

Case Report

Primary Hydatid Cyst of the Thyroid Gland: A Case Report

Nuzhat Sultana^{1,2}, Walayat Shah^{2*}, Saeed Ullah³, Murad Ali⁴ and Shifa Basharat⁵

¹Department of Pathology, Khyber Medical University, Pakistan

²Department of Histopathology, Khyber Medical University, Pakistan

³Department of ENT, Northwest General Hospital and Research Center, Pakistan

⁴Department of Radiology, Northwest General Hospital and Research Center, Pakistan

⁵Department of Pediatrics, Khyber Medical University, Pakistan

***Corresponding author**

Walayat Shah, Department of Histopathology, Khyber Medical University, Khyber Pakhtunkhwa, Peshawar 25000, Pakistan, Email: walayats.ibms@kmu.edu.pk

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Abstract

Hydatid disease is caused by tapeworm parasite *Echinococcus granulosus*. It is common in temperate and sheep raising countries of the world where it is a serious public health problem. Hydatid cysts can be found in every part of body. Most common locations are liver and lungs. Primary hydatid cyst located in thyroid is an exceptional finding even in endemic areas. We document a rare case of cystic nodule detected by ultrasound in Thyroid. Patient was a 35 year old woman with a slowly growing mass in the neck. Ultrasonography of the neck region revealed a 4x4 cm mass in the right lobe of the thyroid which appeared to be large, lobulated, encapsulated and cystic suggesting hydatid cyst. Subtotal thyroidectomy was done. Histopathological examination revealed hydatid cyst of thyroid. Hydatid cyst of thyroid should be considered in the differential diagnosis in endemic areas as in our case it was in the differential along with malignancy so that it should be managed during surgery to prevent anaphylaxis.

INTRODUCTION

Hydatid Cyst, also known as Hydatidosis or cystic echinococcosis, is a serious parasitic disease of humans caused by the larvae of the tape worm *Echinococcus granulosus*. The disease has a worldwide distribution, being particularly common in countries where agriculture is still dominant. It is a serious health problem in the Middle East, Central Europe, South America and Australia. Although any part of the body can be affected, the most usually affected sites are the liver followed by the lungs. Other affected sites include brain, heart, muscle, kidneys and pancreas [1,2].

In any location of the body, the lesion may occur due to primary inoculation or as a result of secondary infection from some other site. Hydatidosis of the head and neck region is fairly uncommon, even in countries where echinococcosis is endemic. Therefore, hydatid cysts of the thyroid gland are a rare finding. In the thyroid region, clinical examination often reveals a cold nodule. The lesion often presents as a slow growing mass and diagnosis on the basis of immunology, thyroid scanning, ultrasonography and even fine needle aspiration cytology (FNAC) can be difficult to establish. Histopathological examination in such cases is useful in revealing the hydatid cyst [3,4].

This report documents a rare case of primary hydatid cyst of the thyroid gland in a 35 year old female who presented with

the complaints of a slowly enlarging neck mass and difficulty in breathing.

CASE PRESENTATION

A 35 year old woman, without any history of cattle or sheep rearing or agriculture, presented to our ward with a swelling in the neck region, on the right side of the neck for the past 8 to 9 months. Before that, she had no complaints and was normal. According to the attendant accompanying the patient, the swelling at first was small and then started to enlarge gradually causing mild pain and difficulty in breathing. Medical history of the patient was unremarkable with no complaints of weight loss or fever. Physical examination was normal except for a hard, slightly painful, fixed swelling in her neck. The skin overlying the swelling was not warm and did not show any redness. There were no enlarged nodes in the neck.

Ultrasonography of the neck region revealed a 3.0 X 4.0 cm mass in the right lobe of the thyroid which appeared to be large, lobulated, encapsulated and cystic. Result of thyroid function tests and other routine lab tests were normal. Thyroid scan showed a cold nodule. Chest and abdominal X-rays were performed and both were negative for hydatid cysts. FNAC had not been performed as it was thought the complications would be too severe. Surgical removal of the cyst was scheduled and a subtotal thyroidectomy was performed. The cyst was removed

without any damage to its wall and the field of the procedure was then irrigated with hypertonic saline.

Gross evaluation showed a cystic nodule with thick fibrous wall in the right lobe of the thyroid containing germinative membrane along with large amount of fluid and free vesicles. The cyst was separated from the surrounding thyroid tissue by its thick wall. Histopathological examination revealed an eosinophilic staining of the lamellar membrane and the cyst wall. The lamellar cuticular membrane was Periodic-Acid Schiff (PAS)



Figure 1 Thyroid tissue with cystic cavity filled with gelatinous white membrane of hydatid cyst.

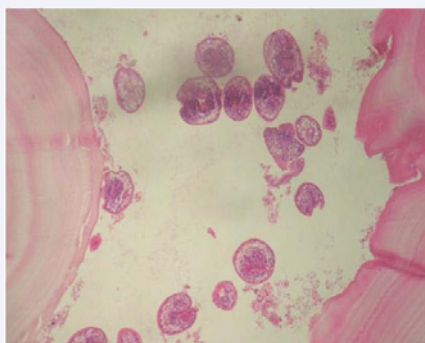


Figure 2 Photomicrograph showing a cellular cyst wall and daughter cysts (brood capsules).

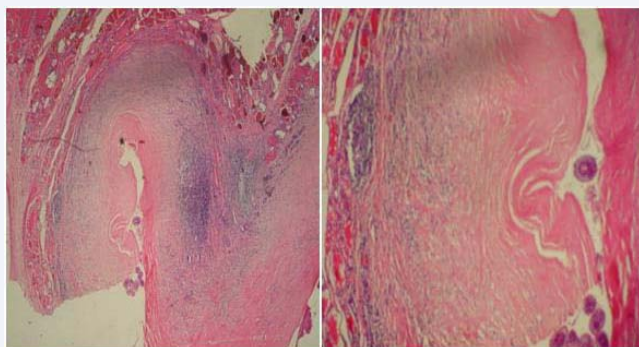


Figure 3 Thyroid can be seen on one side. All three layers of hydatid cyst can be seen. Outer fibrous wall containing chronic inflammation, middle a cellular layer and innermost germinal layer showing brood capsules.

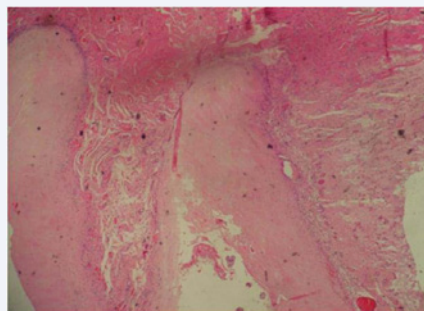


Figure 4 Hydatid cyst wall is seen surrounded by fibro-collagenous tissue and skeletal muscle fibres of the neck.

stain positive. These findings helped in the establishment of the diagnosis of hydatid cyst.

Post-surgical X-rays and ultrasounds of the chest and abdomen were normal. The patient was prescribed chemotherapy with Albendazole for 6 months and follow up was done for 2 months during which the patient remained disease free.

DISCUSSION

Hydatid cyst is a cyclozoonotic helminthic infection by *Echinococcus granulosus*. The life cycle of this tapeworm is well established in which the definitive host is the dog and intermediate hosts are cattle, sheep and in some cases human beings. The cycle begins when the dog is infected by ingestion of viscera of domesticated herbivores that contain hydatid cysts. The cattle are infected due to ingestion of ova disseminated in metabolic wastes. When a primary host ingests the cyst, the life cycle is completed. Adult worms grow in the GIT of the primary host while larvae proliferate asexually in the intermediate hosts [5].

Man gets infected as a result of ingesting contaminated vegetables or by handling dogs. When the eggs are swallowed, the gastric juice dissolves the chitinous envelopes that surround the eggs releasing oncospheres in the intestine that burrow through the mucosa and are carried to the liver via portal vein. In the liver, which is the most common site of infection, the oncospheres grow into adult cysts. Some of the cysts pass through the liver and heart and reach different sites of the body e.g. orbit, lung, bones, pancreas etc. At times, there is no evidence of primary lesions in the liver or lungs and involvement of isolated locations can be seen. Lesions in the thyroid can occur the parasitic embryos either bypass as in primary cases, or pass through as in secondary cases, the hepatic circulation. This could be due to the high rate of flow of blood through thyroid gland [5,6].

Most hydatid cysts produce no symptoms and are slow growing. However, clinical presentation depends upon the location of the cyst and its size. The lesion may adhere to the surrounding tissues as it grows in size and cause various symptoms. In case of a hydatid cyst in the thyroid, the cyst can adhere to the trachea or esophagus producing dyspnea and dysphagia respectively. In some cases, the carotid sheath may be involved. Cysts can also produce vocal cord irritation and hoarseness of voice. Complications of cysts depend upon the location and size as well. The most important complication is

anaphylaxis in case of cyst rupture. Other complications include abscesses, organ damage, and secondary cyst formation [6].

It is important to have a detailed history of the patient particularly medical, occupational, family histories with details of the patient's residence and locality. A detailed systemic examination should be performed in all patients found with hydatid cysts to establish primaries and to know the extent of dissemination of disease. Radiological modalities for establishing diagnosis include US and MRI and can reveal daughter cysts and hyperechoic shadows suggestive of echinococcosis. Immunological studies can be helpful in establishing diagnosis however they have a high false positive rate. FNAC can be a useful diagnostic tool but many are of the opinion that it may lead to complications due to spillage of fluid and cyst rupture. The mainstay of diagnosis is histopathological examination [5,6].

The most effective treatment of hydatid cysts is the surgical removal of the cyst. Medical treatment is not beneficial without surgery. Aim of the surgical procedure should be the complete removal while avoiding any spillage or rupture. In some extreme cases, surgery may not be possible due to the debilitated condition of the patient or the location of the cyst, medical treatment with Albendazole and Mebendazole can be used, although many adverse reactions have been reported and the results have often been unpredictable. Instead of providing complete cure, the medicines kill a live parasite thereby reducing the risk of contamination due to spillage of cyst contents [7].

In conclusion, although diagnosis of hydatid cysts has been made easy by the advancements in imaging techniques, the fact remains that hydatid cysts of the thyroid gland are a rarity and

are often considered to be differential diagnosis rather than the main diagnosis. It is important to bear in mind the possibility of echinococcosis wherever a patient presents with a solitary cyst in the thyroid particularly in patients belonging to region where hydatidosis is endemic [8].

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