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CASE REPORT

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Unexpected discovery of a thyroid hydatid cyst during pathological examination: a case report

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Abstract

Background Hydatid disease, a parasitic infection caused by the larval form of *Echinococcus granulosus*, infrequently involves the thyroid gland, whether through direct invasion or hematogenous spread.

Case presentation We report the case of a 62-year-old female patient from Morocco who presented with an anterior cervical mass, initially suspected to be a goiter. A histopathological evaluation of the thyroidectomy specimen identified the presence of a hydatid cyst. A comprehensive review of the literature is also included.

Conclusion Given that Morocco is an endemic region for hydatid disease, clinicians should consider this parasitic infection in the differential diagnosis of thyroid cystic lesions, recognizing the clinical and laboratory indicators of the disease.

Keywords Hydatid cyst, Thyroid, Anatomical pathology, Diagnosis

Introduction

Hydatid disease is an infection caused by the larval stage of *Echinococcus granulosus*. It is common in North Africa, parts of the Mediterranean, New Zealand, Australia, and America. It constitutes a significant public health challenge. The prevalence varies, with the Maghreb being a moderately affected area. Hydatid cysts can develop in almost any organ but frequently affect liver (50–77%), lungs (15–47%), spleen (0.5–8%), and kidneys (2–4%) [1]. Less commonly, they can affect the brain, muscles, heart, retroperitoneal organs, pancreas, and thyroid gland. The thyroid gland is rarely involved, even in regions where the disease is common. This disease can affect the thyroid gland either directly or through the blood circulation [2]. Our aim is to report a case of a thyroid hydatid cyst discovered incidentally during a pathological examination, along with a review of literature.

Case report

Patient information: A 62-year-old Moroccan woman with no significant medical history presented with an anterior neck mass and intermittent discomfort with solid food swallowing evolving for months. Clinical finding: Physical examination revealed a goiter. Cervical ultrasound classified the goiter as EU-TIRADS 3, showing cystic and tissue nodules, was isoechoic, and was well limited, with a peripheral capsule often clearly visible and in relation to the perinodular thyroid tissue and without lymphadenopathy. Cytology was not performed because the patient showed signs of compression. No other paraclinical examination was requested. Total thyroidectomy was planned. Diagnosis assessment: Macroscopic examination revealed a thyroid weighing 76 g.

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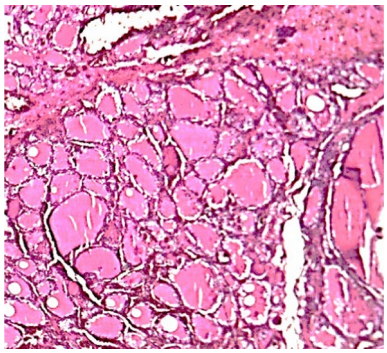

Fig. 1 Nodal follicular thyroid disease

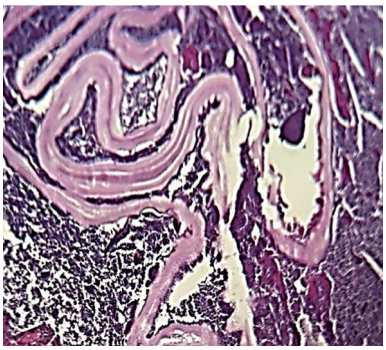

Fig. 3 Lamellar eosinophilic membrane. This membrane adhered to a thin fibrous layer containing an inflammatory infiltrate

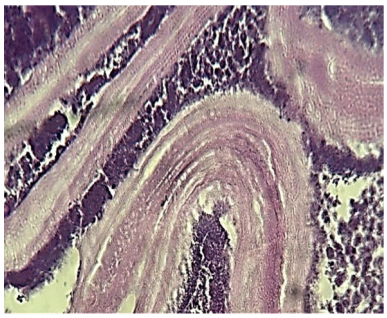

Fig. 2 Lamellar eosinophilic membrane with an inflammatory infiltrate

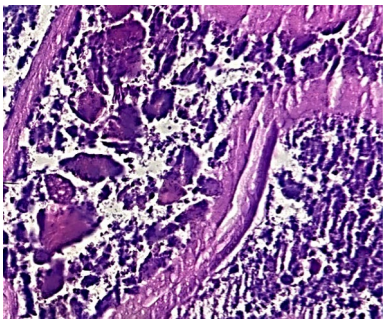

Fig. 4 Calcified formations resembling a scolex

The right lobe measured 5.8 cm × 4 cm × 2.3 cm, the left lobe measured 9.5 cm × 4.3 cm × 2.5 cm, and the isthmus measured 3.5 cm × 2 cm. The sectioning showed multiple well-defined nodules of colloid appearance, ranging from 0.3 to 4.3 cm in size, including a 2 cm right cystic nodule with a whitish content. Microscopic examination revealed nodular follicular thyroid disease (Fig. 1) with a lamellar, eosinophilic membrane. This membrane adhered to a thin fibrous layer containing an inflammatory infiltrate (Figs. 2 and 3) and rounded calcified formations resembling a scolex within the 2 cm right lobar cyst (Fig. 4). The pathological diagnosis was a 2 cm right lobar hydatid cyst. Therapeutic intervention: No additional treatment was performed after thyroidectomy. Follow-up and outcomes: The evolution was good with absence of hydatid cysts in other locations.

Discussion

Hydatid cyst disease (cystic echinococcosis) is a significant public health issue in many regions where sheep and cattle farming are prevalent [3, 4]. It remains an endemic in Morocco, affecting all organs, particularly the liver and lungs. After larvae emerge from ruptured eggs in the host's gastrointestinal system, they penetrate the intestinal wall and enter the portal system, reaching the hepatic sinusoids. Small larvae pass through the liver filtration system to reach the lungs. Those that bypass lung filtration can spread to other organs, including the spleen, kidneys, heart, bones, muscles, pancreas, retroperitoneum, breast, and thyroid gland. The thyroid gland is rarely affected, [5, 6] even in endemic countries such as Morocco [38]. A literature review identified the cases listed in (Table 1).

Thyroid hydatid cyst disease can be primary or secondary. Diagnosis relies on clinical and paraclinical analyses, such as ultrasound and cytology results. However, most cases are diagnosed post surgery, and anatomical pathology remains the gold standard for diagnosis, as confirmed in our case [7–9]. Similar to other hydatid cyst locations, thyroid hydatid cysts are primarily treated with surgical excision [10, 11]. The recommended surgical approach involves careful removal of the cyst(s) to avoid rupture. In cases of localized cysts or small cysts within a lobe, subtotal thyroidectomy may be considered [12]. To prevent anaphylactic reactions and cyst dissemination, it is advised to protect the surgical field with hypertonic saline-soaked sponges, minimize cyst manipulation, and administer preoperative medical treatment for diagnosed cysts. Antiparasitic medications such as mebendazole,

Table 1 Reported cases of thyroid hydatic cysts in literature

References	Location	Year	Number of case	Age	Sex	Diagnosis	Management
[11]	India	1946	1				
[36]	Turkey	1989	1	54	F		Total thyroidectomy
[36]	Iran	1999	2	16 27	F		Excision Excision
[30]		1995	3	16 24 60	F F F		Lobectomy Excision Excision
[25]	Italy	1999	1	54	F	Pathology	Surgery
[38]	Morocco	2004	1	21	M		Resection
[27]	France	2005	1	28	M	Pathology	Lobectomy and isthmectomy
[31]	India	2005	1	55	F		Excision
[35]	Turkey	2005	2	21 70	M F		Hemithyroidectomy Total thyroidectomy
[34]		2007	1	18	M		Lobectomy and isthmectomy
[26]	Bihar	2007	1	30	M		The patient refused the operation
[37]	Turkey	2010	1	48	M		Albendazole and aspiration
[32]	Morocco	2011	1	23	F		Subtotal thyroidectomy
[5]	Turkey	2013	1	23	M	Pathology	Subtotal thyroidectomy
[2]	Saoudi Arabia	2013	1	48	F	Pathology	Albendazole for 6 weeks, then thoracotomy and thyroidectomy
[2]	Turkey	2013	3	18 25 21	M F M	Indirect hemagglutinin + pathology Pathology Pathology	Albendazole and left lobectomy and isthmectomy Total thyroidectomy Total thyroidectomy
[3]	India	2014	1	30	F	Cytology	Albendazole for 28 days(conservative)
[13]	Turkey	2015	2	25 57	F F	Pathology Pathology	Total thyroidectomy Total thyroidectomy
[14]	Turkey	2015	1	32	F	Pathology	Total thyroidectomy
[28]	Romania	2015	1	26	F		Total thyroidectomy
[15]	Turkey	2016	1	44	F	Cytology	Hemithyroidectomy
[16]	Turkey	2016	1	65	F	Pathology	Total thyroidectomy
[17]	Morocco	2016	1	35	M	Pathology	Total thyroidectomy
[24]	Pakistan	2016	1	35	F	Pathology	Total thyroidectomy
[19]	Iran	2016	1	34	F	Pathology	Left lobectomy and isthmectomy
[18]	Turkey	2018	1	32	F	Immunology, histopathology	Total thyroidectomy
[20]	China	2019	1	54	M	Immunology, histopathology	Cyst removal
[29]	India	2019	1	14	F	Neck ultrasonography	Surgical excision with perioperative albendazole
[21]	Iraq	2021	1	48	F	Pathology	Left lobectomy
[22]	Syria	2021	1	26	F	Pathology	Total thyroidectomy
[23]	Iran	2023	2	35 50	F F	Cytology Cytology	Right thyroid lobectomy and isthmectomy Near-total thyroidectomy
[40]	South Africa		1	29	F		
[41]	Spain		1	66.5	M		
[42]	Austria		1	14	F		
[43]	Turkey		1	50	F		
[44]	Turkey		1	9	M		
[45]	Turkey		1	49	F		
[6]	Turkey		1	25	M		
[10]	Turkey		1	33	M		
[46]	Libyan		1	12	M		
[47]	Kurdistan		1	48	F		
[48]	Tunisia		1	8			

Table 1 (continued)

References	Location	Year	Number of case	Age	Sex	Diagnosis	Management
[49]	Spain		1	64	M		
[50]	India		1	12	M		
Our case	Morocco		1	62	F	Pathology	Total thyroidectomy

albendazole, and praziquantel cannot be used for a complete cure but can kill live parasites and prevent contamination during surgery [26]. Our patient underwent surgery alone.

Conclusion

Morocco is an endemic country, and physicians should be aware of the clinical and paraclinical presentation of hydatid disease among differential diagnosis of thyroid cystic pathology. A multidisciplinary approach involving radiologists, pathologists, and otorhinolaryngologist surgeons is essential for optimal patient management.

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Author contributions
IB, IA, and FB: drafted and corrected the manuscript. AE-N: clinical and surgical management of the patient.

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Data available

Declarations

Ethics approval and consent to participate
The patient authorizes the publication of this article.

Consent for publication
Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Competing interests
The authors declare no competing interests.

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References

1. Venara A, Mehinto D, Lermite É, Chabasse D, Hamy A, Arnaud JP. Localisations primitives inhabituelles du kyste hydatique. Presse Med. 2011;40(4):438–42. French.
2. Yilmaz M, Akbulut S, Sogutlu G, Arabaci E, Kayaalp C. Kyste hydatique de la glande thyroïde : à propos de trois cas. Surg aujourd'hui. 2013;43(8):937–41. French.
3. Dey AK, Mandal PK, Dutta A, Pramanik S, Maji S, Chakraborti N. Un cas de kyste hydatique de la glande thyroïde. Asiatique J Med Science. 2014;5:143–5. French.
4. Harmouch T, Benlemlih A, Hammas N, Bendahou M, Oudidi A, El Alami M, Amarti A. Présentation clinique atypique d'un kyste hydatique thymique primitif: à propos d'une observation Marocaine. Pan Afr Med J. 2012;11:44. French.
5. Oksuz S, Pektas E, Yavuz M, Aksungur N, Cayir Y, Akcay MN. Une cause inhabituelle d'enrouement : le kyste hydatique de la thyroïde. Trop Biomed. 2013;30(4):642–4. French.
6. Ozaydin I, Ozaydin C, Oksuz S, Yildirim M. Kyste échinocoque primaire de la thyroïde : à propos d'un cas. Acta Med Iran. 2011;49(4):262–4. French.
7. Jain S, Jamdade P, Muneshwar S, Ambulgekar V, Panzade S. Kyste hydatique de la thyroïde : une cause inhabituelle de stridor. Indian J Otolaryngol Chirurgie de la tête et du cou. 2005;57(1):80–1. French.
8. Gürses N, Baysal K, Gürses N. Kyste hydatique dans la thyroïde et les glandes salivaires sous-maxillaires chez un enfant. Z Kinderchir. 1986;41(06):362–3. French.
9. Moghimi M, Kamrava SK, Behzadi AH, Asghari AM, Jalessi M, Naraghi MM, Afshar EE. Kyste échinococcique primaire dans la glande thyroïde : à propos d'un cas en Iran. J Infect Dev Ctries. 2009;3(9):732–4. French.
10. Gökçe C, Patiroglu T, Akşehirli S, Durak AC, Keleştimur F. Kyste hydatique dans la glande thyroïde diagnostiqué par biopsie par aspiration à l'aiguille fine. Thyroïde. 2003;13(10):987–9. French.
11. Reddy DG, Thangavelu M. Kyste hydatique-thyroïde. Indien J Surg. 1946;8:49. French.
12. Sersar SI, Batouk AO. Echinococcosis, bilateral pulmonary complicated and non complicated with bilateral thyroid gland. Asian Cardiovasc Thorac Ann. 2013;21(4):485.
13. Akbulut S, Demircan F, Sogutcu N. Hydatid cyst disease of the thyroid gland: report of two cases. Int Surg. 2015;100(4):643–7.
14. Bartın MK, Yılmaz EM, Arslan H, Tekeli AE, Karataş S. A case of primary hydatid cyst in the thyroid gland. Ulus Cerrahi Derg. 2015;31(2):94–5.
15. Eken H, Isik A, Balci G, Firat D, Cimen O, Soyturk M. A rare case of isolated cystic hydatid of thyroid gland. Medicine (Baltimore). 2016;95(10): e2929.
16. Dissanayake PI, Chennuri R, Tarjan G. Fine-needle aspiration diagnosis of primary hydatid disease of the thyroid; first reported case in the USA. Diagn Cytopathol. 2016;44(4):334–7.
17. El Bousaadani A, El Mahdoufi R, Roubal M, Mahtar M. Thyroid hydatid cyst: an unusual site. Eur Ann Otorhinolaryngol Head Neck Dis. 2016;133(1):75–6.
18. Aydin S, Tek C, DilekGokharman F, Fatihoglu E, Nercis KP. Isolated hydatid cyst of thyroid: an unusual case. Ultrasound. 2018;26(4):251–3.
19. Eshraghi M, Shahmoradi L, Ghoddoosi M, Sadati SJA. Diagnosis of primary hydatid cyst of thyroid gland: a case report. Biomol Concepts. 2019;10(1):106–10.
20. Jiang T, Guo Q, Ran B, Zhang R, Aji T, Shao Y. Hydatid cyst of the thyroid gland with tracheal fistula: a case report and review of the literature. Exp Ther Med. 2019;18(1):573–9.
21. Salih AM, Abdulla ZY, Mohammed DA, Jwamer VI, Ali PG, Hamasaeed AG, *et al*. Hydatid cyst of thyroid gland, a rare case report with a literature review. Int J Surg Case Rep. 2020;67:267–70.
22. Ghanem M, Al Kazzaz MZ, Soliman A. Hydatid cyst in the neck, an unusual localization of the disease: a case report. Int J Surg Case Rep. 2021;85: 106274.
23 Safarpour MM, Aminnia S, Dehghanian A, Borazjani R, Abbassi HR, Boland Parvaz S, Paydar S. Primary hydatid cyst of the thyroid glands: two case reports and a review of the literature. J Med Case Rep. 2023;17:417.
24. Sultana N, Shah W, Ullah S, Ali M, Basharat S. Primary hydatid cyst of the thyroid gland: a case report. Ann Clin Pathol. 2016;4(3):1070.

25. Cossu ML, Palermo M, Coppola M, Fais E, Ruggiu M, Tanda F, Cossu Rocca P, Noya G. A case of primary hydatidosis of the thyroid gland. Panminerva Med. 1999;41(3):269–72.
26. Qadir AA, Abdullah IY, Ali MB, Mohammed RO, Dhair HM, Saeed YA, Muhialdeen AS, Kareem HO, Qaradakhy AJ, Ahmed SM, Ahmed SF. Presentation and management of thyroid hydatid cyst: a comprehensive systematic review of the literature. Barw Med J. 2024;2(1):56–62.
27. Lada P, Lermite E, Hennekinne-Mucci S, Etienne S, Pessaux P, Arnaud JP. Arnaud JP Kyste hydatique primaire de la thyroïde, localization inhabituelle de l'hidatidose. Presse Med. 2005;34(8):580. French.
28. Danilă R, Ionescu L, Livadariu R, Vulpoi C, Ciobanu D. Ungureanu MC Kyste hydatique primaire de la thyroïde. Acta Endocrinol (Buc). 2015;11(4):529. French.
29. Hoysal DR, Kulkarni S. Maladie hydatique primaire isolée de la thyroïde se présentant comme un nodule solitaire : une maladie rare. Ind J Case Rep. 2019;5(1):79–81. French.
30. Bastanhagh MH, Fatourechi V, Rajabian R. Kyste hydatique se présentant comme un nodule thyroïdien : à propos de trois cas. Acta Med L'Iran. 1995;33(12):31–4. French.
31. Jain SK, Jamdade PT, Muneshwar SS, Ambulgekar VK, Panzade SM. Kyste hydatique de la thyroïde: une cause inhabituelle de stridor. Indien J Otolaryngol Chirurgie de la tête et du cou. 2005;57(1):80–1. French.
32. Azendour I, Boulaich M, Ayoubi A, Oujilal A, Essakalli L, Kzadri M. Kyste hydatique primaire de la glande thyroïde. Int J Otolaryngol. 2011;201(1):1–3. French.
33. Rajabian R, Tavassoli M, Ggiassi T. Shslib IM Kyste hydatique de la thyroïde. Méd J Répub Islam Iran (MJIRI). 1991;5(3):165–6. French.
34. Söğütlü G, Çıkım AS, Pişkin T, Dirican A, Mecit E, Kahraman L, Olmez A, Kırımlıoğlu V. Kyste hydatique dans la glande thyroïde : à propos d'un cas. Inönü Üniv Tip Fak Derg. 2007;14(3):185–7. French.
35. Erbil Y, Barbaros U, Baspinar I, Deveci U, Kapran Y, Bozbora A, Aral F, Özarmagan S. Kyste hydatique de la glande thyroïde : deux rapports de cas. Infect Dis Clin Entraînez-vous. 2005;13(6):318–20. French.
36. Özdemir A, Korkmaz A, Darcin H, Aras N. Kyste hydatique primaire de la glande thyroïde et autres localisations d'organes de la maladie. Turc Kline J Case Rep. 1989;7(3):195–9. French.
37. Avcu S, Ünal Ö, Kotan Ç, Öztürk M, Özen Ö. Atteinte sous-maxillaire et thyroïdienne des kystes hydatiques: une association très rare avec un traitement percutané. Diagn Interv Radiol. 2010;16(3):251. French.
38 Amahzoune M, El Malki HO, Benkhraba K, Mohcine R, Ifrine L, Belkouchi A, Balafrej S. Kyste hydatique récidivant de la thyroïde : à propos d'un cas. Ann Endocrinol (Paris). 2004;65(5):469–71. French.
39. Woolsey ID, Miller AL. Echinococcus granulosus sensu lato and *Echinococcus multilocularis*: a review. Res Vet Sci. 2021;135:517–22.
40. Sathekge MM, Muthuphei MN, Mandiwana I. Primary hydatidosis of the thyroid gland: a case report. S Afr J Radiol. 2018;3(3):a1572. https://doi.org/10.4102/sajr.v3i3.1572.
41. Valverde C, Lam J, Ibáñez P, Cruzat C. Neck hydatidosis. Thyroid and submaxillary gland involvement in 2 cases. Case Reports. Rev Med Chil. 1999;127(9):1108–11. Spanish.
42. Rauhofer U, Prager G, Hörmann M, Auer H, Kaserer K, Niederle B. Cystic echinococcosis of the thyroid gland in children and adults. Thyroid. 2003;13(5):497–502. https://doi.org/10.1089/105072503322021179.
43. Zulfikaroglu B, Ozalp N, Keskek M, Koc M. Primary echinococcal cyst of the thyroid: report of a case. Surg Today. 2008;38:833–5. https://doi.org/10.1007/s00595-007-3796-x.
44. Erkılıç S, Özsaraç C, Koçer NE, Bayazıt YA. Hydatid cyst of the thyroid gland in a child. Int J Pediatr Otorhinolaryngol. 2004;68(3):369–71. https://doi.org/10.1016/j.ijporl.2003.11.002.
45. Çapoğlu İ, Ünüvar NE, Erdogan F, Yilmaz O, Caydere M. A hydatid cyst of the thyroid gland. J Int Med Res. 2002;30(2):206–9. https://doi.org/10.1177/147323000203000216.
46. Ghawil M, Ben Omar N, Shatani A, Belhaj S, Doggah M. Primary hydatid cyst of the thyroid gland in a Libyan child. In: Hormone research in paediatrics (Vol. 96). Basel, Switzerland: Karger; 2023. p. 437.
47. Salih AM, Abdulla ZY, Mohammed DA, Jwamer VI, Ali PG, Hamasaeed AG, Shkur HH, Omer JK, Salih RQ, Mohammed SH, Muhialdeen AS, Mohammed K, Othman S, Kakamad FH. Hydatid cyst of thyroid gland, a rare case report with a literature review. Int J Surg Case Rep. 2020:67:267–70. https://doi.org/10.1016/j.ijscr.2020.02.019.
48. Bouomrani S, Souissi O, Regaieg N, BenHamed M. Primary hydatid cyst of the thyroid gland revealed by primary hypothyroidism. J Infect Dis Travel Med. 2(3).
49. Pérez PJA, Felmer EO, Carrasco EC, Gabrielli NM, Torrijos CC, Bastías NJA. Thyroid hydatid cyst: report of one case. Rev Med Chil. 2008;136(7):896–9. Spanish.
50. Chandra T, Prakash A. A case of hydatid cyst of thyroid. Br J Surg. 1965;52(3):235–7. https://doi.org/10.1002/bjs.1800520324.

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