

Available online at www.sciencerepository.org

Science Repository



Case Report

Incidental Mediastinal Thyroid Cancer

Keith Mortman^{1*}, Nicole Law¹ and Taraneh Hashemi-Zonouz²

¹Division of Thoracic Surgery, Department of Surgery, The George Washington University Hospital, Washington, D.C.

²Department of Pathology, The George Washington University Hospital, Washington, D.C.

ARTICLE INFO

Article history:

Received: 26 August, 2019

Accepted: 10 September, 2019

Published: 17 September, 2019

Keywords:

Mediastinal mass

thyroid cancer

thoracoscopy

ABSTRACT

Cystic mediastinal masses are most commonly benign congenital lesions. Rarely, a cystic mediastinal mass will prove to be malignant. The patient, a 50-year-old woman who initially presented with uveitis, was incidentally found to have a right paratracheal opacity on chest X-ray (CXR). Chest computed tomography (CT) demonstrated a 5cm right paratracheal hypodense cystic mass. The patient underwent a right robotic-assisted thoracoscopic resection of the mediastinal mass. Final pathology revealed a 4.5cm mass consistent with metastatic papillary thyroid carcinoma (similar histology in 2 excised lymph nodes). The patient subsequently had a total thyroidectomy with central and right neck dissections.

© 2019 Keith D. Mortman. Hosting by Science Repository.

Introduction

Cystic masses in the mediastinum are usually benign congenital lesions that represent as much as 30% of all mediastinal masses [1-3]. The differential diagnosis of mediastinal cysts includes esophageal duplication cysts, bronchogenic cysts, thymic cysts, pericardial cysts, enteric cysts, lymphangiomas, and even degenerated intrathoracic tumors [1-5]. Many patients will be asymptomatic from smaller mediastinal masses. As they grow, mediastinal masses typically cause local compressive symptoms such as dysphagia, dyspnea, or stridor. Here we present a case of an asymptomatic mediastinal cyst that was found to be metastatic papillary thyroid cancer (PTC).

Case Report

A 50-year-old woman presented with blurry vision and was diagnosed with uveitis. Her workup included a CXR which showed a right paratracheal opacity. Noncontrast-enhanced CT examination revealed a 5.0 x 4.0 x 4.9 cm right paratracheal hypodense mass that was not contiguous with the thyroid. The mass, which occupied the middle and posterior mediastinal compartments, began superiorly at the level of the thoracic inlet and displaced the esophagus to the left. Within the mass, areas of hyperdense debris, enhancing mural nodularity, and inferomedial curvilinear calcification were noted (Figure 1). The patient

denied dyspnea, wheezing, chest pain, cough, hemoptysis, dysphagia, weight loss, or other symptoms referable to the mass.

Surgical resection was recommended. A right robotic-assisted thoracoscopic resection of the mediastinal mass was performed. Level 2R and level 3 lymph nodes were removed. The patient was discharged home on the first postoperative day without complications. The mediastinal cystic mass measured 4.5 x 3.5 x 1 cm. Histology confirmed metastatic PTC that was positive for ck7, TTF-1, thyroglobulin, and p63 (Figure 2). Level 2R and 3 lymph nodes showed similar findings. Approximately 6 weeks later, the patient underwent total thyroidectomy with central and right neck dissections. Pathology revealed multifocal PTC with metastases to right lateral level 2, 3, 4, and 5 lymph nodes as well as lymph nodes in the central compartment. There was extrathyroidal extension but no angioinvasion. The patient received postoperative radioactive iodine ablation, and she was started on thyroid hormone replacement therapy. The patient is doing well nine months post-operatively.

Discussion

The differential diagnosis for a cystic mediastinal mass depends on the compartment of the mass, patient presentation, and characteristics on imaging. Although PTC is the most common thyroid malignancy, its

*Correspondence to: Keith D. Mortman, Division of Thoracic Surgery, Department of Surgery, The George Washington University Hospital, Washington, D.C; E-mail: kmortman@mfa.gwu.edu

pathologic course includes early spread to local lymph nodes and rarely presents as a cystic mediastinal mass [6, 7]. Metastatic masses are usually solid, but up to 40% of affected nodes have the ability to centrally necrose and cavitate, forming a cystic lesion as seen in our case [7]. Previous case reports have documented the rare occurrence of PTC presenting as a symptomatic cystic mass in the mediastinum [7-9]. In our case, the patient presented with an asymptomatic mass found incidentally on CXR, consistent with a benign mediastinal cyst. Further workup yielded a diagnosis of PTC, lacking clinically evident thyroid or lymph node enlargement. Without a palpable lymph node, thyroid mass, or systemic manifestations of compression, a metastatic mass disguising itself as a cystic mediastinal lesion could easily lead to a delay in diagnosis. If not for the conscientious workup for uveitis, this patient's thyroid carcinoma might have been missed, increasing the likelihood of overlooking anaplastic transformation [10].



Figure 1: Axial CT scan demonstrating 5.0 x 4.0 x 4.9cm right paratracheal cystic mass.

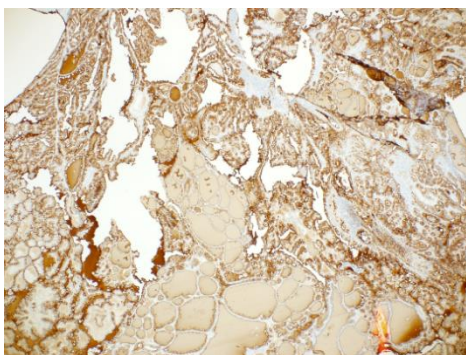


Figure 2: Thyroglobulin stain confirming thyroid origin (5x).

Risk factors for PTC include ionizing radiation before the age of 20, Hashimoto's thyroiditis, and familial adenomatous polyposis. PTC generally has a favorable prognosis with 98% 10-year survival. Favorable characteristics that portend a better outcome include younger age, female gender, and smaller tumor size. This case report highlights the value of accurate diagnostic imaging relative to mediastinal cysts. Histologic examination of an excised gross specimen is currently the standard for providing a specific diagnosis. However, diagnostic methods outside the standard should also be improved. Such optimization would improve decision-making regarding the evaluation and treatment of mediastinal masses. Currently, there is ongoing research on the accuracy of multidetector CT distinguishing between benign and malignant mediastinal masses [11]. In addition, new classifications of mediastinal compartments are being created to improve

diagnostic accuracy [12]. Additional similar endeavors could help reduce the likelihood of falsely assuming the benignity of a mediastinal mass.

Conclusion

In this case, the asymptomatic presentation of PTC presenting as a cystic mediastinal mass highlights the importance of proper evaluation of these masses. Although most cystic mediastinal masses are benign, these lesions should not be overlooked. This case emphasizes the importance of optimizing diagnostic techniques outside histological examination as well as the importance of aggressive but appropriate surgical intervention. In this manner, one could reduce the chances of missing an atypical presentation of carcinoma.

REFERENCES

1. Oldham HN (1971) Mediastinal tumors and cysts. *Ann Thorac Surg* 11: 246-275. [[Crossref](#)]
2. Jeung MY, Gasser B, Gangi A, Bogorin A, Charneau D et al. (2002) Imaging of cystic masses of the mediastinum. *Radiographics* 22: 79-93. [[Crossref](#)]
3. Takeda S, Miyoshi S, Minami M, Ohta M, Masaoka A et al. Clinical spectrum of mediastinal cysts. *Chest* 124: 125-132. [[Crossref](#)]
4. Aydin Y, Araz O, Ozgokce M, Ince I, Alper F et al. (2015) Video-assisted thoracoscopic surgery of mediastinal cysts: Report of 13 cases. *Indian J Surg* 77: 236-9. [[Crossref](#)]
5. Martins C, Sousa P, Araújo T, Castro-Poças F, Pedroto I (2017) Mediastinal mass in a patient with colorectal cancer: A diagnostic challenge. *GE Port J Gastroenterol* 24: 193-197. [[Crossref](#)]
6. Wunderbaldinger P, Harisinghani MG, Hahn PF, Daniels GH, Turetschek K et al. (2002) Cystic lymph node metastases in papillary thyroid carcinoma. *Am J Roentgenol* 178: 693-697. [[Crossref](#)]
7. Bhamidipati CM, Mukhopadhyay S, Feliu C, Patton B, Dexter E (2009) Cystic metastases of papillary thyroid carcinoma mimicking a primary mediastinal cyst. *J Thorac Oncol* 4: 105-106. [[Crossref](#)]
8. Suemitsu R, Takeo S, Hamatake M, Yamamoto T, Furuya K et al. (2010) Thyroid cancer with a cystic mediastinal tumor invading the right main bronchus. *Ann Thorac Surg* 89: 296-298. [[Crossref](#)]
9. Okumura M, Yasumitsu T, Kotake Y, Ohta M, Ohshima S et al. (1990) Three cases of occult thyroid cancer with mediastinal lymph node metastasis manifesting as a mediastinal cyst. *Nihon Kyōbu Geka Gakkai Zasshi* 38: 2307-2313. [[Crossref](#)]
10. Kim H, Park YW, Oh YH, Sim J, Ro JY et al. (2017) Anaplastic transformation of papillary thyroid carcinoma only seen in pleural metastasis: A case report with review of the literature. *Head Neck Pathol* 11: 162-167. [[Crossref](#)]
11. Pandey S, Jaipal U, Mannan N, Yadav R (2018) Diagnostic accuracy of multidetector computed tomography scan in mediastinal masses assuming histopathological findings as gold standard. *Pol J Radiol* 83: e234-e242. [[Crossref](#)]
12. Carter BW, Benveniste MF, Madan R, Godoy MC, de Groot PM et al. (2017) ITMIG classification of mediastinal compartments and multidisciplinary approach to mediastinal masses. *Radiographics* 37: 413-436 [[Crossref](#)]