

# Primary Hydatid Disease of the Chest Wall

Alper Findikcioglu, MD,<sup>1</sup> Dalokay Kilic, MD,<sup>1</sup> Tuba Canpolat, MD,<sup>2</sup>  
and Ahmet Hatipoglu, MD<sup>1</sup>

**The Chest wall is an unusual location for primary echinococcus disease. We report on case of a primary chest wall hydatid cysts, resembling a mass lesion, in a 50-year-old woman who had no prior surgery for hydatid disease before. Chest wall hydatid disease should be considered in the atypical location and differential diagnosis of chest wall masses. (Ann Thorac Cardiovasc Surg 2007; 13: 203–205)**

**Key words:** hydatid cyst, chest wall, cystotomy, resection of rib

## Introduction

Hydatid disease has been known since Hippocrates, it is a parasitosis caused by *Echinococcus granulosus* which is still an endemic disease in some regions of the world, particularly in South America, North Africa, Asia and Australia.<sup>1)</sup> Our country is an endemic region for hydatid disease as well, with the incidence of 18–20/100,000.<sup>2)</sup>

In adults the lung is the second most common site for hydatid disease after the liver. A hydatid cyst can be seen in almost any part of the body; however, a primary chest wall cyst is very rare. In this case, we present an extra pulmonary but intra-thoracic cyst hydatid cyst that is behaving like a chest wall tumor. Hydatid disease should be considered in the differential diagnosis of mass lesions identified on chest radiographs and of chest wall masses. Accurate diagnosis is important to allow appropriate treatment of this potentially curable condition.

## Case

A 50 year-old-woman was admitted to our department with the complaints of back and right shoulder pain on the right side. Physical examination and laboratory tests were normal. A chest X-ray showed a well-circumscribed,

3–4 cm mass on the right side. A computed tomography (CT) scan confirmed a cystic mass that was lying extra-pleural adjacent to the costo-vertebral joint of the right fourth rib (Fig. 1). Radiologic modalities did not reveal any other lesion.

Cystotomy and partial resection of the fourth rib were performed via a right posterolateral thoracotomy. After the resection of the rib, from costo-vertebral joint to approximately 4 cm, it was seen that the cyst had infiltrated the cortex. The resection was extended until destruction was not seen on the bone any more. This resulted in the resection extending to 5 cm. Histological examination has confirmed the diagnosis of a hydatid cyst (Fig. 2). The patient's postoperative course was uneventful. No recurrence was observed at the for six month follow-up.

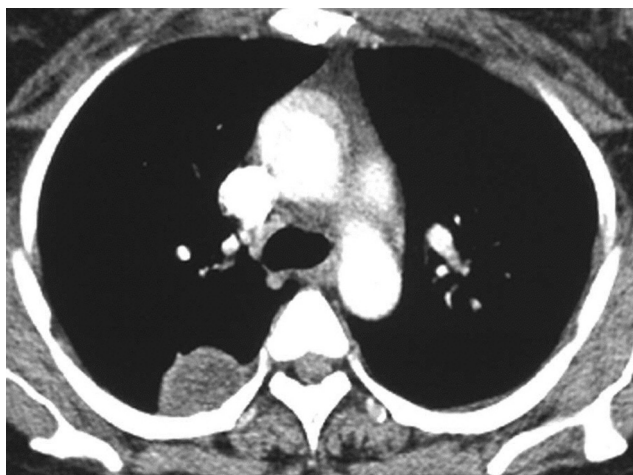
## Comment

Hydatid disease results from hematogenic invasion of the liver (50–60%) and the lung (10–30%) by *E. granulosus*. Intrathoracic extrapulmonary localization of thoracic cysts is observed in 7.4% of the cases. Among intrathoracic extrapulmonary hydatid cysts, 55% of them are localized in the fissure, 18% within the parietal pleura, 14% in the chest wall, 4.5% in the mediastinum, and 4.5% in the diaphragm. The disease can be seen in the musculoskeletal system in 1–4%, chest wall involvement constitutes only 6% of them.<sup>3)</sup> Kavukcu et al. reported 7 chest wall involvements in 1,032 patients (0.67%) who were operated on for pulmonary hydatid disease.<sup>4)</sup> There is only one chest wall involvement in the report of 842 hydatid cysts in the series of Qian.<sup>5)</sup>

From Departments of <sup>1</sup>Thoracic Surgery and <sup>2</sup>Pathology, Başkent University Faculty of Medicine, Ankara, Turkey

Received May 22, 2006; accepted for publication November 7, 2006

Address reprint requests to Alper Findikcioglu, MD: Department of Thoracic Surgery, Başkent University Faculty of Medicine, Dadaloglu Mah. 39. Sokak No: 6, Yuregir, 01250 Adana, Turkey.

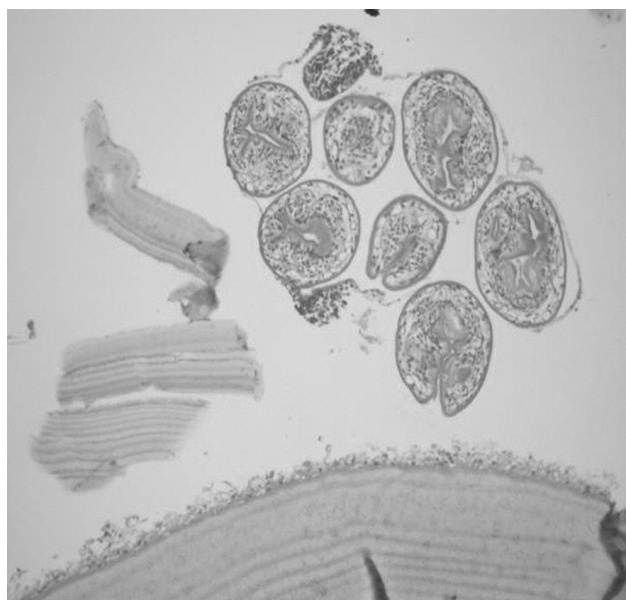


**Fig. 1.** Computed tomography of the thorax showing a cystic mass that rested extra-pleural adjacent to the costo-vertebral joint of the right fourth rib.

The final localization of *Echinococcus* depends on anatomical and physiological characteristics of the host, as well as the species and strain of parasite. *E. granulosus* are capable of completing a venous or lymphatic migration.<sup>6)</sup> In this current case the possible mechanism of primary hydatid disease of the chest wall may be as below: the embryo passes through the duodenal wall into either the portal vein or the periduedonal and perigastric lymphatics. Periduodenal and perigastric lymphatic channels connect with the thoraco-mediastinal lymphatic and the thoracic duct.<sup>7)</sup> This mechanism may explain the development of primary chest wall hydatid disease in the absence of pulmonary or hepatic cysts.

CT and magnetic resonance imaging (MRI) can show and localize the lesions and may be helpful for a correct diagnosis. Ruptured and infected hydatid cysts are often confused with tumors and/or abscesses or empyema.<sup>8)</sup> Early recognition is important to prevent complications. When an intrathoracic extrapulmonary hydatid cyst lies in a neighborhood of bone structures, it may result in bone destruction. Rupture of a pulmonary hydatid cyst into the pleural space, either spontaneously or during surgery, is the most common cause of pleural hydatidosis or chest wall hydatidosis. Primary hydatid disease of the chest wall is very rare.<sup>2)</sup>

Cystotomy is the primary treatment of the hydatid disease of the thorax. However, additional surgical resections may be required in the presence of surrounding tissue involvement. In the current case, the surface of the rib was destroyed by the cyst however infiltration of



**Fig. 2.** Microscopic examination of the cyst wall showed fibrous laminar layer, germinal epithelium and scolex. The cyst wall surrounded granulation tissue which contained eosinophils, neutrophils and fibrosis (H.E., ×200).

medulla was not clearly evident. The difference between the chest wall and pleural hydatid disease designates the extent of a resection. An en-bloc complete resection of the cyst and rib may prevent recurrence and spreading of hydatid disease. Suspicion of medullary involvement may lead the surgeon to perform a wider resection during surgery.

Our case concerns a primary chest wall hydatid cyst with destruction of the adjacent rib as a chest wall tumor. This case supports the opinion that a hydatid cyst can be located in various tissues as a primary lesion and may resemble malign lesions. In hydatid disease of the chest wall, the treatment consists of radically removing of the cyst with adjacent ribs.

## References

1. Burgos L, Baquerizo A, Munoz W, et al. Experience in the surgical treatment of 331 patients with pulmonary hydatidosis. *J Thorac Cardiovasc Surg* 1991; **102**: 427–31.
2. Ozdemir N, Akal M, Kutlay H, et al. Chest wall echinococcosis. *Chest* 1994; **105**: 1277–9.
3. Oguzkaya F, Akcali A, Kahraman C, et al. Unusually located hydatid cysts: intrathoracic but extrapulmonary. *Ann Thorac Surg* 1997; **64**: 334–7.
4. Kavukcu S, Kilic D, Tokat AO, et al. Parenchyma-

- preserving surgery in the management of pulmonary hydatid cysts. *J Invest Surg* 2006; **19**: 61–8.
5. Qian ZX. Thoracic hydatid cysts: a report of 842 cases treated over a thirty-year period. *Ann Thorac Surg* 1988; **46**: 342–6.
  6. Heath DD. The migration of oncospheres of *Taenia pisiformis*, *T. serialis* and *Echinococcus granulosus* within the intermediate host. *Int J Parasitol* 1971; **1**: 145–52
  7. Sarsam A. Surgery of pulmonary hydatid cysts review of 155 cases. *J Thoracvasc Surg* 1971; **62**: 663–8.
  8. Kilic D, Tercan F, Sahin E, et al. Unusual radiologic manifestations of the echinococcus infection in the thorax. *J Thorac Imag* 2006; **21**: 32–6.