

## Spontaneous enucleated hydatid cyst with tension pneumothorax: a case report

*Tansiyon pnömotoraksla seyreden spontan enükleasyonlu kist hidatik: Olgu sunumu*

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Hydatid disease is a parasitic disease caused by *Echinococcus granulosus*. The most frequent complication of pulmonary hydatid disease is the rupture of the cyst into a bronchus. In this article, we report the first case of hydatid cyst with spontaneous enucleation into the pleural cavity. A four-year-old boy admitted with dispnea, cough, high fever, and tension pneumothorax. A cyst was detected in the left hemithorax on chest computed tomography performed after chest tube insertion. During the operation, a free hydatid cyst was observed in the left hemithorax. The cyst was removed, the bronchial openings were repaired, and then capitonnage and total decortication were performed.

**Key words:** Hydatid disease; pediatric; pleura; pleural space; pneumothorax.

Hydatid disease is a parasitosis caused by *Echinococcus granulosus*.<sup>[1]</sup> It is endemic in many areas of the world, especially in the Mediterranean region, Australia, New Zealand, the Middle East, India, South Africa, and South America.<sup>[2-4]</sup> The most frequent complication of pulmonary hydatid disease is the rupture of the cyst into a bronchus.<sup>[5]</sup> A literature search revealed no reports of spontaneous enucleation of the hydatid cyst to the pleural cavity, and, to our knowledge, this is the first report of its occurrence.

### CASE REPORT

A four-year-old boy was referred to our clinic by a pediatric clinic due to pneumothorax. He had a 10-day history of dyspnea, coughing, and high fever. A chest radiograph showed a tension pneumothorax on the left side and a homogenous, regularly contoured radiodense lesion near the pericardium above the left diaphragm (Figure 1a). We inserted a chest tube on the left side. Afterwards, the left lung was totally expanded and air

leak stopped. However, there was still a homogenous opacity on the left mid-lower zones, and an air-fluid level superimposed over the heart. This air-fluid level was suggestive of a ruptured hydatid cyst. Chest computed tomography showed a 5x7 cm cystic lesion with a regular wall in the left hemithorax (Figure 1b), and the decision was made to operate. When the thorax was opened, a free, enucleated hydatid cyst was observed (Figure 2), and the pleura was thickened. We removed the cyst and repaired the bronchial opening. Then, capitonnage and total decortication were performed. The histopathological diagnosis was a hydatid cyst. The patient had an uneventful recovery and was discharged on postoperative day six. At the first month follow-up, he was physically well, and the chest X-ray was normal.

**Anahtar sözcükler:** Hidatik hastalık; çocuk; plevra; plevral boşluk; pnömotoraks.

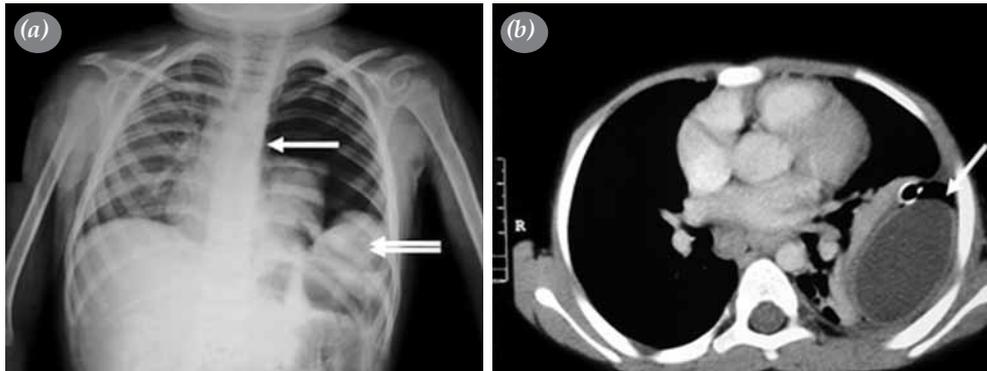
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### DISCUSSION

The liver is the most common area affected by hydatid disease in adults (55 to 70%), with the lung (18 to 35%) being the second most common. However, in children, it

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**Figure 1.** (a) A chest radiograph showed a tension pneumothorax on the left side (single arrow showing mediastinal shift) and a homogenous, regularly contoured radiodense lesion (double arrows) near the pericardium, above the left diaphragm and (b) thoracic computed tomography showed a 5x7 cm cystic lesion with a regular wall in the left hemithorax.

is more often encountered in the lung (64%) than in the liver (28%).<sup>[1,3,5]</sup>

Complications of hydatid cysts include intrabronchial rupture, anaphylactic reaction, rupture into the pleural cavity with hydropneumothorax, rupture into the mediastinum with the sudden occlusion of a bronchus or the trachea, and infection.<sup>[3]</sup> Although the rate of pleural complications is reported to be 0.5% to 18.2%, Aribas et al.,<sup>[5]</sup> reported a higher incidence of these complications (29.7%).

The clinical signs and symptoms are variable and depend on the nature of the perforation in the cysts. In complicated cases, infection and inflammation of the adjacent lung parenchyma is frequently seen.<sup>[2]</sup> Therefore, the symptoms of our patient, such as dyspnea, coughing, and high fever, were probably associated with parenchymal infection and inflammation. Often, the cyst ruptures into a bronchus.<sup>[2]</sup> Sometimes the cyst ruptures into a pleural cavity, but to the best of

our knowledge, spontaneous enucleation with intact cyst has not been reported previously. In our case, the cyst was located more peripherally; thus, it could be enucleated into a pleural cavity easily. It is considered that pleural necrosis after the pressure of pulmonary cysts, especially those located peripherally and subpleurally, plays an important role in the rupture of cysts into the pleural cavity.<sup>[5]</sup> Rupture of a hydatid cyst into the pleural cavity usually causes pneumothorax, or even tension pneumothorax, pleural effusion, or empyema.<sup>[2]</sup> Similarly, our patient had a tension pneumothorax.

An operation is the treatment of choice for pulmonary hydatid cysts.<sup>[1]</sup> Our surgical approach for hydatid cysts is cystotomy, repair of the bronchial opening, and capitonnage. Most ruptured hydatid cysts into the pleural cavity tend to cause pleural thickening.<sup>[2]</sup> In a study of 43 patients with pulmonary hydatid cysts and associated pleural complications, Aribas et al.<sup>[5]</sup> found that decortication was needed in 30 patients (69.8%), and in the study by Kuzucu,<sup>[2]</sup> 24.2% of the patients with complicated cysts required decortication.

Tension pneumothorax in children is a rare condition. Reported etiologies include foreign body aspiration, infection, crush or penetrating injury, and barotrauma.<sup>[6]</sup> Whiteman et al.<sup>[6]</sup> reported the case of a child with tension pneumothorax accompanied by empyema.

In conclusion, when patients consult or are referred with pneumothorax and if their chest X-ray shows a regularly contoured lesion plus pneumothorax, an enucleated cyst must be considered. Tension pneumothorax should be treated by immediate needle decompression followed by tube thoracostomy. In addition, before the operation, computed tomography should be done.



**Figure 2.** There was a free, enucleated hydatid cyst in the thorax.

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