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Hydatid Cyst of the Liver: About a Case at the Digestive and General Surgery Department of the University Hospital of Bouaké (Côte d'Ivoire)

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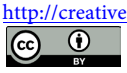

Abstract

Hydatid cyst of the liver (KHF) is a parasitic condition caused by the development of the larval form of the dog tapenia *Echinococcus granulosus*. In sub-Saharan Africa, few writings are interested in this pathology, which remains common and constitutes a public health problem in highly endemic countries [1] [2]. We report the observation of a 61-year-old hypertensive patient owner of a dog admitted for abdominal pain without abdominal mass. In whom ultrasound and computed tomography have made it possible to make the diagnosis of hydatid cyst of the liver (KHF). The patient underwent surgery. We performed an associated conservative treatment post-operative albendazole. The post-operative follow-up was simple. In our patient the evolution was good after a setback of more than 2 months. Through this observation and a review of the literature, we insist on the contribution of imaging in diagnosis and treatment, which is essentially surgical.

Keywords

Liver, Hydatid Cyst, Diagnosis, Treatment

1. Introduction

Hydatid cyst of the liver is a parasitic condition caused by the development of the larval form of the dog tapenia *Echinococcus granulosus.* In sub-Saharan Africa, little is written about this pathology, which remains common and constitutes a public health problem in highly endemic countries such as those around the Me-

diterranean basin and North Africa [1] [2] [3]. We will bring you a case. The purpose of this observation is to clarify the clinical aspects, to insist on the contribution of imaging in the diagnosis and to present the therapeutic modalities.

2. Our Observation

This is a 61-year-old hypertensive patient, civil servant working in an urban environment, from the center of the country with the notion of contact with dogs, who presented for right paraumbilical pain evolving for 2 weeks of moderate intensity without fever, transit disorder or abdominal distension. The clinical examination was normal apart from right paraumbilical pain with a stable haemodynamic state without palpable mass. At biology white blood cells were 4490/mm^3 with normal renal function and normal prothrombin levels. Transaminases were also normal without biological cholestasis. And viral serologies B and C were negative. Abdominal ultrasound supplemented by abdominal computed tomography had revealed a normal-sized liver with thin-walled multi-septum cystic formation at segments VI-VII measuring 101 mm/94mm (**Figure 1**, **Figure 2**). The intra- and extrahepatic bile ducts were without abnormalities. The pancreas was of normal size without abnormalities, the spleen was of normal size and homogeneous density without parenchymal lesions. Hydatid serology was positive. We concluded that there was a large type III hydatid cyst of the right liver. The patient underwent surgery. Intraoperatively, the exploration had found two hydatid cysts of the liver in segments VII and VII (**Figure 3**). The gesture consisted of a resection of the protruding dome of the two hydatid cysts, taking care to protect the abdominal wall. The patient was put on albendazole before and after surgery. The evolution was marked by the absence of hemorrhagic recurrence after a decline of more than 2 months.

3. Discussion

Hydatid cyst of the liver is a parasitic condition due to intrahepatic development

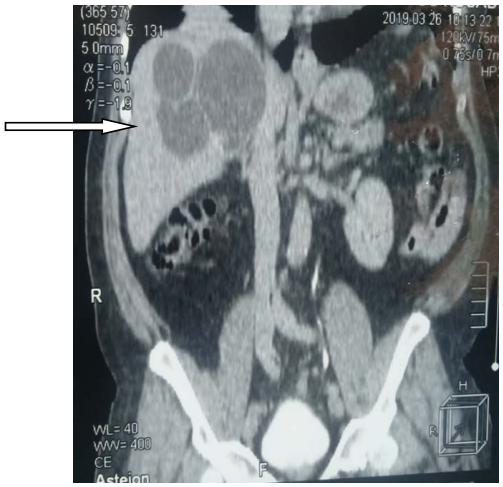

Figure 1. Frontal section, image of hydatid liver cyst.

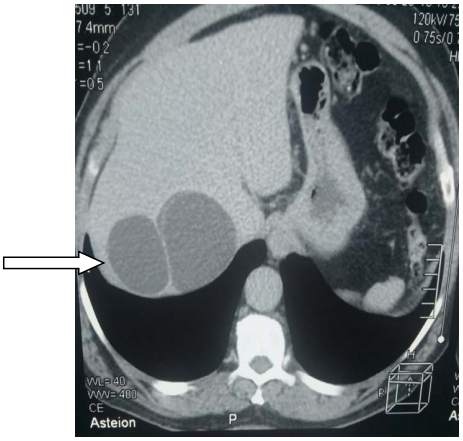

Figure 2. Axial section, image of hydatid liver cyst.

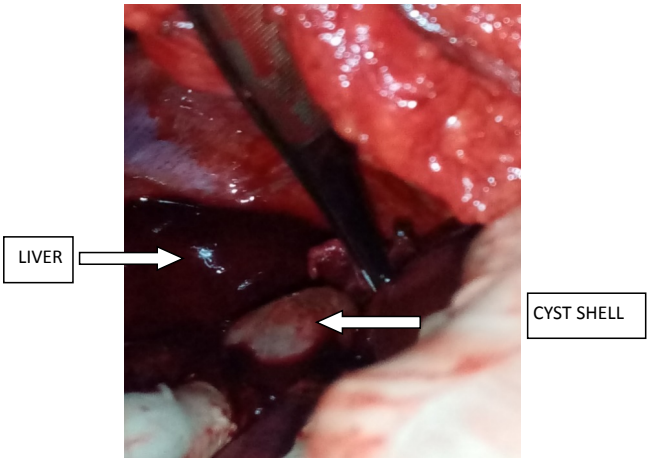

Figure 3. Image of the cyst shell.

of *Ecchinococus granulosus* [3] [4] [5]. It remains common and constitutes a public health problem in highly endemic countries such as those around the Mediterranean basin, North Africa, the Middle East and South America [1] [6] [7]. Hydatidosis is a zoonosis caused by the development in humans of the larval form of dog tænia called *Echinococcus granulosus*. Initially widespread in developing countries and sheep-farming areas, it now exists in all countries of the world due to the migratory flow of populations [4]. The development of the parasitic cycle of hydatid disease takes place in two successive phases, each in a different host. We have the larval stage or hydatidosis in the intermediate host which is the sheep. The adult stage, it is done in the definitive host which is a carnivore mainly the dog. At this adult stage (adult form), *Echinococcus granulosus* (tænia) lives in the dog's intestine and these eggs (embryophores) are eliminated with this feces. They will be (embryophores) digested by a herbivorous intermediate host (sheep, beef, pig, horse, rabbit). In rural livestock areas which are the preferred areas, embryophores eliminated in the external environment with the dog's feces will soil the pasture and are ingested by sheep. They penetrate the digestive wall and reach the viscera, mainly the liver and lungs, through the bloodstream, where

they turn into hydatid larvae. The cycle is completed when the dog devours the viscera of parasitized sheep. In humans, it is done only by digestive tract by ingestion of eggs of tænia echinococcus (embryophores) contained in the feces of dogs that soil food or water or by soiled hands after contact with dogs parasitized especially in children (caress, licking) [3] [4]. The embryophores release into the stomach the embryo which crosses the intestinal barrier and borrows the door system that carries it to the liver. At the level of the liver, the embryo vacuolises and presents a central vesiculation which by developing forms the hydatid or hydatid cyst, the liver is the first dam. It can then reach the caval system, the right heart and the lung, second dam. When these two filters are exceeded, the parasites gain the systemic circulation and can graft into the different territories of the body, undergoing a cystic transformation at the origin of the hydatid cyst [1] [2] [3] [8] [9] [10]. In 65% of cases the hydatid cyst of the liver is unique and sits on the right. Extrahepatic locations will be via the blood and the most common locations are the lungs. Thesetwo organs (liver and lungs) constitute a double physiological filter to the dissemination of the parasite, thus making extra-hepatopulmonary locations less frequent [7]. But existing including peritoneal localization, spleen, uterine, ovary, pelvic, soft parts, spermatic cord, bone, pancreas, adrenal [7] [10] [11] [12] [13]. Associations have described and are seen all the more frequently when the cyst is multiple [2] [3] [5] [6] [14]. Man is a so-called "accidental" host corresponding to a parasitic dead end because its viscera are not accessible to dogs. Our patient certainly living in urban areas has a dog with which he and his entourage have frequent contact (caresses). This would explain in our context its contamination because we are not in endemic areas. Diagnosis of hydatid cyst of the liver (KHF) is based on clinical examination, imaging and hydatid serology [3] [15] [16] [17]. Clinically, it is pain of the right hypochondrium type of heaviness, sometimes a less evocative symptomatology: right basi-thoracic or right lumbar pain or epigastralgia. Elsewhere, it is a fortuitous discovery during a systematic hiring visit or a consultation for another reason. It is found on examination that abdominal inspection is most often normal. Sometimes we have a right hypochondrium arch, the classic "watch glass elevation", more visible to frisky day. Palpation and percussion look for hepatomegaly: it is inconstant and can be regular or irregular. KHF is sometimes palpated as a rounded or oval mass, well limited, firm or renitent, painless, mobile with the liver on respiration. Our patient's examination was normal apart from right paraumbilical pain. The clinical aspects of the hydatid cyst of the liver are very diverse and without pathognomonic clinical signs. The evolution will be towardsinfectious, peritoneal, biliary, thoracic and gastric complications are present in 40% of cases. They are due to a rupture of the cyst, its infection or a compression of the neighboring organs [15] [16] [17] [18]. An infestation from childhood may not have clinical expression until adulthood and the discovery of the hydatid cyst is often fortuitous during an ultrasound. It may also be screening tests in an endemic area or during a complication. Rarely, it is an intraoperative discovery during an intervention for another pathology [8]. Positive and topo-

graphic diagnosis of hepatic hydatidosis has become easy thanks to advances in medical imaging, ultrasound, CT and magnetic resonance imaging [3] [8]. Abdominal ultrasound is the method of choice for the diagnosis of hepatic hydatidosis. It is the most effective examination for the diagnosis of hepatic hydatidosis. Abdominal ultrasound has emerged as the reference examination because of its availability even in remote areas, its reliability and the possibility of performing a morphological examination without irradiation [3] [19]. It makes it possible to specify the site, number, size and vascular and biliary ratios of the cyst. It allows the Gharbi classification which was the first and most commonly used classification. This classification is currently increasingly being replaced by that developed by the World Health Organization (WHO) Informal Working Group on Echinococcosis [3] [20]. Abdominal computed tomography is useful when diagnosis is difficult (type I, IV and V of Gharbi corresponding to types CE1, CE4 and CE5 of the WHO classification) by eliminating differential diagnoses, namely: biliary cyst, hepatic angioma, adenoma, hepatocarcinoma, liver abscess or liver metastasis in its cystic form [4]. CT scan is also indicated in case of multiple hydatid localization, complicated KHF or in case of hydatid recurrence. Hydatid serology is based on the detection of specific antiparasitic antibodies in the blood. It finds its interest in case of diagnostic doubt in type I and IV cysts of the Gharbi classification and in post-therapeutic follow-up, mainly screening for hydatid recurrences [3]. Abdominal ultrasound supplemented by abdominal computed tomography allowed in our case to make the diagnosis of hydatid cyst of the liver type III according to the Gharbi classification, uncomplicated associated with a positive hydatid serology. Therapeutically, recent years have been marked by the development of an alternative to traditional surgery, namely laparoscopic surgery and interventional radiology. Despite the contribution of medical therapy, percutaneous and endoscopic treatments, the treatment of the hydatid cyst of the liver is still essentially surgical [8] [9] [21] it can be radical (settled hepatectomies and total pericystectomy) or conservative (partial pericysttectomy: resection of the protruding dome of the cyst). Conservative surgical treatment has significant morbidity. External biliary fistulas and infection of the residual cavity are the main complications, leading to long hospitalizations and additional costs [10] [22]. Current evidence from the literature agrees that radical surgery should be preferred whenever possible since it reduces the risk of deep abdominal infections, biliary fistulas, overall morbidity and recurrence postoperatively without increasing the postoperative mortality rate [3]. But radical treatment is not feasible in all patients and requires expertise in liver surgery. The classic route of approach is a right subcostal laparotomy that can be widened to the left for cysts of the left liver [2] [3] [21]. Despite the advantages of the laparoscopic route which are a shorter duration of hospitalization, a lower incidence of parietal complications and less postoperative pain, the problems of this route remain the difficulty of access and exposure of posterior cysts and especially leaks during aspiration of the contents of the hydatid cyst [3]. Intraoperatively, the use of formalin and hydrogen peroxide as a scolicidal agent has been abandoned following the oc-

currence of accidents and serious complications such as anaphylactic shock, sclerosing cholangitis and air embolism [3]. Currently, experts from the World Health Organization (WHO) recommend the protection of the operating site by abdominal compresses soaked in 25% hypertonic saline serum, intracystic injection of 25% saline before opening, with a contact time of at least 15 minutes [3]. We made a median skin incision above and subumbilal. Intraoperative exploration confirmed the nature and location of the cyst, its dimensions, its contents and its relationship with neighboring structures. We performed a resection of the protruding dome of the cyst with as scolicidal agent hypertonic saline serum 25% preceded a month rather by a medical treatment based on albendazole. The postoperative follow-up was simple. The hindsight of more than 2 months is good. Our study takes into account the difficulties of populations in remote areas to access health facilities. This would explain its rarity in our context.

4. Conclusion

Liver cysts is rare in our tropics but should be considered. Abdominal ultrasound and CT scan are used to make the diagnosis. The treatment is surgical and must obey certain precautions. The best treatment remains preventive with primary prevention of hydatidosis and secondary with early diagnosis and treatment of KHF at an uncomplicated stage of the disease.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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