Case Report

Primary echinococcal cyst in the thyroid gland: a case report from Iran

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Abstract

Hydatid disease is prevalent in most sheep-raising countries in Asia, Australia, and eastern and southern Europe. Hydatid disease caused by *Echinococcus granulosus* is often manifested by a slow-growing cyst mass. Hydatid cysts may be found in almost every part of the body; however the lungs and liver are the most involved locations. Due to the vital cycle of the parasite, the thyroid gland is an uncommon site of infection even in the countries where the disease is endemic. Hydatic origin is suspected in only 50% of patients preoperatively and immunologic testing has a 33% false positive rate; therefore, hydatid cyst is more commonly considered intra-operatively and confirmed by a frozen section histology. This study reports a case of primary hydatid disease of the thyroid.

Key words: hydatid cyst, thyroid gland, thyroid mass, neck mass

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Introduction

Hydatid disease is a parasitic infection with worldwide distribution, especially in sheep and cattle-rearing regions of Australia, South America, the Middle East, South Africa, Eastern Europe, and the Mediterranean region [1,2]. The disease is endemic throughout Iran. [3]. Hydatid disease caused by *Echinococcus granulosus* is often manifested by a slow-growing cyst mass. Although it tends mostly to form in the liver (75%) or lung (15%), other organs of the body including brain, heart, bones, muscle, kidney, and pancreas may also be affected [4,5,6]. Multi-organ involvement has been reported in 20-30% of Hydatid disease cases [4]. Although thyroid hydatid cysts caused by *E. granulosus* are usually associated with hepatic and/or pulmonary involvement [4], isolated involvement of the thyroid gland is very rare even in Iran, where echinococcal disease is endemic [1,2, 3].

This study reports a case of a primary hydatid cyst situated in the left lobe of the thyroid gland.

Case report

The patient was a 35-year-old woman without any history of farming or raising livestock. In June 2007, she referred to our hospital due to the enlarging neck mass which had been present for four months. The mass was firm, non tender, and not fixed to the surrounding structures. A simple cyst with a well-defined border and intact thyroid were noted on the neck CT scan, suggestive of a hydatid cyst or cold thyroid nodule (Figure 1). There was neither evidence of pathologic lymph node enlargement nor any signs of inflammation or malignancy. The thyroid function tests did not reveal any abnormalities. Abdominal ultrasonography and chest X-ray were negative for hydatid cyst. To avoid the spread of protoscolices, fine needle aspirate (FNA) was not performed.

The patient underwent surgery and left thyroid lobectomy was performed. The frozen section histology confirmed the intra-operative impression. Routine wound closure was performed. Four cysts were excised from thyroid, anterior neck, and submandibular region. All cysts contained an inner germinal layer and large amount of fluids (Figure 2). No anaphylactic reactions were developed during the operation.

Tissue samples were prepared for microscopic examination after fixation with 10% formalin,

Figure 1.

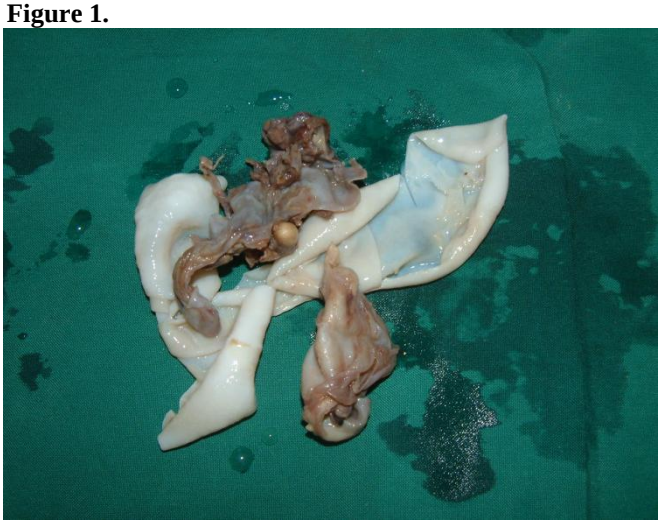
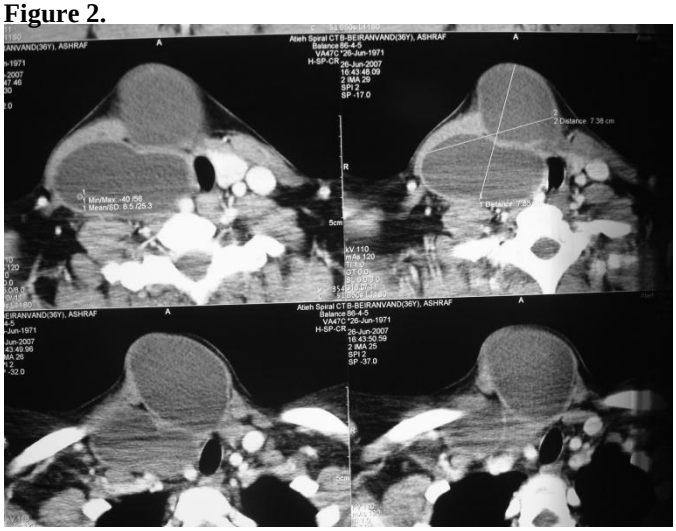


Figure 2.



dehydration with alcohol, and immersion in paraffin blocks.

Histopathological examination showed homogeneous eosinophilic staining of the lamellar cuticular membrane and cyst wall, surrounded by granulomatous inflammation characterized by giant cells within the thyroid tissue. The cuticular membrane stained periodic acid Shiff positive. Findings confirmed the diagnosis of a hydrated cyst. The postoperative course was uncomplicated and lung tomography, abdominal-pelvic ultrasonography, cranial computed tomography, intravenous pyelography, and whole-body skeletal scanning were performed. Nonetheless, there was no evidence of any other foci of hydatid disease.

At the 12-month follow-up, a repeat examination showed no recurrence of the hydatid disease. The patient was informed and gave her consent for us to publish a case report.

Discussion

Echinococcosis, although eradicated in many countries, is prevalent in communities where agriculture is dominant [6]. Hydatidosis is an endemic disease throughout Iran [3]. Although a hydatid cyst can involve many body organs, involvement of the thyroid is rare [1,2,8]. The cyst might remain clinically silent for a long period, presenting a slow growth rate [1,8]. It may suddenly increase in size after years of dormancy. Similar to thyroid carcinoma, enlarging cysts may adhere to surrounding structures, such as the trachea, esophagus, carotid sheath, and recurrent laryngeal nerve. Subsequently, the patient may present with pressure symptoms and signs such as dyspnea, hoarseness or dysphagia [1]. Our patient developed an enlarging neck mass after a long period.

Hydatid cyst of the thyroid is generally the primary focus of the infestation. Only a few patients reported concomitant hydatid cyst in the liver or another organ with thyroid involvement [1,4]. The parasitic embryo can enter the systemic circulation and lodge in the thyroid gland after either bypassing (primary type) or passing through (secondary type) the hepatic microcirculation [5]. Radiologic signs are usually nonspecific, although hydatic origin was suspected in only 50% of patients preoperatively and immunologic testing had a 33% false positive rate [4].

Thyroid hydatid cyst is reported to present as a solitary cold nodule which may mimic thyroid carcinoma [1,2,8]. In our case, *E. granulosus* imitated a simple colloidal thyroid cyst. The routine use of FNA in the workup of a single thyroid nodule may complicate further management of patients with a hydatid cyst by precipitating anaphylaxis and dissemination [1,2,4,8]. In our case, FNA was not performed before surgery.

In this case, the patient developed a cold nodule in the left thyroid lobe on 99Tc Scan. The thyroid nodules of this patient did not adhere to the surrounded tissues and there were no obstructive symptoms suggesting thyroid malignancy.

The treatment of choice for hydatid disease of the thyroid is surgical excision [1,8]. Special care should be taken not to rupture the cyst during the operation because of the risk of disseminating the infestation and also the risk of possible anaphylaxis [9]. Our case

was treated with thyroid lobectomy, which is usually the treatment of choice [1].

In conclusion, we believe that although new imaging techniques have allowed diagnostic improvements, we recommend that despite the rarity of hydatid disease in the thyroid gland, the possibility of this diagnosis should be always kept in mind in cases where the patient has a solitary cyst in the thyroid. In particular, hydatid disease should be considered in endemic regions.

References

1. Gokce C, Patiroglu T, Aksehirli S, Durak AC, Kelestimur F (2003) Hydatic cyst in the thyroid gland diagnosed by fine-needle aspiration biopsy. Thyroid 13: 987-989.
2. Zerkan E, Ynar M G, Saryoulu B, Aydynlyoulu H (1999) A Case of Cystic Echinoccosis in Thyroid Gland: A Very Rare Localisation of Echinoccosis Infection. Turk J Endocr Metab 4: 181-183.
3. Mamishi S, Sagheb S, Pourakbari B (2007) Hydatid disease in Iranian children. J Microbiol Immunol Infect 40: 428-431.
4. Rauhofer U, Prager G, Hormann M, Auer H, Kaserer K, Niederle B (2003) Cystic echinococcosis of the thyroid gland in children and adults. Thyroid 13: 497-502.
5. Kiresi DA, Karabacakoglu A, Odev K, Karakose S (2003) Uncommon locations of hydatid cysts. Acta Radiol 44:622-636
6. Capoglu I, Unuvar N, Erdogan F, Yilmaz O, Caydere M (2002) A hydatid cyst of the thyroid gland. J Int Med Res 30: 206-209.
7. Sogutlu G, Sertkaya Cikim A, Piskin T, Dirican A, Mecit E, Kahraman L, Olmez A, Kırımlioglu V (2007) Hydatid Cyst in Thyroid Gland: A Case Report. Inonu Universitesi Tip Fakultesi Dergisi 14:185-187.
8. Erkilic S, Ozsarac C, Kocer NE, Bayazit YA (2004) Hydatid cyst of the thyroid gland in a child. Int J Pediatr Otorhinolaryngol 68:369-371.
9. Zulfikaroglu B, Ozalp N, Keskek M, Koc M (2008) Primary echinococcal cyst of the thyroid: report of a case. Surg Today 38: 833-835.

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Conflict of Interest: No conflict of interest is declared