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Wandering intraperitoneal daughter vesicle following spontaneous rupture of a hydatid cyst: a case report

Spontan kist hidatik rüptürü sonrası gezici intraabdominal kız vezikül: olgu sunumu

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Abstract
We aimed to present CT findings of spontaneously ruptured liver cyst hydatid with wandering intraabdominal daughter cyst. We present the case of a 39-year-old woman who presented with abdominal pain. An exophytic cystic mass in the liver was detected in the assessment of patient with sonography. On CT examination an unenhanced, exophytic, thin walled hypodens cystic mass (measured 8 cm) originating from segment III was diagnosed as cyst hydatid and follow-up recommended. Two weeks later, she was admitted to CT examination after experiencing acute abdominal pain. CT revealed that the liver cystic mass disappeared and another cystic mass with similar measurements with previous cyst occupying pelvis with minimal intraperitoneal free fluid. The diagnosis of ruptured cyst hydatid with wandering intraperitoneal doughter vesicle was made. Surgery confirmed our imaging findings. This unusual condition highlights the need for radiological follow-up of cyst hydatid as a potential cause of acute abdominal pain.
Keywords: Computed Tomography; Liver; Hydatid Cyst; Rupture.

Öz
Amacımız spontan rüptüre karaciğer kist hidatik sonrası gezici intraabdominal kız vezikül olgusunun Bilgisayarlı Tomografi (BT) bulgularını sunmaktadır. Karın ağrısı şikayeti ile başvuran 39 yaşındaki kadın olguda ultrasonografide (USG) karaciğer sol lobda, egzofitik uzanımlı, kistik lezyon tespit edildi. Yapılan BT tetkikinde karaciğer segment III'den kaynaklanan ve inferiora doğru egzofitik uzanım gösteren, yaklaşık 8 cm boyutta, ince duvar yapısına sahip, belirgin kontrast tutulumu göstermeyen hipodens kistik lezyon saptandı. Kist hidatik tanısı alan olguya takip önerildi. Iki hafta sonra karın ağrısı şikayeti ile başvuran hastaya BT incelemesi yapıldı. Önceki BT görüntüsünde saptanan kistik lezyon kaybolmuştu ve kemik pelvis içerisinde önceki karaciğer kisti ile benzer boyutlarda, diğer bir kistik lezyon ile birlikte barsak ansları arasında serbest mayi mevcuttu. Bu bulgularla olguda rüptüre kist hidatik sonrası gezici intraperitoneal kız vezikül düşünüldü. Cerrahi müdahale yapılan olguda intraoperatif bulgular radyolojik değerlendirmeyi destekliyordu. Bu nadir durum akut batına neden olan potansiyel kist hidatik olgularında radyolojik takibin önemini vurgulamaktadır.
Anahtar Kelimeler: Bilgisayarlı Tomografi; Karaciğer; Kist Hidatik; Rüptür.

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INTRODUCTION

Hydatid cyst disease is a parasitic chronic infection caused by Echinococcus Granulosus. It is seen as endemic in South America, the Far East, the Middle East and the Mediterranean region, especially in countries of a low socio-economic level (1). Although hydatid cyst may located in almost any part of the body, it is most frequently seen in the liver and lungs (2). Of all hydatid cysts, 50%-70% are located in the liver, usually in the right lobe. The lungs are the second most affected area at 10%-30% (1). When complications do not develop, hydatid cyst usually has an asymptomatic course. The most common and most important complication is rupture of the hydatid cyst (3). Occasionally, a hydatid cyst may be open to the peritoneal cavity, the pleura or the pericardium (4).

Peritoneal hydatosis comprises 13% of all abdominal hydatosis. It generally occurs with the spontaneous rupture of a hepatic cyst or with the leakage of cystic fluid into the peritoneum during previous surgery. Peritoneal hydatosis is typically in the form of an isolated peritoneal lesion, such as a hepatic cyst, and widespread peritoneal fluid (5). Cases of rupture, which are not operated on, may result in death. If the hydatid cyst has typical radiological features, ultrasonography (US) and computed tomography (CT) are sufficient for diagnosis. In this paper, a case is reported of wandering daughter vesicle that developed following spontaneous rupture of a hepatic hydatid cyst and the CT findings are presented in the light of literature.

CASE REPORT

A 39-year old female presented at the Emergency Department with complaints of acute abdominal pain. On ultrasonography, an anechoic cystic lesion extending exophytically was determined originating from the liver and so CT examination was applied. On CT examination a hypodense thin walled cystic lesion, 8 x 7 x 8 cm in size, with lobular contours that not showing any evident contrast involvement in the wall was determined originating from segment III of the liver and showing exophytic extension towards the inferior (Figure 1). The serological tests in respect of the hydatid cysts were negative and the diagnosis of hydatid cyst was made from the radiological findings and follow-up was recommended.

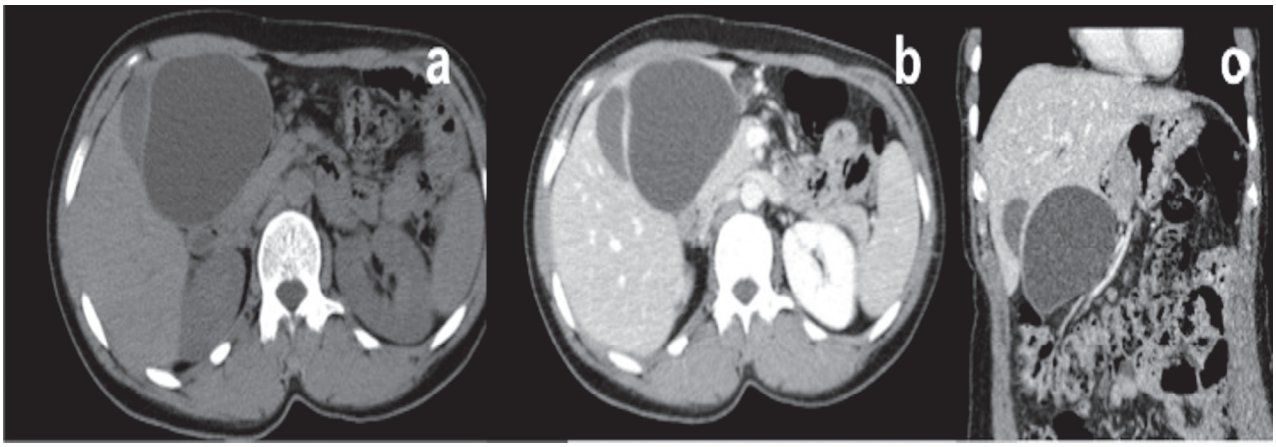

Figure 1. An illustration of hypodense cystic liver mass with exophytic extension on unenhanced (a) and contrast enhanced (b) axial images, and on coronal reconstructed image (c).

Two weeks later, the cystic lesion previously determined on CT was seen to have disappeared and in its location there was a minimal collection of fluid. In addition, a lobular contoured cystic lesion of approximately 9.5 x 9 x 5 cm, not seen on the previous CT image, was determined within the pelvic region adjacent to the bladder and uterus, together with free fluid between the intestinal loops (Figure 2, Figure 3). With these findings, intraperitoneal daughter vesicle was thought to have dropped following the rupture of the hydatid cyst. The intraoperative and pathological findings following surgical intervention supported the radiological evaluation of this case.

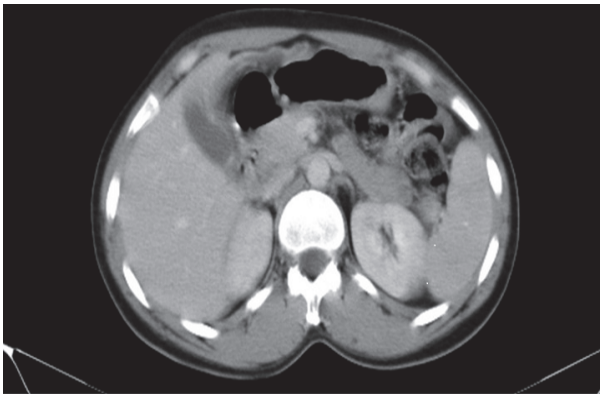

Figure 2. Axial CT images, obtained 2 weeks later from first admission, revealed the disappearance of cystic liver mass with minimal free fluid at the location of previous lesion.

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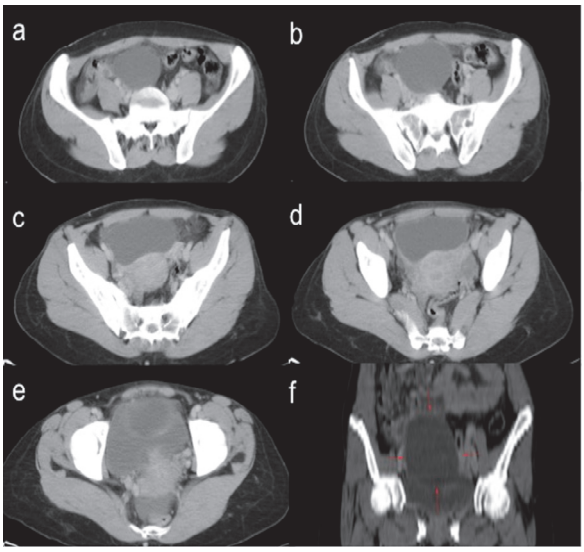

Figure 3. A huge cystic mass, measured 9.5x9x5 cm in width, length and height, detected on axial CT images corresponding pelvic region.

DISCUSSION

Although primary hydatid cyst is seen most often in the liver, it can be seen in other organs. Extrahepatic hydatid cyst may develop as primary or secondary. Secondary peritoneal hydatosis is seen more often than the primary form (6). Secondary developing abdominal hydatosis is related to the peritoneal implantation of daughter vesicles following rupture of the mother cyst in the liver (7). The most common and most important complication of hydatid cyst is rupture (3).

In literature cyst rupture is defined in 3 different forms: 1) Rupture within itself; this is an endocyst rupture with an intact pericyst. On imaging methods, it is seen as surface membrane with collapsed endocyst. 2) Connected; this is the most commonly seen clinical type of rupture. If the pericyst is connected to the bronchial or biliary system, when there is an endocyst rupture, the cyst fluid enters the bronchial or biliary system. 3) Direct rupture; as a pericyst and endocyst rupture, the cyst directly enters the peritoneal cavity or the pleural cavity (3). In 1.7%-8.6% of all hepatic hydatid cyst cases, a free rupture has been reported to occur in the intraperitoneal area. Anaphylaxis and mortality have been reported at the rate of 25% in these cases (8).

Over time, growth is seen and generally the course is asymptomatic up to a diameter of 5cm. The risk of rupture in the cyst increases with increased size or increased pressure within the cyst (9). Together with sudden and severe abdominal pain following rupture, the development of anaphylactic shock and gallbladder peritonitis are life-threatening. While most of the ruptured cyst content is denatured, growth in a small part could create pressure on organs and may cause intraperitoneal secondary hydatosis (7). Daniela Costamagna et al reported that peritoneal hydatosis developed as a result of spontaneous or iatrogenic hepatic cyst rupture (5). Similarly in the current case, a wandering intraperitoneal daughter vesicle with protected integrity developed following a spontaneous hepatic hydatid cyst rupture. The current case differed from literature in that by protecting the integrity of the intact endocyst when the pericyst ruptured, localisation was in the intraperitoneal region within the pelvis adjacent to the bladder and the uterus. In addition, the integrity of the mobile daughter vesicle falling into the peritoneum can be considered to be due to there being no development of anaphylaxis or peritonitis.

The radiological imaging methods of US and CT are extremely useful. The diagnostic sensitivity of US is reported as 93%-98% and of CT as 97% (10). US should be the first preference for diagnosis as it is a cheap and easy to apply method. CT is an examination method which strengthens and supports US findings (3). The diagnosis of rarely seen extrahepatic, intra-abdominal hydatid cyst is generally made with CT, ss the radiological findings are similar (10).

In cases where diagnosis is difficult with US and CT, MRI is used. The hypointense layer seen in the cyst wall differentiates hydatid cyst from other cysts. While separation in the hypointense layer is a direct finding of rupture on MRI, indirect findings are changes in the signal properties and air-fluid level within the cyst (11). The current patient presented at the Emergency Department with complaints of abdominal pain and US was the first choice, but to support the diagnosis and/or to observe any complications, there was felt to be a need for CT. The cyst determined on the first CT imaging could not be observed on the images taken 2 weeks later, but the observation of a lobular contoured cystic lesion in the pelvis suggested that an intraperitoneal daughter vesicle had dropped following rupture of the hydatid cyst. Follow-up CT imaging provides extremely useful information in the differentiation of hydatid cyst associated with secondary hydatosis of the existing cyst and other pelvic-origin pathologies.

CONCLUSION

Hydatid cyst is a chronic infectious disease which is generally asymptomatic and diagnosed incidentally. Rupture may be seen as a complication as a result of increased pressure within the cyst following trauma or spontaneously. When the integrity of the internal daughter vesicles is protected, although there may be confusion in the diagnosis of intraperitoneal wandering cystic lesions, this problem can be easily overcome with follow-up radiological imaging.

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