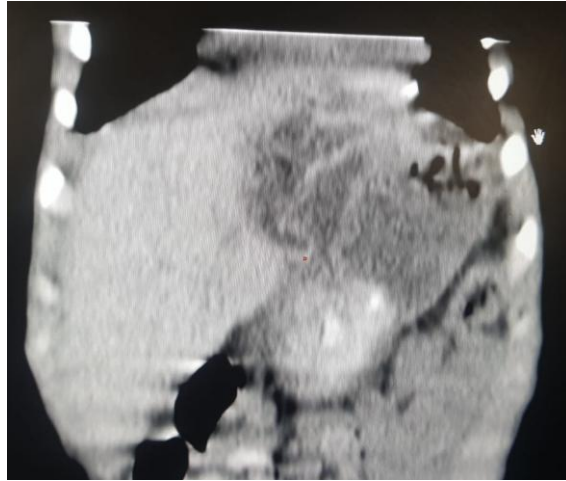


Figure 1: frontal cut of the abdominal CT showing the hepatic hydatid cyst

After stabilizing the patient he was admitted for surgical exploration.

A prolonged infra umbilical midline incision was made once the peritoneum was opened the peritoneal fluid was purulent.



Figure 2: purulent peritoneal fluid

Exploration revealed a large ruptured and infected cyst of the liver (segments II and III) with purulent intra peritoneal and an inflammatory latero-coecal appendix.



Figure 3: per operative image showing infected ruptured hydatid cyst

We aspirated the peritoneal fluid and the contents of the cyst then injected hypertonic serum within the peritoneal cavity and the cyst.

We extracted the proligerous membrane. An abundant peritoneal lavage was performed then we resected the dome of the cyst, there were no biliary fistulas, an appendectomy was also performed. no other localization of a hydatid cyst was found.



Figure 4: image of the proligerous membrane

There were no post-operative complications.

III. Discussion

Hydatidosis is encountered in its endemic state in the Maghreb countries, the pulmonary and hepatic localization are the most frequent. The peritoneal localization is rare being often secondary, the primitive one is exceptional all the more as it is the child [7–8].

It may be primary or secondary: the primary form being exceptional is either systemically or by migration of a hepatic hydatid cyst especially, having broken its adventitious and kept its membrane intact [9–9]. The fissure or rupture of a hepatic hydatid cyst, more exceptionally splenic, causes the secondary form [11], sometimes declared by a trauma even minimal and often unknown. The rupture of the primitive cyst may spontaneously be caused by the weakening of its wall following its large volume, or it may also occur during an effort by increasing intra-abdominal pressure [12,13] or post-traumatic stress.

The clinical presentation of peritoneal hydatidosis is polymorphous and misleading. Abdominal pain can be diffuse, violent and unbearable [14]. If it is preceded by trauma, it may announce the rupture in the peritoneum. The localization of pain differs according to the location of the cyst. Peritoneal hydatidosis is most often manifested in a patient in good general condition [15]. It can also be compressive to the intestinal loops giving a sub-occlusion [16–17], or even portal hypertension. Urinary tract can be a circumstance of discovery. Biological exams are not specific. Serology allows a diagnosis of hydatidosis in 85% of cases [18]. Its negativity does not eliminate the diagnosis of hydatid damage. Its role is certain in postoperative surveillance in search of a possible recurrence [19].

Ultrasound is essential in the diagnosis of abdominal hydatid sites [20]. The classification of Gharbi and Hassine distinguishes 5 types, its diagnostic reliability varies from 90 to 100% [21, 22]. CT allows a better lesional and topographic, the role of MRI is to clarify the vascular relationship [23]. The treatment is essentially surgical [24, 25] the exploration of the abdominal cavity must be complete without forgetting the cul-de-sac of Douglas, the retroperitoneum and the kidneys [26]. It must be careful to avoid peritoneal dissemination [27]. The mandatory precaution to be taken is the protection of the operating site by fields soaked with parasiticides before any maneuver on the cyst [28].

Albendazole is indicated in peritoneal seeding in inoperable cases and in addition to surgery. Therapeutic trials resulted in the disappearance of peritoneal cysts in 10% of cases [29]. Recurrences are very common in peritoneal hydatidosis (10–18%) [30,31].

Clinical, biological and radiological monitoring is required; therefore, radical treatment is the first choice whenever possible; in cases where the cyst is deep, infected or has difficult intercourse with organs or vessels, conservative methods are used with drainage.

IV. Conclusion :

Rupture of hydatid cysts into the peritoneal cavity, although rare, still presents a challenge for the surgeon.

This pathology should be included in the differential diagnosis of acute abdomen in endemic areas. Emergency surgery is the main treatment for intraperitoneal rupture of hydatid cysts, and medical treatment should be given postoperatively. The choice between a radical and a conservative operative procedure should be based on the number, size, and localization of cysts; the relation of cysts to bile ducts and blood vessels; additional organ injuries; and the general condition of the patient. In addition, the morbidity rates of surgical operations are higher among patients with perforated hydatid cysts than in those with noncomplicated cases. It is most important to prevent hydatid infestation.

Références:

- [1]. Derici H, Tansug T, Reyhan E, Bozdog AD, Nazli O: Acute intraperitoneal rupture of hydatid cysts. *World J Surg* 2006, 30:1879–1883.
- [2]. McManus DP, Zhang W, Li J, Bartley PB: Echinococcosis. *Lancet* 2003, 362:1295–1304.
- [3]. Akcan A, Akyildiz H, Artis T, Ozturk A, Deneme MA, Engin O, Sozuer E: Peritoneal perforation of liver hydatid cysts: clinical presentation, predisposing factors, and surgical outcome. *World J Sur* 2007, 31:1284–1291.
- [4]. Barnes SA, Lillemoed KD: Liver abscess and hydatid cyst disease. In *Maingot's abdominal operations*. 10th edition. Edited by Zinner MJ, Schwartz SI, Ellis H. Appleton & Lange: Stamford, CT; 1997:1513–1545.
- [5]. Bozdog AD, Derici H, Peker Y, et al: Surgical treatment of hydatid cysts of the liver. *Insizyon Cerrahi Tıp Bilimleri Dergisi* 2000, 3:216–219.
- [6]. Beyrouiti MI, Beyrouiti R, Abbas I, Kharrat M, Ben Amar M, Frikha F, Elleuch S, Gharbi W, Chaabouni M, Ghorbel A: Acute rupture of hydatid cysts in the peritoneum: 17 cases. *Presse Med* 2004, 33:378–384.
- [7]. Bouihi Jamal, Moustaid Houda, El Amrani Bouchra. Ahmed Mimouni Early pelvic hydatid cyst: about a case. *Pan Afr Med J* 2016; 25:239.
- [8]. Daali Mr, Hssaida R, Zoubir Mr, Hda A, Hajji A, hydatidosis Peritoneal. About 25 Moroccan cases. *Fr Stud Res Notebooks/Health* 2000; 10(4):255–256.1.
- [9]. Abi F, Elfares F, Bouzidi A. Unusual locations of the hydatid cyst. *J Chir* 1989; 126:307–12.
- [10]. Haddad N, Tabane S, Ellouze N. Clinical aspects and diagnostic problems of peritoneal echinococcosis. *Med Tunisia* 1976; 54:753–64.
- [11]. Benamr S, et al. Secondary peritoneal hydatidosis. *Maghreb Medical* 1999; 334:30–3. 2. Inrousseau R, Martinon F. Single pelvic hydatid cyst broken. A singular aspect of secondary peritoneal echinococcosis. *J Shir* 1977; 114: 167–74.
- [12]. Barbier J, Carretier M, Kraimps JL. Acute peritonitis. *EMC (Paris). Emergencies* 1988; 24048B10(2):18. p. 4. ... 1999; 334: 30–3. 5. Bensaid M, et al. Serological testing of hydatidosis in Tunisia. *Medical Tunisia* 1986; 64: 321–4. 6.
- [13]. Borki K, Oukheira H. Subperitoneal hydatidosis. *Med Morocco* 1989; 11:346–56.
- [14]. Bud R. The hydatid cyst of the liver. *Med Chir Dig* 1986; 15:39–40.
- [15]. Bresseler L, Poissel P, Grosdidier J. Multiple secondary peritoneal hydatidosis. *Lyon Chir* 1985; 81:337–9.
- [16]. Chehab F, Khail D, Bouzidi A. Postoperative monitoring of operated hydatid cyst. *Maghreb Med* 1997; 86:41–2.
- [17]. Esposito G. Hydatidoperitoneum in children: 2 cases. *Ann Chir Infant* 1977; 18:29–37.
- [18]. Gharbi HA, Hassaine W, Abdesselem K. Abdominal hydatidosis with ultrasound, reflection and special appearance. *Ann Radiol* 1985; 28:31–4.
- [19]. Hirsch L, et al. Hydatid cyst of the liver and peritoneal echinococcosis. *Med Tunisia* 1986; 64:409–12.
- [20]. Kehilla M, et al. Ultrasound and surgical correlation in the abdominal hydatid cyst. *Med Tunisia* 1985; 63:545–8.
- [21]. Kehilla M, et al. Statistical study of hydatid locations. About 664 cases. *Med Tunisia* 1988; 66:1980–6.
- [22]. Kravias DD, Vagianos CE, Androulakis JA. Peritoneal echinococcosis. *World J Surg* 1996; 20:337–40.
- [23]. Marti Bonmati L, Menor Serrano F. Complications of hepatic hydatid cysts: ultrasound computed tomography, and magnetic diagnosis. *Gastrointest Radiol* 1990; 15:119–25.
- [24]. Tajdine MT, Daali M. Isolated pelvic hydatid cyst: about 1 case. *Arch Pediatr* Nov 2007; 14(11):1367–8.
- [25]. Moumen M, et al. Peritoneal echinococcosis: diagnostic and therapeutic problems. *Surgery* 1991; 17:1023.
- [26]. Moumen M, Elalaoui ME, Elfares F. Resection of the salient dome of the hydatid cyst of the liver: about 360 cases. *J Chir* 1990; 127:83–6.
- [27]. Petigny A, Vilain C, Boulez J. Multiple hydatidosis: hepatosplenic, peritoneal and genital. *Sem Hospit* 1980; 56:685–7.
- [28]. Rohner A. Treatment of the hydatid cyst of the liver. *Ann Chir* 1988; 42:635–8.
- [29]. Sastre B, Sielezneff I, Arnaud A. Diagnosis and treatment of a hydatid cyst of the liver. *Rev Prat* 1990; 40:205–13.
- [30]. Sciarino E, et al. Ultrasound changes in the abdominal echinococcosis treated with albendazole. *J Clin Ultrasound* 1991; 3:143–8.
- [31]. Yassaway M, El Sniekh A, Elamrawi M. Albendazole in hydatid disease: results in 22 patients. *Ann Saudi Med* 1992; 12:2.

Abou el jaoud Hind, et.al. “Spontaneous intraperitoneal rupture of a hepatic hydatid cyst in a child (case report).” *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 21(08), 2022, pp. 01-04