Case Report

Rare Mediastinal Hydatid Cyst

Rajender M[1], Raghu Kanth A[1], Vinay Kumar A[1] and Renuka Rao[2]

Departments of Pulmonology[1], and Cardiothoracic Surgery[2], Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar (Andhra Pradesh), India

Abstract

Hydatid disease is a parasitic disease caused by the larval form of *Echinococcus granulosus*. Most common sites are liver, lungs, and brain. The disease is rarely present in the mediastinum. We report the rare instance of a 52-year-old female who presented with hydatid disease in the uncommon location of posterior mediastinum.
[Indian J Chest Dis Allied Sci 2015;57:187-190]

Key words: Hydatid cyst, Mediastinum, Echinococcus.

Introduction

Hydatid disease is a parasitic disease found in all continents of the world, with a high prevalence in the area of Mediterranean, the Middle and Far-East regions, and South America.[1] Most common sites are liver, lungs, and brain. Although many uncommon locations have been reported, the disease has rarely been documented in the mediastinum. Approximately 100 cases have been described in the English literature so far.[2,3] We report here a rare case of hydatid disease in posterior mediastinum, an unusual location.

Case Report

A 52-year-old female, a labourer by occupation presented with chief complaints of cough, fever and breathlessness since 10 days and haemoptysis since four days. Cough was insidious in onset, productive in nature but was not associated with diurnal or postural variations. Cough was associated with sputum that was white in colour, scanty and was not foul smelling. Fever was low grade in nature, intermittent type and associated with loss of appetite and generalised weakness. Haemoptysis was bright red in colour and moderate in amount. She had experienced similar complaints 15 years ago and was treated symptomatically, the details of which were not available presently to us.

General physical examination revealed pallor. Respiratory system examination revealed a dull percussion note and coarse crepitations in the right infra-scapular area. Rest of the physical examination was within normal limits. A provisional diagnosis of right lower lobe pneumonia was made and was investigated further. Chest radiograph (postero-anterior view) (Figure 1) showed a non-homogeneous opacity obliterating the right dome of diaphragm, right lower zone? consolidation and an opacity behind the right cardiac border. Chest radiograph (lateral view) (Figure 2) showed an opacity in the right lower vertebral region.

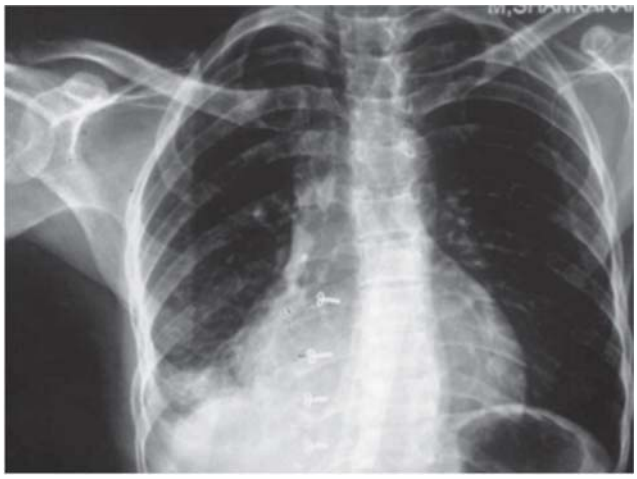

Figure 1. Chest radiograph (postero-anterior view) showing a non-homogeneous opacity with obliteration of the right dome of diaphragm suggestive of consolidation in the right lower zone and opacity behind the right cardiac border.

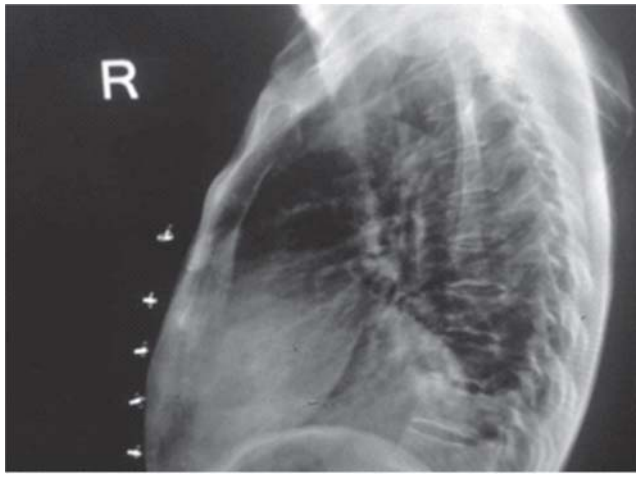

Figure 2. Chest radiograph (right lateral view) showing opacity in the right lower vertebral region.

[Received: September 6, 2013; accepted after revision: February 17, 2014]

Correspondence and reprint requests: Dr Rajender M, Professor and Head, Department of Pulmonology, Chalmeda Anand Rao Institute of Medical Sciences, Bommakal, Karimnagar-505 001(Andhra Pradesh), India: E-mail: drrajendermukka@gmail.com

Ultrasonography of the abdomen revealed a well-defined multi-cystic lesion measuring 8.4cm×7.3cm in the right cardiophrenic angle suggesting the possibility of a hydatid cyst. Computed tomography (CT) of the chest (Figures 3 and 4) showed a large non-enhancing multi-septate cystic lesion measuring 7.8cm×6.2cm in the posterior mediastinum, postero-laterally abutting aorta, abutting and displacing inferior vena-cava and oesophagus. Consolidation with cavitation was also noted in the right lower lobe suggestive of necrotising pneumonia.

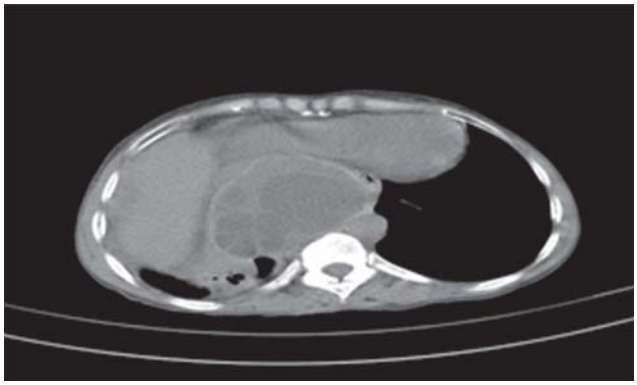

Figure 3. CT chest (mediastinal window) showing mass lesion extending superiorly upto the right atrium causing compression of the right atrium and inferiorly extending intra-abdominally upto D10, D11 vertebral bodies.

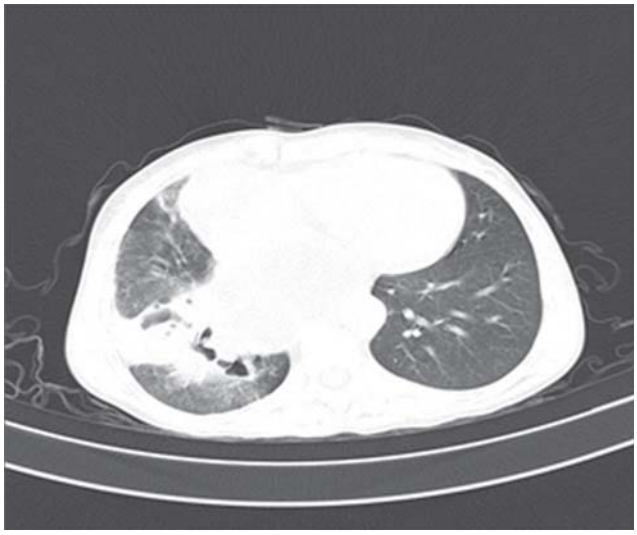

Figure 4. CT chest (lung window) showing consolidation with cavities noted in the right lower lobe.

Immunoglobulin G (IgG) levels against echinococcal antigen was 22 NTG (>11 NTG is considered positive). She was diagnosed to have posterior mediastinal hydatid cyst with right lower lobe necrotising pneumonia.

She was managed with antibiotics, bed rest in right lateral position, supportive treatment for haemoptysis and oral albendazole 600 mg once daily for six months. The case was referred to Cardio Thoracic Surgery department for further management. Pre-operative two-dimensional echocardiography was normal; pulmonary function testing was not done because of the risk of rupture of the cysts. She underwent right postero-lateral thoracotomy and cyst excision (Figure 5) and histopathological examination confirmed the diagnosis of hydatid cyst (Figure 6). The post-operative clinical course was uneventful.

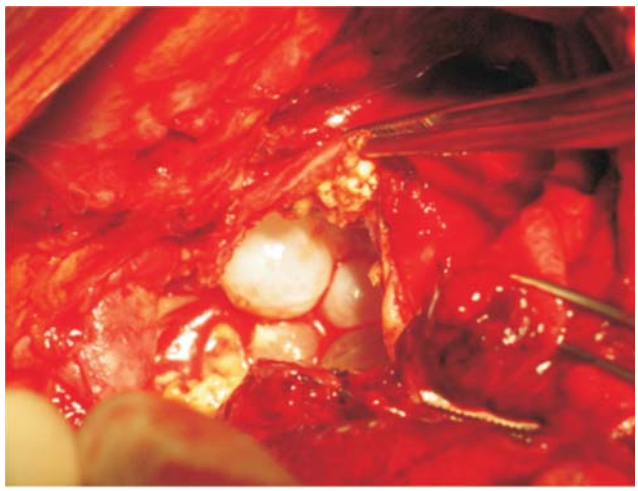

Figure 5. Intra-operative photograph showing hydatid cyst with daughter cysts.

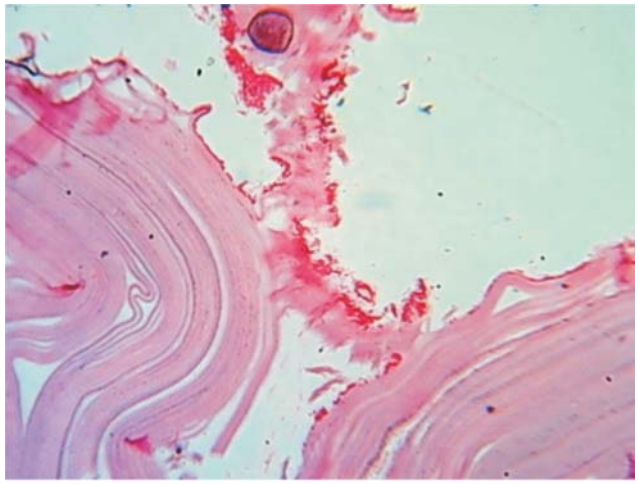

Figure 6. Photomicrograph of hitopathology of the tissue specimen showing thick laminated and germinal cell layers of hydatid cyst (Haematoxylin and Eosin stain × 100).

Discussion

Hydatid disease is an infection caused in humans by the larval stage of the *Echinococcus granulosus* complex, *Echinococcus multilocularis* or *Echinococcus vogeli*. Hydatid disease caused by *Echinococcus granulosus* complex parasites, which produces unilocular cystic lesions is prevalent in areas where livestock is raised in association with dogs. Like other cestodes, echinococcal species have both intermediate and definitive hosts. The definitive hosts are canines that pass eggs in their faeces. After the ingestion of eggs, cysts develop in the intermediate hosts-like sheep,

cattle, goats, camels, horses. Human become accidental host by consumption of contaminated water and food.

Hydatid disease involves almost all parts of the body but common sites of involvement include liver (upto 70%) and lung (15%–25%); other sites are peritoneum (4%), kidney (4%), brain (4%), mediastinum (0.02%–2%) and rarely involved sites are adrenals, spinal cord, bone, soft tissue, pleural, bladder, ovary and spleen.[4] Intra-thoracic, extra-pulmonary localisation has been documented in the pleura, pericardium, diaphragm and chest wall; mediastinal hydatid cysts are exceptionally rare.[5,6] More than 45% of mediastinal hydatid cysts are located in the posterior mediastinum, 36% are found in the anterior mediastinum, and 18% in the middle medistinum.[7] Specific diagnosis can be made by the examination of aspirated fluids for protoscolices or hooklets but this is usually not recommended because of risk of leakage and rupture leading to an anaphylactic reaction.

Hydatid disease is diagnosed by radiographic and serological methods. Casoni's intradermal test is not used presently. In its course of evolution, hydatid disease shows various radiographic appearances such as oval mass that is easily deformable leads to lobulation or eccentricity; calcification is very rare. Meniscus / moon / air-cresent sign, double-arch sign, combo sign or air fluid level, water-lilly / Camelot sign, serpent sign or rising sign and mass in the cavity, empty cyst sign.[8,9]

The pathognomonic sign of hydatid cyst on chest CT is demonstration of daughter cysts within the larger cysts. Serological test for hydatid disease is the detection of antibodies IgG specific to echinococcal antigens by immunoblotting has the higher degree of specificity. While hydatid cyst in the liver elicits 90% positive antibody response, hydatid cysts in the lungs test positive in only 50%.[10] In the present case, IgG levels against echinococcal antigens were 22 NTG (>11 NTG consider positive).

Management of cystic hydatid disease caused by *Echinococcus granulosus* should be based on viability of the parasite, which can be estimated from radiographic appearance using ultrasonography. It is classified as active, transitional, and inactive cyst. Active cysts means a cystic lesion and no visible cyst wall, with a visible cyst wall and internal echoes, i.e., snowflake sign (CE1), and with a visible cyst wall and internal septation (CE2).[11] Transitional cysts means cyst with detached laminar membranes or may be partially collapsed (CE3) and inactive cysts shows a non-homogeneous mass (CE4) and a cyst with a thick calcified wall (CE5).[11] In the present case, ultrasonography of the abdomen showed hydatid cyst with CE2 appearance.

Treatment options include medical management, percutaneous aspiration-infusion of scolicidal agents and re-aspiration (PAIR) and surgery. Indications of medical treatment include inoperable patients, patients with multiple primary liver or lung cysts, and as concomitant therapy to PAIR for prevention of secondary echinococcosis.[12]

The available treatment choices include oral albendazole (10-15 mg / kg upto 6 months), mebendazole (40-50 mg / kg upto 3-6 months), and praziquantel (40 mg / kg given once a week). Another mode of treatment is PAIR (puncture aspiration injection respiration). The scolicidal agents used are 95% ethanol or hypertrophic saline. Start albendazole four days before PAIR and continue upto four weeks.[12]

The gold standard four treatment for mediastinal hydatid cyst is radical removal of the germinative membrane and pericyst.[2] The indication for surgery includes larger size measure about >10 cm, single superficial situated liver cysts that are potentially easy to rupture, infected cysts. Further, cysts communicating with biliary tree and cysts exerting pressure on adjacent vital organs (as in the present case).[12] Surgical options available are radical surgery, total pericyctectomy, and partial lobectomy. Complications of hydatid cyst include rupture of cysts and disseminated, secondary infection and pressure symptoms (depending on the organ involved).

Echinococcosis can be prevented by administering praziquantel to infected dogs, by denying dogs access to infected animals, or by vaccinating sheep. Limitation of the number of stray dogs is helpful in reducing the prevalence of infection among humans. Mediastinal hydatid disease is an uncommon disease. Because of the surrounding vital structures, the cyst should be removed immediately. Surgical removal remains the treatment of choice for mediastinal echinococcosis with pressure symptoms.

References

1. Petersen C, Mills J. Parasitic infections. In: Murray JF, Nadel JA, editors *Textbook of Respiratory Medicine*. Philadelphia: WB Saunders; 1994:pp1201–43.
2. Heras F, Ramos G, Duque JL, Garcia Yuste M, Cerezal LJ, Matilla JM. Mediastinal hydatid cysts: 8 cases. *Arch Bronconeumol* 2000;36:221–4.
3. Thameur H, Chenik S, Abdelmoulah S, Bey M, Hachicha S, Chemingui M, *et al*. Thoracic hydatidosis: a review of 1619 cases. *Rev Pneumol Clin* 2000;56:7–15.
4. Yuksel M, Demirpolat G, Sever A, Bakaris S, Bulbuloglu E, Elmas N. Hydatid disease involving some rare locations in the body: a pictorial essay. *Korean J Radiol* 2007;8:531–40.
5. Kabiri EH, Al Aziz S, El Maslout A, Benosman A. Hydatid cyst: an unusual disease of the mediastinum. *Acta Chir Belg* 2001;101:283–6.
6. Ulkü R, Eren N, Cakir O, Balci A, Onat S. Extrapulmonary intrathoracic hydatid cysts. *Canadian J Surg* 2004;47:95–8.
7. Eroðlu A, Kürkçüoðlu C, Karaoðlanoðlu N, Tekinbaþ C, Kaynar H, Onbaþ O. Primary hydatid cysts of the mediastinum. *Eur J Cardiothorac Surg* 2002;22:599–601.
8. Kuzucu A. Parasitic diseases of the respiratory tract. *Curr Opin Pulm Med* 2006;12:212–21.
9. von Sinner W, te Strake L, Clark D, Sharif H. MR imaging of HD. *AJR Am J Roentgenol* 1991;157:741–5.
10. ARUP Consult [homepage on the Internet]. 2006 ARUP Laboratories. Echinococcus Species [about 2 screens].