SciDoc Publishers
Infer, Interpret & Inspire Science

International Journal of Surgery and Research (IJSR)
ISSN 2379-156X

Radical Resection Of A Thymic Tumor: A Case Report

Case Report

Christopher M Bobba MD, PhD[1*], James Wymer MD[2], Olusola Oduntan MD[1], Mindaugas Rackauskas MD[1]

[1] Division of Thoracic and Cardiovascular Surgery, The University of Florida, USA.
[2] Division of Neuromuscular Neurology, The University of Florida, USA.

Abstract

Background: Thymic carcinoma can demonstrate rapid local growth and invade surrounding mediastinal structures. Surgery remains the mainstay of therapy, provided the tumor can be completely resected.
Case Presentation: A 71-year-old female with worsening myasthenia gravis was found to have a large thymic tumor. Chest CT scan indicated possible vascular and pleural invasion. We performed surgery combining vascular reconstruction of the innominate vein, pericardial patch replacement, and bilateral upper lobe wedge resections to achieve complete local excision of this tumor.
Conclusion: Resection of thymic carcinoma can require a wide breadth of surgical technique, including vascular reconstruction, and meticulous mediastinal and pleural dissection.

Introduction

Thymic cancer is a rare cancer involving the thymus in the anterior mediastinum, andsurvival is dependent upon histologic subtype.Thymic carcinoma is the most aggressive, and readily invades adjacent structures.[1] They can also present with paraneoplastic myasthenia gravis. Surgical resection remains the mainstay of therapy.Here we report on a patient with progressing myasthenia gravis who had athymic tumor requiring resection and graft replacement of innominate vein, pericardial patch reconstruction and bilateral upper lobe wedge resection.

Case Report

A 71-year-old female with arthritis and spinal stenosis presented to a neurologist with new onset proptosis and anxiety and was started on pyridostigmine. A chest computerized tomographic (CT) scan was scheduled for several weeks later. In the interim, she developed progressive dysphagia, shortness of breath, and worsening proptosis. She was admitted to the hospital and treated with intravenous pyridostigmine. Chest CT scan obtained while inpatient demonstrated a large mediastinal soft tissue mass with internal calcifications (Figure 1A) and possible vasculature invasion (Figure 1B). The patient initially declined medical or surgical treatment. She presented to our thoracic surgery clinic one month later with worsening myasthenic symptomsand elected to proceed with surgery at that time. Prior to surgery she underwentplasma exchange.

A median sternotomy was performed. The mass was apparent in the anterior mediastinum, with adherence to the right and left upper lobes. Bilateral upper lobe wedge resectionswere performed in contiguity with the tumor. Dissection identified invasion into the left innominate vein and pericardium. Systemic heparin was administered, and vascular control of the vein was achieved. 5.5cm of the left innominate vein was resected, extending to the junction with the superior vena cava. An 8mm vascular graft was interposed for reconstruction. The pericardium was resected to the margin of the phrenic nerves including removal of adventitia from ascending aorta and aortic arch. Pericardium was reconstructed with a Gore-tex patch (Figure 1C). Pathology identified the tumor as thymic carcinoma (Figure 1D). Surgical margins of innominate vein, superior vena cava, and lung sections were negative. Eight lymph nodes were negative.

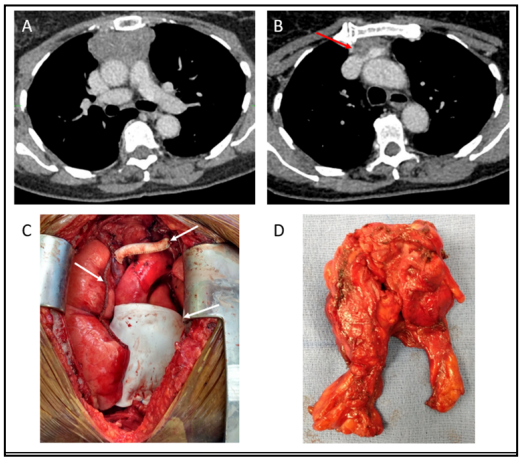
She recovered well. Three chest tubes were placed at the conclusion of the case, and were removed sequentially. The patient had near complete resolution of myasthenic symptoms and was reinitiated on pyridostigmine. She was discharged on post-operative day six in excellent condition. At her 9-month follow-up, she con-

***Corresponding Author**:
Christopher M Bobba,
Division of Thoracic and Cardiovascular Surgery, The University of Florida, USA.
E-mail: christopher.bobba@surgery.ufl.edu

Received: May 02, 2022
Accepted: May 23, 2022
Published: May 25, 2022

Citation: Christopher M Bobba MD, PhD, James Wymer MD, Olusola Oduntan MD, Mindaugas Rackauskas MD. Radical Resection Of A Thymic Tumor: A Case Report. *Int J Surg Res.* 2022;8(4):165-166.

Figure 1. A. CT scan revealing large anterior mediastinal mass. B. CT scan revealing mass compression and invasion of innominate vein (red arrow). C.Anterior mediastinum following excision. White arrows indicate innominate vein graft, pericardial patch reconstruction, and staple margin of right upper lobe wedge resection. D. Tumor following excision, measuring approximately 13cm x 8.5cm x 3.5 cm.



tinued to do very well. She had completeresolution of myasthenic symptoms and was tapered off pyridostigmine. There were no signs of recurrent disease on CT scan and she had completed a 3-month course of dual antiplatelet therapy.

Discussion

Our patient had Masaoka Stage IIIa, WHO Type C, and AJCC Stage IIIA (T3N0M0) thymic carcinoma.Following National Comprehensive Cancer Network (NCCN) guidelines for an R1 resection (microscopic evidence of residual tumor in the pericardium), we recommended adjuvant radiation therapy ± chemotherapy, and medical oncologist consultation. Post-operatively our patient had improved myasthenic symptoms and was uninterested in any additional therapy, despite extensive counseling about recurrence.

The standard of care for locally advanced non-metastatic thymic tumors remains surgical resection whenever feasible ± neoadjuvant chemoradiation. The complexity of the case is largely determinant on invasion of surrounding structures and tumor size. Individual reports have demonstrated successful resection of thymic carcinomas invading local vascular [2] or pleural invasion.[3] Invasion of the superior vena cava or innominate vein may necessitate graft replacement. Invasion of other great vessels may also occur. These cases require meticulous dissection of the tumor and the awareness that graft replacement may be necessary. In addition to vascular invasion, tumor may also spread into the pericardium, pleura and lungs. The surgeon must be aware of these possibilities and the need for possible pericardial reconstruction or lung resection. In this case, tumor invasion into the right lung, innominate vein and pericardium required use of all these eventualities. Following vascular graft placement,we opted for three months of anticoagulation therapy to ensure adequate time for graft epithelialization, though little data exist to guide antiplatelet therapy in venous vascular grafting. The patient completed this course of therapy without consequence. Given the central anatomic location of the thymus within the mediastinum, thymic tumor resections are often challenging and unique cases. This report highlights the complexity and wide breadth of surgical skill necessary for the surgical resection of advanced thymic tumors.

References

[1]. Shintani Y, Funaki S, Ose N, Kanou T, Fukui E, Minami M. Surgical approach for thymic epithelial tumor. J Thorac Dis. 2019 Aug;11(8):E127-E130.

[2]. Momozane T, Inoue M, Shintani Y, Funaki S, Kawamura T, Minami M, et al. Trimodality Therapy for an Advanced Thymic Carcinoma With Both Aorta and Vena Cava Invasion. Ann Thorac Surg. 2016 Aug;102(2):e139-41. Pubmed PMID: 27449450.

[3]. Shintani Y, Kanzaki R, Kusumoto H, Nakagiri T, Inoue M, Okumura M. Pleuropneumonectomy for a large thymoma with multiple pleural dissemination using median sternotomy followed by posterolateral thoracotomy. Surg Case Rep. 2015;1(1):75.Pubmed PMID: 26366371.