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Resection of a giant thymoma and coronary artery bypass graft surgery: a case report

Dev timoma rezeksiyonu ve koroner arter baypas greft cerrahisi: Olgu sunumu

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Thymomas are defined as anterior mediastinal neoplasms, characterized by epithelial cells and lymphocytes. Although they are often encapsulated and well differentiated tumors, they can show local invasion, pleural invasion or extrathoracic metastasis. In this article, we report a rare case who was admitted with the complaint of dyspnea with a giant thymoma in the anterior mediastine and coronary artery disease and underwent thymectomy and coronary artery bypass graft surgery.

Key words: Coronary artery bypass graft surgery; giant thymoma; thymectomy.

Timomalar, epitel hücreleri ve lenfositler ile karakterize ön mediastinal neoplazmlar olarak tanımlanır. Genellikle kapsüllü ve iyi diferansiye tümörler olmalarına karşın, lokal yayılım, plevral yayılım ve toraks dışı metastazlar da görülebilmektedir. Bu yazıda, nefes darlığı yakınması ile başvuran ön mediastende dev timoma ve koroner arter hastalığı olan ve timektomi ve koroner arter baypas greft cerrahisi yapılan nadir bir olgu sunuldu.

Anahtar sözcükler: Koroner arter baypas greft cerrahisi; dev timoma; timektomi.

Thymomas are generally encapsulated and well differentiated tumors, but local invasion, pleural invasion, or extrathoracic metastases can be seen in some cases.[1] There is no consensus regarding the pathophysiology and treatment of thymomas, but it is not uncommon to find specific autoimmune diseases, especially myasthenia gravis (MG), with these tumors. The incidence of thymoma in patients with MG is known to range between 9 and 28%.[2] In addition, this type of tumor, which is the most common neoplasm of the anterior mediastinum, especially in adults, accounts for 20-25% of all mediastinal tumors and 50% of anterior mediastinal masses. Thymomas are routinely asymptomatic for prolonged periods of time,[3] and although some authors have claimed that the prognosis for these tumors is worse when accompanied by the presence of MG, others have indicated that MG does not negatively affect the prognosis.[4,5] Herein, we present a case of a giant thymoma accompanied by coronary artery disease and undergoing thymectomy combined with coronary artery bypass surgery.

CASE REPORT

A 78-year-old male was admitted to a clinic complaining of dyspnea. On his chest X-ray, an occupying lesion was detected in the left hemithorax and mediastinum. Thoracic computed tomography (CT) revealed a giant solid mass measuring 12 cm in length originating from the left mediastinum at the aortic level and extending through the long axis towards the cardiac apex level. Furthermore, it was filling the left anterior hemithorax and decreasing the lung volume. In addition, it had hypodense areas at its center, and the borders of the mass could not be differentiated from the adjacent vascular structures, A preliminary diagnosis indicated that it was a thymoma, magnetic resonance imaging (MRI) revealed a solid mass measuring 180x155x120 mm located in the anterior mediastinum

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that was isointense on the T_1A and T_2A sections with hyperintense areas at the center. The patient's past medical history included smoking 30 packs of cigarettes per year and past surgery for benign prostate hypertrophy (15 years earlier) and an inguinal hernia (5 years earlier). His physical examination was normal except for a decrease in respiratory sounds on the left hemithorax. A mediastinal biopsy was then performed under the guidance of CT which revealed a type AB thymoma (also known as mixed thymoma) on one section and a type B thymoma on the other. Because of the patient's advanced age and intermittent typical chest pain, he underwent coronary angiography which showed 70% obstruction in the proximal left anterior descending (LAD) artery, but the results were normal for the right coronary artery (RCA) and left circumflex (LCX) arteries. His other laboratory tests were also normal. A thymectomy and coronary artery bypass grafting (CABG) were then planned.

Under general anesthesia, following a median sternotomy and cannulation of the ascending aorta, the mass, which completely filled the mediastinum and extended towards the left hemithorax, was totally excised. After dual-stage venous cannulation, an aorta-to-LAD saphenous bypass was performed using a cross-clamp. A pathological examination of the totally excised giant mass showed that it weighed 1,605 g, and measured 20.5x15x12 cm. Furthermore, a microscopic examination revealed a mass of thick, capsulated tumoral tissue composed of benign epithelial cells and non-neoplastic lymphocytes containing vascular structures, microcystic formations, large areas of sclerosis, and Hassall's corpuscles that was identified as a type B1 thymoma. After an uneventful postoperative follow-up, the patient was discharged on the postoperative eighth day.

DISCUSSION

Thymomas are defined as anterior mediastinal tumors that can be divided into three main groups according to their histological appearance and behavior. They are categorized as benign in the absence of macroscopic and microscopic invasion but as malignant in the presence of capsular invasion. The third category, thymic carcinoma, includes tumors that have undifferentiated, malignant epithelial features.[1]

The incidence rate of MG in thymomas has varied in different series. Wilkins et al.[2] reported a high rate of death in patients with a thymoma because of the frequent association between MG and myasthenic crises. Thymomas are generally considered to have an indolent and slow growth pattern, but they should still be regarded as malignant because of the potential for local invasion and systemic metastases, which is less common.[6]

The prognosis for patients with thymomas is definitely related to the type of resection, and many studies have been conducted regarding the most appropriate surgical approach. More recently, the results of maximal and complete thymectomies have been discussed in the literature, with some authors claiming that tumor recurrence can be prevented by maximal thymectomies.[7] However, Maggi et al.,[4] Shamji et al.,[5] and Nakahara et al.[8] all reported that there was no statistically significant difference between the results of the two types of thymectomies. On the other hand, some studies have shown that MG is associated with a better prognosis because myasthenic symptoms in these patients lead to an earlier diagnosis of thymomas.[4,5,8,9] With regard to the histological types, malignant thymomas have predominantly high mortality rates along with low survival rates. The study by Maggi et al.[4] included 241 cases in which the histological type had no effect on the prognosis, except for those cases involving malignant thymomas. However, there are other studies which indicate that epithelial-type thymomas have low survival rates.[8,9] This could be explained by the fact that these tumors are not resectable and that the presence of other autoimmune diseases, although rare, negatively affects the prognosis. However, chemotherapy and/or radiotherapy after surgical resection raises the survival rate.[4,5,8]

Although some reports have indicated that subtotal resection or radiotherapy alone may be highly curative, the most common accepted surgical approach currently being used is a complete thymectomy.[7] Liman et al.[10] reported in their study comprised of 36 cases that total resection is the best choice for surgical therapy involving thymomas. The high survival rates for encapsulated thymomas together with the higher survival rates in patients who undergo complete resection versus incomplete resection indicate that the most important factors that affect survival are tumor grade and resection type. We performed a complete resection on our patient, and to our knowledge, there have been no other reported cases of an elective, planned combined surgical procedure for thymoma and coronary artery disease (CAD) in the literature.[11] Similarly, Abdullah ve Loon[12] reported that they performed the combined surgical approach for a thymoma that was found incidentally during CABG. The possibility of finding coincidental mediastinal tumors during CABG increases with age. In these cases, it is crucial that

a complete resection be performed to improve the chance of survival. We believe that this is the first reported case in the literature in which a thymoma was incidentally detected because of a giant mass found via chest X-ray. The patient then electively chose to undergo combined surgery with a thymectomy and CABG.

Declaration of conflicting interests

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