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Synchronous Multicentric Thymona: Report of a Case

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Abstract
We report a case of multiple thymoma with different histological subtypes, not associated with myasthenia gravis. We describe the histological findings, especially the results of immunohistochemical staining, which support the possibility of multicentric thymoma. The validity of extended thymectomy is also discussed.

Key words Thymoma · Multicentric · Extended thymectomy

Introduction

Mulitiple thymoma is very rare, and we were unable to find any reports of multiple thymoma with different histological subtypes. It is still not known whether multiple thymoma involves intrathymic dissemination or metastasis, or whether it represents multiple primary lesions. We describe a case of synchronous multicentric thymoma with different histological subtypes.

Case Report

A 44-year-old man was admitted to our hospital after an anterior mediastinal tumor has been found on a routine chest X-ray examination. A repeat chest X-ray and a computed tomography scan showed two tumors in the anterior mediastinum (Fig. 1). Finding on physical examination were normal, as was the level of antiacetylcholine receptor antibody, at less than 0.2 mmol/l. We performed an extended thymothymectomy. The tumor in the left thymic lobe, which measured 6.4 × 4.0 × 3.0 cm, was encapsulated and easily dissected, but the tumor in the right thymic lobe, which measured 6.0 × 4.5 × 2.4 cm, invaded the pericardium and innominate vein (Fig. 2), necessitating a combined resection of the pericardium and plasty of the innominate vein. Microscopic examination of specimens from the right tumor revealed proliferation of epithelial cells forming sheet-like nests. Focal squamous differentiation was also noted (Fig. 3a). These proliferating cells showed mild nuclear atypia. Small numbers of mitotic figures and CD5-positive cells were seen with sparse lymphocytes. Immunohistochemically, p53(DO7)- or Ki67 (MIB1)-positive cells were observed. Based on these findings, a type B3 thymoma was considered.[1] Conversely, microscopic examination of specimens from the left tumor revealed proliferation of polygonal epithelial cells with intermingled lymphocytes (Fig. 3b). The epithelial cells had relatively large, round to oval, and vesicular nuclei with small but distinct eosinophilic nucleoli. Ki67- and p53-positive cells were also observed, and CD5-positive cells were seen only occasionally. These findings suggested a type B2 thymoma. The thymoma was graded as stage III, based on the staging system of Masaoka et al.,[2] and 50 Gy mediastinal irradiation was given as adjuvant therapy. The patient is being followed up on an outpatient basis.

Discussion

Because of the biological malignant grade analyzed, we performed immunohistochemical staining using p53 protein, Ki67, and CD5. Ki67-positive cells were seen in both tumors, but p53-positive cells were seen more in the right tumor than the left, and scant CD5-positive cells were seen only in the right tumor (Table 1). The findings are very interesting in that there was a biological spectrum of thymic epithelial tumors with malignant

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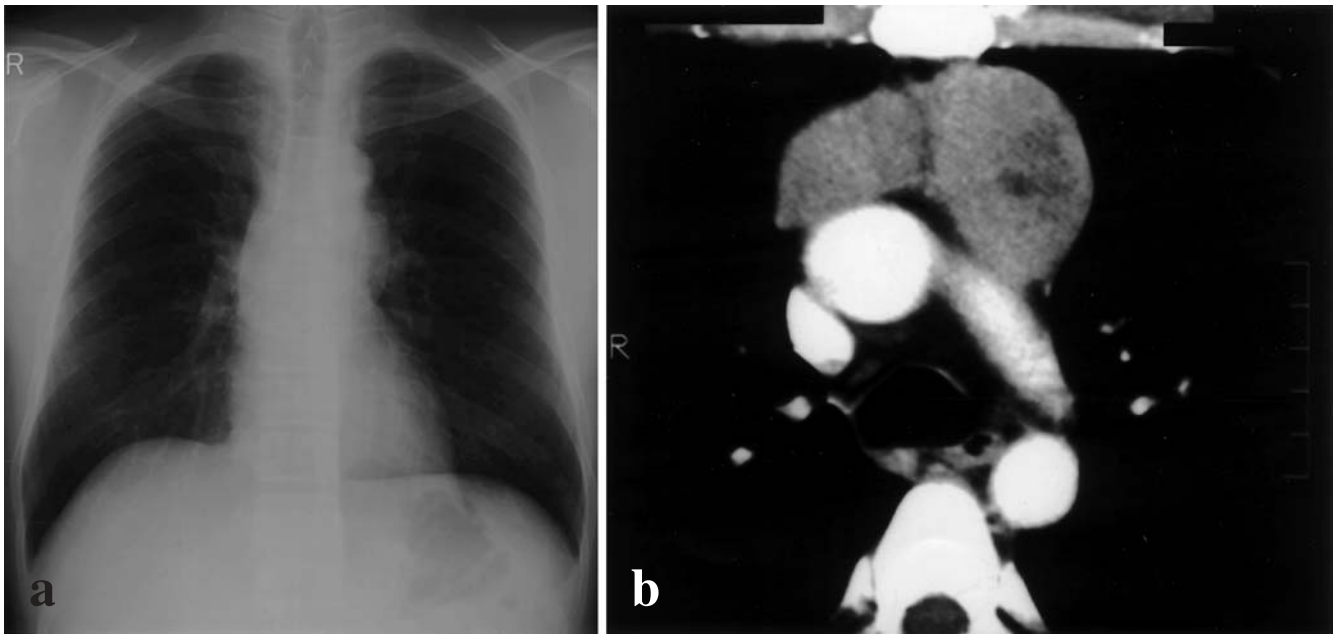

Fig. 1. **a** Chest X-ray film showed a tumor shadow in the left hilum. **b** Computed tomography scan showed anterior mediastinal tumors, which were separated and enhanced heterogeneously

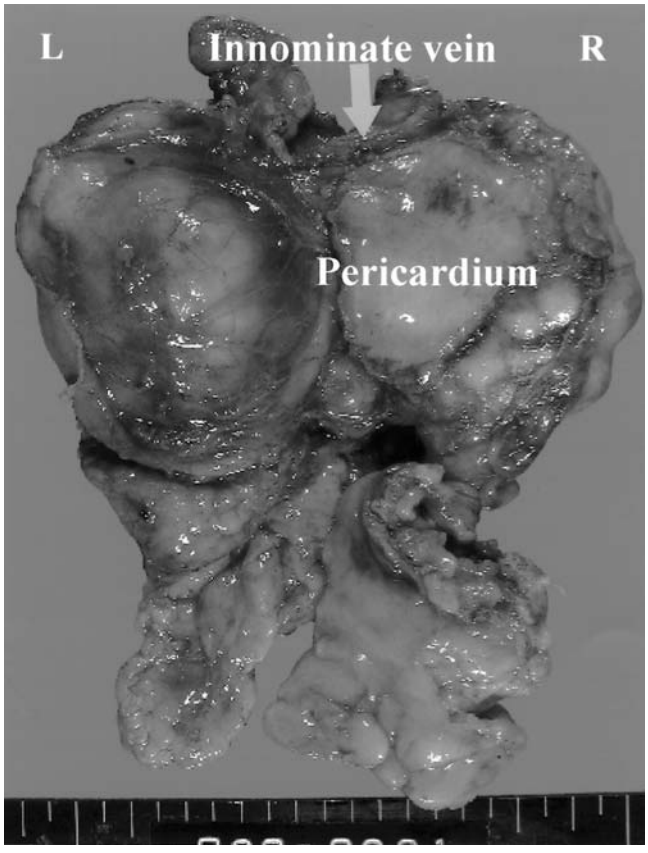

Fig. 2. The resected mediastinal tumors (viewed from the pericardial side). The right tumor was 6.0 × 2.4 cm, and invaded the pericardium and innominate vein. The left tumor was 6.4 × 3.0 cm

Table 1. Characteristic features of the two tumors

Antibodies	Right tumor (type B3)	Left tumor (type B2)
CD5	±	−
p53 (DO7)	+	±
Ki67 (MIB1)	10%	10%

grade increasing from type A to C.[3] The World Health Organization clinical classification of thymic epithelial tumors[1] correlates well with that of Masaoka et al.,[2] and it is possible that type B3 thymoma may be a transitional type from thymoma to thymic carcinoma. Based on the different immunohistochemical findings, the pathologist interpreted that multicentric thymoma occurred synchronously in one thymus in our patient.

Extended thymectomy, which leaves no remaining thymic tissue, might be the most appropriate treatment,[4] considering the existence of patients with multicentric thymoma and those with myasthenia gravis post-thymectomy. Many authors[5–7] have recently described performing minimally invasive video-assisted thoracoscopic surgery (VATS) for patients with stage I thymoma. However, the long-term results have not yet been reported. A large series of patients undergoing VATS for thymoma with longer follow-up will be necessary before conclusions can be drawn.

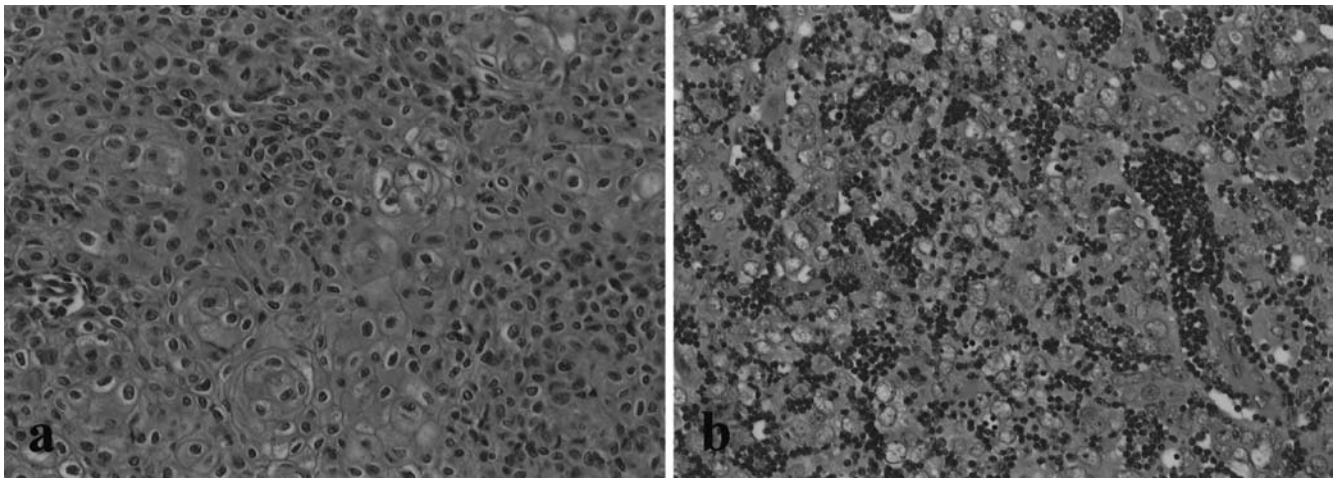

Fig. 3a,b. Histological findings of the right and left tumors. **a** The right tumor was composed of epithelial cells with mild nuclear atypia forming sheet-like nests with focal squamous differentiation. Lymphocytes are sparsely seen (H&E, ×200). **b** The left tumor was composed of a proliferation of polygonal epithelial cells with large, round to oval, and vesicular nuclei with intermingled lymphocytes (H&E, ×200)

References

1. Rosai J, Sobin LH. Histological typing of tumors of the thymus. In: World Health Organization, international histologic classification of tumours. 2nd ed. Berlin Heidelberg New York: Springer; 1999. p. 1–65.
2. Masaoka A, Monden Y, Nakahara K, Tanioka T. Follow-up study of thymoma with special reference to their clinical stage. Cancer 1981;48:2485–92.
3. Yoneda S, Kawahara K, Okabayashi K, Shiraishi T, Iwasaki A, Shirakusa T, et al. Evaluation of the malignant grade of thymic epithelial tumors according to the epithelial subclassification. Jpn J Surg 2000;30:43–8.
4. Monden Y. Treatment for thymus-related malignant tumors. J Jpn Surg Soc 1998;99:308–11.
5. Landreneau RJ, Dowling RD, Castillo WM, Ferson PF. Thoracoscopic resection of an anterior mediastinal tumor. Ann Thorac Surg 1992;54:142–4.
6. Yellin A. Video-assisted thoracoscopic surgery: thymectomy. Chest 1996;110:578–9.
7. Takeo S, Sakada T, Yano T. Video-assisted extended thymectomy in patients with thymoma by lifting the sternum. Ann Thorac Surg 2001;71:1721–3.