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Original research - Orijinal araştırma

Management and prognosis in thymoma: experience from a single center

Timomada tedavi ve prognoz: tek merkezin deneyimleri

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Abstract
Aim. This report retrospectively documents the management of in 11 patients with thymoma at Ankara Numune Education and Research Hospital Radiation Oncology Department from 1999 to 2007. **Method.** A total of eleven patients that admitted with the diagnosis of thymoma to own clinic between November 1999 and April 2007 were included. The medical files of the patients were retrospectively reviewed. Gender, age, subtype of thymoma, surgical procedures performed and radiotherapy doses were taken into consideration. **Result.** There were one patient with Type B1 thymoma, one with type B3 thymoma and nine patients with type B2. Eight patients underwent surgery, while three had biopsy alone. Overall survival rate was 71% and mean survival duration was 56 months. There was no statistically significant differences in survival rate with respect to sex, mean survival rate was 73% in males and 60% in females. Although the survival rate was higher in patients that underwent surgery than those that underwent biopsy alone, the difference was not statistically significant (75% vs 66%, respectively). **Conclusion.** Survival rate was increased in patients with thymoma by radiotherapy and our results are similar with literatures.
Key words: Thymoma, timus, tumor, resection

Özet
Amaç. Ankara Numune Eğitim ve Araştırma Hastanesi Radyasyon Onkolojisi Kliniği'nde 1999-2007 yılları arasında tedavi gören 11 timoma olgusu retrospektif olarak değerlendirildi. **Yöntem.** Kasım 1999 ile Nisan 2007 tarihleri arasında kliniğimize timoma tanısı ile başvuran 11 hasta çalışmaya dahil edildi. Hastaların dosyaları retrospektif olarak incelendi. Cinsiyet, yaş, timoma alt tipi, cerrahi tipi ve tedavi dozunda değerlendirmeye alındı. **Bulgular.** Hastalardan 1'i tip B1 timoma, 1'i tip B3 timoma, geri kalan 9 hasta ise Tip B2 timomadır. Hastalardan 8'ine cerrahi tedavi, 3'üne sadece biyopsi uygulanmıştır. Genel sağkalım %71 olarak bulundu. Ortalama sağkalım 56 aydır. Cinsiyete göre istatistiksel olarak anlam saptanmadı; erkek cinsiyette sağkalım %73, kadın cinsiyette %60'dır. Operasyon açısından sağkalım; biopsi uygulananlarda %66, opere olanlarda %75 olarak bulundu. **Sonuç.** Timoma tanılı hastalarda sağkalım radyoterapi ile yükselmiştir ve bulgularımız literatür ile uyumludur.
Anahtar sözcükler: Timoma, timus, tümör, rezeksiyon

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Introduction

Thymomas account for 1% of all adult neoplasms and 20% of the mediastinal neoplasms. They are the second most common neoplasm of the mediastinum after the neurogenic tumors [1, 2]. Although thymomas occur usually at the anterosuperior mediastinum, they are also diagnosed in other parts of the mediastinum [1, 3, 4]. There is no gender discrimination. They occur mostly in adults, especially in 3rd and 5th decades [2, 5]. Surgery is often the first treatment option. After extensive resection, postoperative radiotherapy should be applied [1, 4]. Because thymoma is a rare tumor and the trials include lower sample size, radiotherapy could not be standardized. In thıs study, we report the results of 11 patients with thymoma followed up in our center.

Material and Method

Between November 1999 and April 2007, 11 patients that admitted to our clinic with diagnosis of thymoma were included in the study. Medical files of the patients were retrospectively reviewed. Gender, age, subtype of thymoma, surgical procedures performed and the radiotherapy doses were taken into consideration and the relationship between type of operation and the survival rate was evaluated.

Results

Of 11 patients, 5 (45%) were female and 6 (55%) were male. The median age of the patients was 53 (range 20-74). The patient characteristics are shown in table 1. One patient (9%) had type B1 thymoma (lymphocyte-rich thymoma, lymphocytic thymoma, predominantly cortical thymoma, organoid thymoma), one (9%) had type B3 thymoma (epithelial thymoma, atypical thymoma squamoid thymoma, well-differentiated thymic carcinoma), and the remaining nine patients (82%) had type B2 thymoma (cortical thymoma, polygonal cell thymoma), respectively. While three patients (27%) were diagnosed by biopsy, eight patients (73%) were diagnosed after total mass excision. The median follow-up duration was 15 months (range: 1-77 months). All patients was treated with 200 cGy/ fraction daily, a total of 40 Gy-66 Gy (median 50 Gy) irradiation with cobalt-60 teletherapy unit.

The 5-year overall survival rate was 71%. The mean survival was 56 months. The 5-year survival rate was similar between the males and the females (73% for males, 60% for females; p=0.45). The 5-year survival rate was higher in patients that underwent surgery compared to the patients that underwent biopsy alone (75% vs 66%), but the difference failed to reach statistical significance (p=0.91).

Table 1: Characteristics of patients.

Age	Sex	Type	Operational status	Dose/frx cGy	Total dose (cGy)
60	F	B2	Thymectomy	200	5000
53	F	B3	Thymectomy	200	5000
59	M	B2	Mediastinal mass excision	200	4000
52	M	B2	Biopsy	200	6600
74	M	B2	Mediastinal mass excision	200	5000
73	F	B1	Mediastinal mass excision	200	5000
45	M	B2	Thymectomy	200	5000
58	M	B2	Mediastinal mass excision	200	5000
47	M	B2	Mediastinal mass excision	200	5000
20	F	B2	Biopsy	200	5000
52	F	B2	Biopsy	200	5400

F=Female, M=Male.

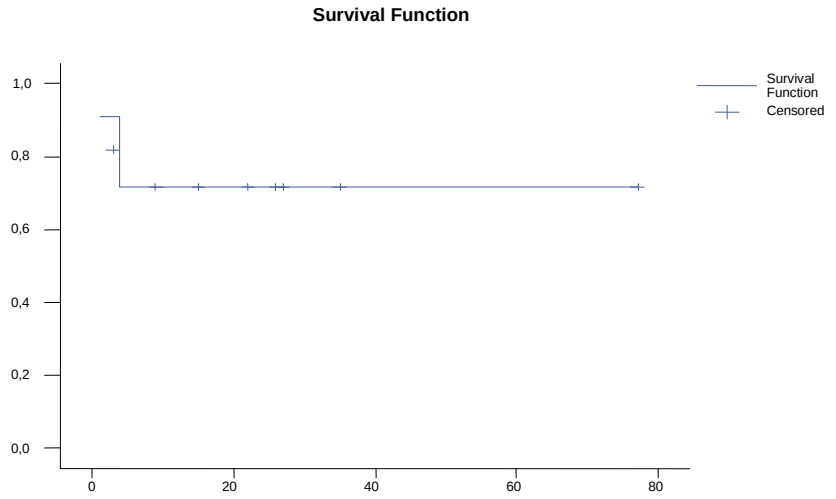

Figure 1: Survival curve (monthly follow-up).

Discussion

Thymic lesions, and their most common form, thymomas have remained controversial in the literature due to their unexpected biological behavior and clinical and pathological polymorphism. To evaluate thymomas, many histological and clinical classifications have been proposed. However, it is very difficult to identify prognostic factors since these lesions are very rare and their structures are polymorphic. Thymomas may be either encapsulated, noninvasive, completely benign lesions or invasive and metastatic tumors [6, 7]. The most important feature of the tumor is whether it is encapsulated or not and its invasion status to adjacent structures. These features and its clinical appearance play a crucial role in the management. Surgical excision constitutes the most important step in the management. Malignant thymomas may not be completely resected if they invade the vital structures. Therefore their malignant potential should always be taken into consideration [8]. The histological classification of thymomas is still controversial. Different classifications have been offered. Some studies suggest that histological type is insignificant [9, 12], but others considered that histological type is very important as a prognostic factor because epithelial and mixed types are more invasive [6, 8, 13-15]. In our study, survival could not be assessed according to the histological type due to small patient number. In some studies, patients undergoing subtotal resection for invasive type thymoma have been reported to have better prognosis than the patients undergoing biopsy only [9, 12]. Other studies suggest that there is insignificant difference [13, 5]. Our study supports the latter one. The quality of surgery is the most important prognostic factors in survival according to many studies [16-18]. The best results are obtained by complete resection. The positive effect of incomplete resection on survival could not be determined. In patients with stage II and III disease, adjuvant radiotherapy after complete resection may be beneficial to reduce local recurrence without effect on survival [19]. With preoperative radiotherapy or chemotherapy, the rate of complete resection may be increased, the rate of local and pleural recurrence may be decreased and the survival improvement can be achieved [20]. In invasive thymomas, the best treatment option is the multimodality approach. Clinicians, surgeons and pathologists should determine the therapeutic strategy and evaluate the prognosis and decide the timing of the method to be chosen for each patient.

References

1. Hardy JD, Eving HP. The Mediastinum. In: Glenn W, ed. Thoracic and Cardiovascular Surg, 1983:407-37.
2. Davis RD, Oldham HN, Sablston DC. The Mediastinum. In: Sablston DC, Spencer FC, eds. Surgery of the Chest. WB Saunders Comp, 1990:495-535.
3. Hartmann CA, Roth C, Minck C, Niedobitek G. Thymic carcinoma; Report of five cases and review of literature. J Cancer Res Clin Oncol 1990; 116: 69-82.
4. Rosai J. Ackerman's Surgical Pathology. CV Mosby Comp 1989:350-6.
5. Whittaker LD and Lynn HB. Mediastinal tumors and cysts in the pediatric patient (symposium on surgery of the chest). Surg Clin North Am 1973; 53: 893-904.
6. Lewis JE, Wick MR, Scheithauer BW, Bernatz PE, Taylor WF. A clinicopathologic review. Cancer 1987; 60: 2727-43.
7. Masaoka A, Monden Y, Nakahara K, Tanioka T. Follow-up study of thymomas with special reference to their clinical stages. Cancer 1981; 48:2485-92.
8. Monden Y, Nakahara K, Iioka S, Nanjo S, Ohno K, Fujii Y, Hashimoto J, Kitagawa Y, Masaoka A, Kawashima Y. Recurrence of thymoma: Clinicopathological features, therapy and prognosis. Ann Thorac Surg 1985; 39: 165-9.
9. Maggi G, Casadio C, Cavallo A, Cianci R, Molinatti M, Ruffini E. Results of 241 operated cases. Ann Thorac Surg 1991; 51:152-6.
10. Braitman H, Herrmann C, Mulder DG. Surgery for thymic tumors. Arch Surg 1971; 103:14-6.
11. Cohen DJ, Ronnigen LD, Graeber GM, Deshong JL, Jaffin J, Burge JR, Zajtchuk R. Management of patients with malignant thymoma. J Thorac Cardiovasc Surg 1984; 87: 301-7.
12. Nakahara K, Ohno K, Hashimoto J, Maeda H, Miyoshi S, Sakurai M, Monden. Y, Kamashima Y. Thymoma: result with complete resection and adjuvant postoperative irradiation in 141 consecutive patients. J Thorac Cardiovasc Surg 1988; 95:1041-7.
13. Blumberg D, Port JL, Weksler B, Delgado R, Rosai J, Bains MS, Ginsberg RJ. Thymoma: multivariate analysis of factors predicting survival. Ann Thorac Surg 1995; 60:908-14.
14. Pescarmona E, Rendina EA, Venuta F, D'Arcangelo E, Pagani M, Ricci C, Ruco LP, Baroni CD. Analysis of prognostic factors and clinicopathological staging of thymoma. Ann Thorac Surg 1990; 50:534-8.
15. Chen YD, Feng QF, Lu HZ, Mao YS, Zhou ZM, Ou GF, Wang M, Zhao J, Zhang HX, Xiao ZF, Chen DF, Liang J, Zhai YR, Wang LH, He J. Role of Adjuvant Radiotherapy for Stage II Thymoma after Complete Tumor Resection. Int J Radiat Oncol Biol Phys. 2010 Apr 6. [Epub ahead of print]
16. Regnard JF, Magdeleinat P, Dromer C, Dulmet E, de Montpreville V, Levi JF, Levasseur P. Prognostic factors and long-term results after thymoma resection: A series of 307 patients. J Thorac Cardiovasc Surg. 1996; 112: 376-83.
17. Fuentes P, Leude E, Ruiz C, Bordigoni L, Thomas P, Giudicelli R, Gastaud JA, Morati N. Treatment of thymoma:A report of 67 cases. Eur J Cardioc Thorac Surg 1992; 6: 180-8.
18. Stremmel C, Dango S, Thiemann U, Kayser G, Passlick B. Thymoma--incidence, classification and therapy. Dtsch Med Wochenschr. 2007; 132:2090-5.
19. Girard N, Mornex F, Van Houtte P, Cordier JF, Van Schil P.Thymoma: a focus on current therapeutic management. J Thorac Oncol. 2009; 4:119-26.
20. Myojin M, Choi NC, Wright CD, Wain JC, Harris N, Hug EB, Mathisen DJ, Lynch T, Carey RW, Grossbard M, Finkelstein DM, Grillo HC. Stage III thymoma: pattern of failure after surgery and postoperative radiotherapy and its implication for future study. Int J Radiat Oncol Biol Phys. 2000; 46: 927-33.