

Case Report

Hydatid cyst of the lung: a case report from Sri LankaWelgama IP¹, Herath J¹, Gandhiji G¹,¹National Hospital, Kandy, Sri Lanka**Abstract**

Cystic echinococcosis (Hydatid disease or hydatidosis), is a zoonotic, parasitic disease caused by larvae of *Echinococcus granulosus* (dog tapeworm) and transmitted via faeco-oral route. Although humans are accidental hosts, cystic echinococcosis can lead to numerous clinical symptoms and signs in humans. Based on their location, fatal anaphylaxis can occur following rupture of hydatid cysts. Even though frequently encountered in Middle East, South America, East Africa and Central Asia, the condition is very rare in Sri Lanka where only a few cases have been reported. We report the case of a young adult male, recently returned from a Central Asian country, who presented with a right-sided chest discomfort over three months. Initial investigations including imaging suggested an intrapulmonary fluid-filled lesion requiring surgical evacuation. At the surgery, it was found to be a hydatid cyst of the lung. Pathological examination confirmed the diagnosis of hydatidosis, and the patient was treated with albendazole. Follow up investigations revealed no residual infection.

Key words: *Echinococcus granulosus*, Hydatid cyst, Cystic echinococcosis, Lungs, Sri Lanka**Copyright:** © 2019 Welgama IP *et al.*  This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.**Funding:** None**Competing interests:** None✉ **Correspondence:** Indrakantha.welgama@gmail.com**Cite this article as:** Welgama et al. Hydatid cyst of the lung: a case report from Sri Lanka. *Anuradhapura Medical Journal* 2019;13(1):18-21**DOI:** <http://doi.org/10.4038/amj.v13i1.7650>**Introduction**

Cystic echinococcosis, also known as hydatidosis or hydatid disease, is a parasitic disease of dogs and animals, which can rarely occur in humans as well. It is a tapeworm infestation caused by the larvae of *Echinococcus granulosus* (1) and is transmitted faeco-orally. Another species of the dog tapeworm, *Echinococcus multilocularis*, also can rarely cause a human disease known as alveolar echinococcosis (1). Dogs are the definitive hosts while other mammals can act as intermediate hosts. Humans are accidental intermediate hosts and are infected following consumption of food and water contaminated with faeces of infected animals (2). Human to human transmission is yet unknown.

Hydatid cysts in humans are quite uncommon in Sri Lanka, whereas it is endemic in some countries in the

Mediterranean region, the Middle East, southern parts of South America and Africa, Iceland, Australia, New Zealand, China and India (3). Hydatid cysts affect all races and sexes equally, but are more common among young adults, with an average age of 30 to 40 years (3).

Morbidity is largely due to dysfunction of organs such as the liver, lungs, bile duct, etc., following duct obstruction, and due to anaphylaxis following the rupture of the cyst or leaking of the cyst fluid into body tissues. Anaphylaxis can lead to severe complications and even death (3). Cysts in lungs can cause respiratory distress (chronic cough, shortness of breath) and hepatic cysts can cause symptoms of liver disease, including abdominal pain, nausea, and vomiting (4). In addition, cerebral hydatid cysts can cause symptoms of severe headache, loss of consciousness, and neurological manifestations (5). Ultrasound (US) scanning is the

imaging technique of choice for diagnosis, complemented by computed tomography (CT) or magnetic resonance image (MRI) scanning (4). Serological testing may also be helpful in further confirmation of the disease. Treatment is usually extensive surgery and evacuation, and/or prolonged drug therapy with anti-helminthics such as albendazole (4,6).

Case description

We report a case where a 25-year-old male patient was referred to the cardiothoracic surgery unit, National Hospital, Kandy, Sri Lanka in November 2010, for the evacuation of a possible lung abscess, which was eventually discovered to be a hydatid cyst of the lung.

The patient, who was a resident in a suburb of Kandy district presented to the respiratory medicine unit at the National Hospital, Kandy, with a progressive right-sided chest discomfort for three months duration. He had no other symptoms such as fever, cough or breathing difficulty, and no signs of lung disease. He was a teetotaler. He was unemployed at the time of admission; however, he had returned from employment in a Middle Eastern country about six months before. A right-sided lung opacity was discovered in his chest X-ray (Figure 1). His basic laboratory investigations including full blood count were found to be normal, except for a slightly elevated serum C-reactive protein (CRP). Bronchoscopic examination was found to be normal, and culture and analysis of the pleural aspirate was negative. CT scan of the chest revealed a loculated pleural effusion in the horizontal fissure of right lung (phantom tumour) but no solid mass (Figure 2). A thick organized fluid in a cystic lesion was detected with the US scan, but an attempt for US-guided pleural aspirate was unsuccessful.

The patient was then referred to the cardiothoracic surgical unit for open thoracotomy and exploration. Surgery revealed a pale white, fluid-filled cyst within a cavity, formed of surrounding inflamed lung tissue. The features of the cyst were compatible with a hydatid cyst and, hence, was carefully removed and sent for histopathological analysis (Figure 3). The pathology report confirmed the diagnosis of hydatid cyst along with the presence of daughter cysts, and the patient was subsequently treated with albendazole. CT and US scanning for screening for any other hydatid cysts in brain, liver, and abdomen, were found to be normal confirming the absence of residual infection. The patient was referred back to the respiratory medicine unit for

further follow-up. Patient's informed consent was obtained for reporting the case.

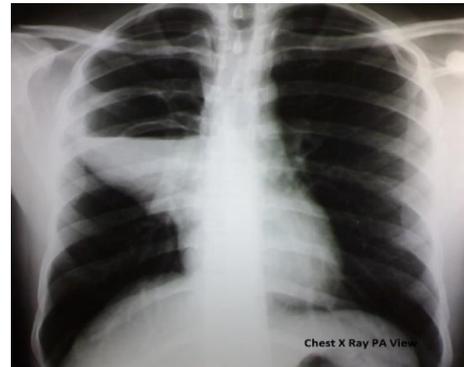


Figure 1: Chest X-ray; posteroanterior (PA) view



Figure 2: CT scan of the chest; lateral view



Figure 3: Evacuated hydatid cyst

Discussion and conclusions

Pulmonary hydatid cysts are one of the four main hydatid diseases affecting humans, and is the most common type. World Health Organization estimates that nearly one million people are affected worldwide with the infection of *Echinococcus granulosus*, particularly in the endemic regions (4). Ramos *et al.* describe that hydatid cysts of the lung can be primary or secondary, and mostly, they are single cysts but may have cysts in other locations of the body as well (7).

Once this tapeworm travel through the human gastrointestinal system, they enter the veins or the lymphatics of the intestines and are carried into the liver. Thus, most of them get lodged in the liver, which is the commonest site (about 75% of all cases) for the formation of hydatid cysts. The next common organ to develop hydatid cysts is the lung (15%) into which the parasite travels via the inferior vena cava and the pulmonary arterial system (8).

Hydatid cysts of the lungs can cause bronchial fistulisation releasing contents into the bronchial tree as a complication, while rupture of pulmonary hydatid cysts is rare. Release of daughter cells can lead to secondary hydatid cysts. Rupture of a primary cyst into a vein can lead to disseminated hydatid cysts, albeit such instances are rare (7). Moreover, imaging studies can provide useful information on the complexity of hydatid cysts including possible local complications. US, CT as well as MRI scanning can be used to identify the nature and complications of these cysts, thus minimizing potential complications related to surgical evacuation (8).

While surgical evacuation is the treatment of choice, thoracoscopic approach for the evacuation of pulmonary

hydatid cysts in children is a feasible option. However, this approach is only recommended for cysts with a diameter less than 5 cm (9). Moreover, a retrospective study analysing data over 10 years from Punjab, India, had found 8 patients with pulmonary hydatidosis, with six of them having solitary cysts while other two had bilateral lung involvement. Three have had associated cysts in the liver and spleen, while 4 had been treated with surgical lung lobectomies (10). Another case report by Teo *et al.* describes a rare solitary pulmonary hydatid cyst in a 37-year-old Indian lady from Singapore, where she had presented with allergic manifestations following a rupture of the cyst and hydatid fluid leakage (6). Kaur and Singh report another case of pulmonary hydatid cyst rupture, from India, where the cyst had ruptured into a bronchus, causing respiratory difficulty and cough in a 70-year-old male. Moreover, disseminated hydatid cysts in the brain, heart, and the peritoneum, has also been reported, which are known to be very rare complications (5). Surgical evacuation of the cysts and prolonged treatment with albendazole are the general therapeutic approaches in such instances.

Though cystic echinococcosis in humans is rare in Sri Lanka, it is commonly present in dogs and other animals. A study by Sixl *et al.* on serological examination of dogs in Colombo district of Sri Lanka revealed that 17 (56.7%) out of 30 samples were found to be positive for *Echinococcus* spp. (12). Similarly, serological testing of slaughtered animals (76 cattle and 184 goats) have been positive for echinococcosis in Sri Lanka (13). Hence, despite being a rare infection in humans, *Echinococcus* spp. is prevalent in Sri Lanka, indicating a high risk of establishing human transmission at any time possible.

References

1. Matossian R, Rickard M, Smyth J. Hydatidosis: a global problem of increasing importance. *Bulletin of the World Health Organization*. 1977;55(4): 499-507.
2. Cdc.gov. CDC - Echinococcosis - Epidemiology & risk factors [Internet]. 2015 [cited 17 April 2014]. Available from: <http://www.cdc.gov/parasites/echinococcosis/epi.html>
3. Emedicine.medscape.com. Hydatid cysts: Background, pathophysiology, epidemiology [Internet]. 2015 [cited 14 May 2014]. Available from: <http://emedicine.medscape.com/article/178648-overview#a6>
4. WHO. Echinococcosis [Internet]. 2015 [cited 25 July 2015]. Available from: <http://www.who.int/mediacentre/factsheets/fs377/en/>

5. Sreedhar M. Disseminated hydatid disease a case report with MR spectroscopic correlation. *Indian Journal of Radiology and Imaging*. 2006;16(4):771.
6. Teo S, Boey M, Tan T et al. Pulmonary hydatidosis in a tertiary care hospital. *Singapore Medical Journal*. 1983;24(1):48-55.
7. Ramos G, Ordu A, Garc A, et al. Hydatid cyst of the lung: Diagnosis and treatment. *World Journal of Surgery*. 2001;25(1):46-57.
8. Pedrosa I, Saiz A, Arrazola J et al. Hydatid disease: Radiologic and pathologic features and complications. *RadioGraphics*. 2000;20(3):795-817.
9. Amine K, Samia B, Jamila C et al. Thoracoscopic treatment of pulmonary hydatid cyst in children: a report of 25 cases. *La Tunisie Medicale*. 2014;92(5):341 - 344.
10. Kundu R, Dalal U, Handa U et al. Pulmonary hydatidosis in a tertiary care hospital. *Lung India*. 2015;32(3):246.
11. Kaur M, Singh R. Ruptured pulmonary hydatid cyst: The camalote sign. *Indian Journal of Clinical Practice*. 2013;23(12):856 - 858.
12. Sixl W, Wisidagama E, Stunzner D et al. Serological examinations of dogs (*Canis familiaris*) in Colombo/Sri Lanka. *Geographia medica* (suppliment). 1988;1:89 - 92.
13. Wisidagama E, Sixl W, Withalm H et al. Serological examinations of slaughtered animals (cattle and goats) in the slaughter-house of Colombo/Sri Lanka towards antibodies against brucellosis, Q-fever, RMSF-rickettsia-group, listeriosis, echinococcosis and adenoviruses. *Geographia medica* (suppliment). 1988;1:77-82.



Submit your next manuscript to
**Anuradhapura
Medical Journal**

Submit your manuscript at
<http://amj.sljol.info/>