

OUR RESULTS IN SURGICAL TREATMENT OF HYDATID CYST OF THE LUNGS

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Aim: The cases of pulmonary hydatid cysts are frequently seen especially in Eastern Anatolia Region because the living source is stock-breeding. We aimed to discuss 102 patients operated with the diagnosis of pulmonary hydatid cyst in 2.5 years' period. The patients with hydatid cyst disease who were applied to our clinic, were evaluated in light of literature.

Methods: 102 patients were diagnosed with hydatid cyst clinically and radiologically between June 2002 and January 2005. Their ages ranged between 4-65 years with the mean age of 23 years. Thoracotomy was applied to all patients.

Results: Cyst localization was unilateral in 96 and bilateral in 6 of them. 10 patients had also cyst in the liver. Cyst was perforated in 56% of the patients. Enucleation was applied in 3 patients, cystectomy in 3 patients and cystotomy+capitonnage was applied to the remaining. In bilateral cases, operation was applied to the other side after one month from the first operation. Percutaneous drainage was applied in coordination with radiology department in the presence of hepatic hydatid cyst. In these cases and in the presence of multiple cysts, albendazole treatment was applied. Lower lobectomy (2 right, 1 left) was performed in 3 cases. No mortality or recurrence was observed.

Conclusion: Cystotomy+capitonnage is still the most valid surgical method in pulmonary hydatid cyst cases because it is a method preserving the parenchyma.

Key words: Hydatid cyst, cystotomy, capitonnage

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INTRODUCTION

Hydatid cyst is a parasitic infestation caused by echinococcal cestodes. It is an important health problem in societies where agriculture and livestock raising is common, but veterinary services, public health and preventive medicine are performed insufficiently. Especially in the Eastern parts of Turkey where people earn their living by raising livestock, hydatid cyst of the lungs are common. Echinococcus granulosus is the most common cause of hydatid cysts. Intermediate hosts for echinococcus granulosus are sheep, goat, cattle, swine, deer, and human, while definitive hosts are dogs, wolves, jackals, and hyenas. The protective membrane of the eggs ingested by an intermediate host is dissolved by digestive enzymes. Embryo passes through mesenteric venules and enters the portal circulation. If the embryo is not

kept by the liver, it is carried to the lungs. It is most frequently located in the right lung, and lower lobes of both lungs (1). Diagnosis in hydatid disease of the lungs is made by history, physical findings, and radiological evaluations. Serological investigations have a limited value in diagnosis of hydatid cyst of the lung (1,2). When located in the lungs, it can reach a certain size without causing any symptom. Symptoms are related with size, localization, pressure on surrounding tissues, and rupture of the cyst. Common complaints are dry cough, hemoptysis, blunt abdominal pain, and feeling of pressure in the thorax. Massive hemoptysis is rarely observed in centrally localized cysts (1-3).

The cyst is identified in x-ray as a round or oval homogenous opacity that can be differentiated from pulmonary parenchyma. Air between pericyst and cyst membrane is

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referred to as the crescent sign and this means the cyst is about to rupture. An air-fluid level with collapsed membrane is referred to as the "water lilly sign" (1). Hydatid cyst disease is treated by surgery, percutaneous drainage, or medically. Percutaneous cyst drainage is a good alternative in selected patients with liver cysts (3,4). The most important option for medical treatment of hydatid cyst is benzimidazoles (6). In the surgical treatment, cystotomy-capitonnage and pulmonary resection are performed in cases with pulmonary destruction (2).

Between June 2002 and January 2005, 102 patients who were admitted to our clinic with a diagnosis of hydatid cyst of the lungs were evaluated with literature.

MATERIAL AND METHODS

In this study, 102 patients, 62 male and 40 female, who presented to our clinic between June 2002 and January 2005 and were diagnosed to have pulmonary hydatid cysts by clinical and radiological findings were evaluated. The mean age of the patients was 23 (4-65). 56% of the cysts were perforated and 44% were intact. Thoracotomy was performed in all patients. Cystotomy, germinative membrane excision, bronchial closure, and capitonnage were performed. In non-perforated cases, following cyst content aspirations, scolicalid agents were administered: in 20 cases hypertonic saline solution and in 22 cases povidone iodine was injected and cystotomies were performed. After cyst excision and capitonnage, lungs were ventilated and air leak was controlled. Median sternotomy was not performed in bilateral cases due to the risk of infection and because of adhering in cystic area where they are in posterior. When parenchymal destruction was observed and nearly the whole lobe was involved, resection was done. Only cases with ruptured cysts received pre-operative and post-operative antibiotic treatment. Others received a single dose of antibiotic an hour before the operation.

RESULTS

The most common finding was blunt chest pain in 72% of our patients and other findings are summarized in Table 2. There was a giant cyst in a case with massive hemoptysis. In two patients with giant cysts, the whole lobe was observed to be destroyed. Of cysts, 3.9% were found incidentally in chest x-rays taken for other problems. Cyst localization was unilateral in 96 cases (94%) and bilateral in 6

cases (5.8%). In ten cases (9.8%), liver cysts accompanied lung cysts. Cysts were most commonly situated in the right lower lobe (51.9%)(Table 2). Radiological findings were giant cysts (over 10 cm) in 14 cases, crescent sign in five cases, and water lilly sign in 47 patients. Three patients had undergone enucleation, three had cystectomies, others had cystotomy and capitonnage. In bilateral cases, the other side was operated one month later after the first operation. Transdiaphragmatic approach was preferred in 3 cases that they had both right lung cyst and liver dome cyst.

In 7 cases with accompanying liver hydatid cysts, percutaneous drainage was performed in coordination with radiology. These cases and those with multiple cysts received albendazole therapy. Three cases had lobectomies for lower lobes (two right, one left). No mortality and recurrence was observed. Two patients had prolonged air leak, and empyema developed in the postoperative period. No mortality was observed. The mean length of hospital stay was seven days and no recurrence was observed in follow-up period.

DISCUSSION

The most common localization of hydatid cyst is the liver with 50-60% and secondly the lungs (10-30%) (1). In ten cases (9.8%), the disease involved the liver as well as the lungs.

Complicated hydatid cyst, especially if ruptured into the pleura, is hard to diagnose. Diagnosis was made when hydatid materials (membrane particles) were seen in the drainage tube and surgical intervention was performed in case of air leak. Hydatid cyst should receive treatment as soon as diagnosis is established, since it may cause serious complications by means of rupture into bronchi and pleural cavity or vital organ compression (14). Surgical treatment should be preferred in hydatid cysts of the lung (4,8,9,14,15). Medical treatment is indicated in uncomplicated small cysts, in patients with high risk for surgery, and patients reluctant to undergo surgery (5). One of our patients had a small cyst (1.5 cm in diameter) and received medical treatment and was observed. The patient neglected control investigations and the cyst grew to 3.5 cm about one year later. Surgical treatment may be planned in a different way for giant cysts (12). Lung tissue should be preserved and resection should be avoided whatever the cyst size. Recurrence is very low. Although we had a parenchyma preserving approach,

Table 1. Localization of hydatid cysts of the lungs

	n	%
Right lower lobe	53	51.9
Right upper lobe	15	14.8
Right middle lobe	11	10.8
Left lower lobe	17	16.7
Left upper lobe	6	5.8

no recurrence were observed in our series. Resection is not recommended unless whole lobe is destroyed, but for giant hydatid cysts, tissue preservation is not always possible (5). The main aim of surgery in hydatid cysts is total excision (5,10,14). Shields stated that lobectomy should be performed in cases where more than half of the lobe is involved (1). Though unlikely, six among 14 patients with giant hydatid cysts had a lobe invasion over 70%, only three had resections. No complications except for prolonged expansion defect was observed. Hydatid cyst surgery is uncomplicated; mortality and morbidity is extremely low (5,9,14). Giant cysts have 5% higher morbidity than simple cysts (8). Prolonged air leak (10-19%), empyema (7%), sterile air space, and pneumonia are frequently observed (9,10,12,15). Two patients (0.9%) in our series had air leaks continuing for more than 10 days and they had a second thoracotomy to control air leakage. One of them had pneumonia, two others had empyema. Alternative treatment methods are being tried for development as well as surgical and medical treatments of hydatid cysts. Image-guided percutaneous drainage for liver cysts has shown good results (1). When they lose their vitality, liver hydatid cysts become calcified and are restricted by the body. However, trying to enucleate hydatid cysts of the lungs and applying some agents in order to kill the cysts are very risky and yield unsuccessful results. During the intervention, anaphylaxis, asphyxia and pleural perforation (hydropneumothorax) may be observed. Devitalizing the cysts without removing germinative membranes is not sufficient for the treatment of hydatid cysts of lungs. On the contrary, it provides a ground for complications (1,7).

Our approach for accompanying liver cysts was image-guided percutaneous drainage in the postoperative period. No complications or recurrence was observed in one year follow-up period.

Table 2. Symptoms of the cases

	n	%
Blunt chest pain	72	70.5
Dry cough	45	44.1
Hemoptysis	30	29.4
Dyspnea	18	17.6
Abdominal pain	14	13.7
Fluid drainage through mouth	11	10.7
Asymptomatic	4	3.9
Massive hemoptysis	1	0.9

Intact cysts have minimal symptoms or are usually asymptomatic. Perforated cysts are almost always symptomatic. In our observations complication rates for ruptured hydatid cysts were high. Those with high fever received antibiotics, analgesics, and antipyretic agents before and after the operation. Postoperative antibiotic treatment continued 2-5 days. In concordance with our results, some authors preferred resection for complicated cysts and postoperative complication rates were high (16,17). In the pediatric age, cysts overcome the low pressures in the lungs and result in expansion and tension pneumothorax, thus causing rapid cyst enlargement. Early surgery may prevent cyst complications (17). In complicated and uncomplicated cysts, series with mortality rates as high as 4.2% are reported (18). No mortality were observed in the postoperative period.

In conclusion, a parenchyma preserving cystotomy along with capitonnage is still a valid surgical method for hydatid cysts of the lungs.

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