

Spontaneous regression of mediastinal seminoma

Koichi TANAKA *, Tetsuo HADAMA, Hidemi TAKASAKI,
Yoshiaki MORI, Yuzo UCHIDA, Joji SHIRABE
and Shigeo YOKOYAMA **

* *The Second Department of Surgery,*

** *Division of Pathology, Laboratory Center,
Oita Medical College, Oita, Japan*

Received for publication, December 26, 1988

ABSTRACT : A 27-year-old man was transferred to our hospital with the complaint of facial edema and diagnosis of giant anterior mediastinal tumor. But soon after admission, the size of the tumor decreased remarkably, although he had no particular treatment. As the tumor was not completely regressed, surgical resection was performed subsequently, and examination of the specimen showed small foci of seminoma within the area of dense fibrous scar tissue, originated from the thymus. While regression of germ cell tumors are well recognized in cases of non-seminomatous germ cell tumors, this phenomenon of primary mediastinal seminoma was not reported previously.

INTRODUCTION

There have been numerous reports in the literature of spontaneous regression of germ cell tumors. But, majority of the cases were non-seminomatous tumors, and spontaneous regression of seminoma was rare. Moreover, we could not find any other report of such phenomenon in mediastinal seminoma. Therefore, we report here our case of spontaneous regression of primary mediastinal seminoma.

CASE REPORT

The patient, 27-year-old man, was well until February 10, 1988, when he noticed facial edema. He was admitted to the Beppu National Hospital two weeks later, because of being pointed out anterior mediastinal giant mass on chest roentgenogram and CT scan (Fig.1), and SVC syndrome on venography. There, he

underwent percutaneous needle aspiration biopsy, but the results yielded only to be suggestive of malignant tumor. Then, he was transferred to our hospital for further examination on March 7. However, soon after the admission, facial edema diminished incidentally in spite of no particular treatment, and findings on physical examination became almost normal. Bilateral descended testes were normal to palpation. Medical and family histories were unremarkable.

Laboratory findings included a serum lactic dehydrogenase level of 622IU/L., total protein of 8.4g/1, γ -globulin rate of 33.8%, and BSR of 138mm. Tumor markers including CEA, α -fetoprotein, human chorionic gonadotropin, CA19-9, and SCC level were in normal range.

Chest roentgenogram on March 15 showed a remarkable decrease in size of the mediastinal mass. Similarly, chest CT scan revealed small solid mass in mediastinum but no pleural effusion (Fig.2).

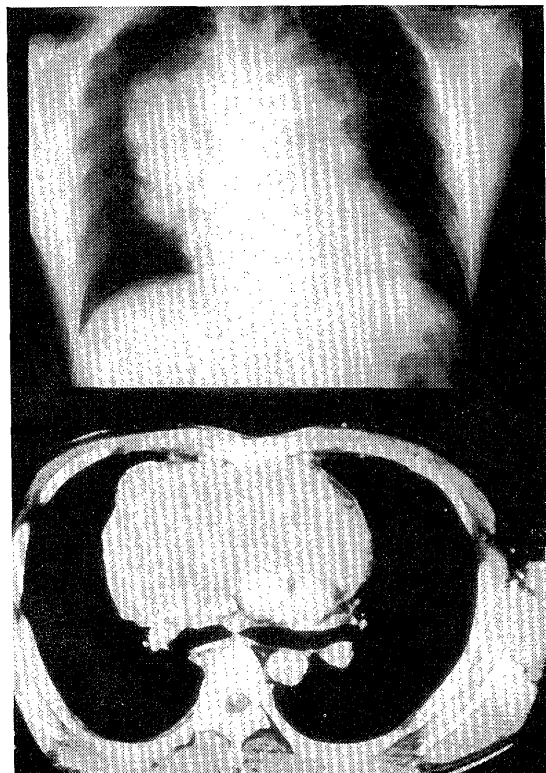


Fig. 1. Chest roentgenogram and CT scan showed giant mass shadow in anterior mediastinum.

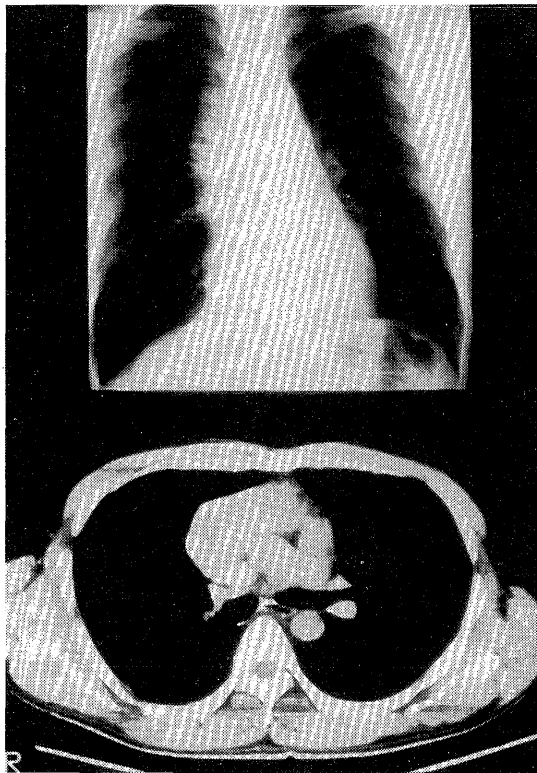


Fig. 2. Chest roentgenogram and CT scan showed a remarkable decrease in size of the mediastinal mass.

However, the tumor size was unchanged thereafter, and a surgical operation was subsequently performed on April 4. Midsternal thoracotomy was performed. The solid tumor was in continuity with the thymus, and adhered closely to the superior vena cava and bilateral brachiocephalic veins. Nevertheless, the tumor was successfully removed together with the thymus and the superior vena cava, followed by reconstruction using two pieces of expanded-polytetrafluoroethylene artificial graft.

Pathologic Findings

Gross findings : The resected tumor was firm in consistency, measuring $93 \times 70 \times 28$ mm. The cut surface was well demarcated without a fibrous capsule, and had a whitish-yellow homogeneous appearance with some necrotic foci (Fig. 3).

Histological findings : Although most area of the tumor was replaced by extensive fibrous

tissue and some necrotic foci with lymphocytic infiltration and epithelioid granulomas (Fig. 4), clusters of large undifferentiated tumor cells with glycogen-rich pale cytoplasm were observed only in small parts. These clusters were surrounded by lymphoid tissues which contained a few Hassall's corpuscles and granulomatous reaction (Fig. 5).

On the basis of these findings, this mediastinal tumor was diagnosed as a pure type of seminoma arising from the thymus.

Postoperatively, the patient was put on a regimen of Cisplatin, Vincristine, and Peplomycine, followed by radiotherapy in a dose of 40Gy. He was doing well without recurrence 6 months after surgery.

DISCUSSION

Spontaneous regression of tumors is well known, but it is a rare phenomenon. The crite-

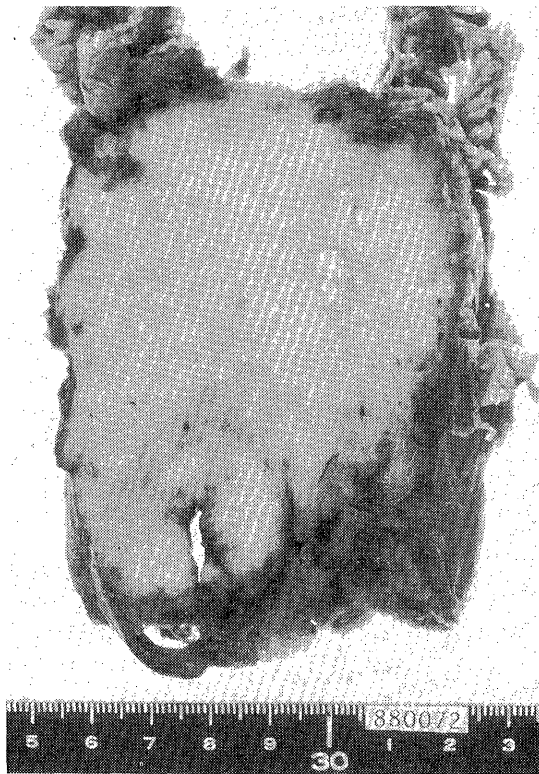


Fig. 3. Whitish-yellow homogeneous cut surface with some necrotic foci.

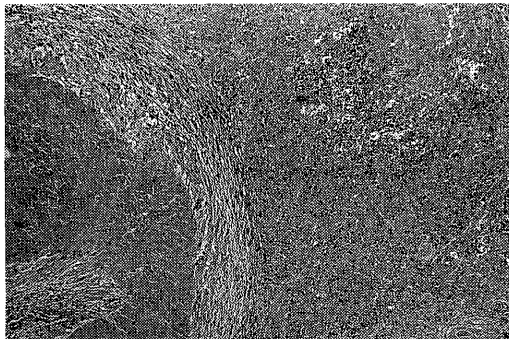


Fig. 4. Extensive fibrous tissue with small necrotic foci.

ria of spontaneous regression is not yet defined, however, Everson and Cole^{1) 2)} suggested that spontaneous regression may be defined as a complete or partial disappearance of a malignant tumor in the absence of treatment that ordinarily is considered capable of producing regression. The regression needs not be progressed to complete disappearance of the

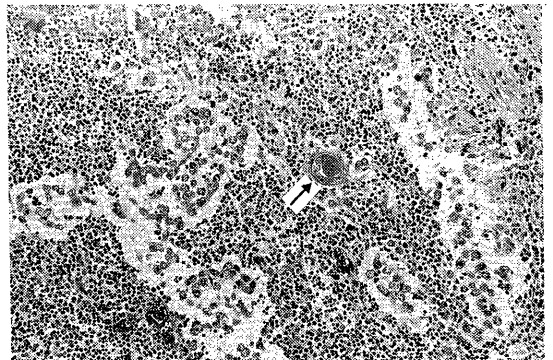


Fig. 5. Small foci of seminoma with a Hassall's corpuscle (arrow).

tumor. Patients with leukemia, lymphoma, and squamous cell carcinoma of the skin were excluded, because many patients with these lesions vary greatly in their rates of growth. According to this definition, they searched 176 cases of spontaneous regression from world medical literatures from 1900 to 1964, and thereafter, Uchino³⁾ also searched 83 cases from 1973 to 1982. And they showed that it was most frequent in adenocarcinoma of the kidney, neuroblastoma, malignant melanoma, and choriocarcinoma.

In relation to germ cell tumors, there have been some reports of spontaneous regression in the literature^{4~6)}. However, the majority of these cases have involved non-seminomatous germ cell tumor of testis, most commonly choriocarcinoma and malignant teratoma⁵⁾. And case reports of spontaneous regression of pure seminoma has been rare^{5) 6) 8)}. Moreover, there have been no other previous reports of spontaneous regression of mediastinal seminoma except our case.

The actual mechanism of spontaneous regression of a tumor is obscure. But, postulated mechanisms generally include immunologic factors, hormonal factors, trauma (e. g., biopsy, incomplete resection), infection, drugs, or elimination of carcinogens. These mechanisms were discussed in detail elsewhere^{2), 7), 10)}. In the case presented here, transcutaneous needle biopsy, which could stimulate hormonal or immunological regulation, might be the most causative mechanism because neither anticancer drugs nor immunopotentiators were used.

Histologically, most area of the tumor of

this case consisted with dense fibrous tissues, and only a small part revealed seminomatous appearance. This finding might not suppose to be a result of ischemic change due to vascular occlusion.

Spontaneous regression of malignant tumor is truly an existent phenomenon. Then, investigation of this mysterious phenomenon could give a clue to the resolving biological mechanisms and clinical therapy of cancer.

REFERENCES

- 1) EVERSON, T.C., COLE, W.H. : Spontaneous regression of cancer. A study and abstract of reports in the world medical literature and personal communications concerning spontaneous regression of malignant disease. Saunders, Philadelphia, 1966.
- 2) SMITHERS, D.W. : Spontaneous regression of tumors. *Clinical Radiology*, 13 : 132-137.
- 3) J. UCHINO, H. NAITO, Y. UNE, *et al.* : Spontaneous regression of cancer. *The Hokkaido Journal of Medical Science*, 59 (6) : 674-678, 1984.
- 4) WAL, H.V., ARKENBOUT, P., BERGE, E.T. *et al.* : The therapeutic approach to intrathoracic metastases of non-seminomatous testicular tumor. *Acta Chirurgica Belgica*, 84 (6) : 349-356, 1984.
- 5) FRANKLIN, C.I.V. : Spontaneous regression of metastases from testicular tumors. A report of six cases from one center. *Clinical Radiology*, 28 (5) : 499-502, 1977.
- 6) HOLMES, A.S., KLIMBERG, I.W., STONESIFER, K.J. *et al.* : Spontaneous regression of testicular seminoma : Case report. *The Journal of Urology*, 135 (4) : 795-796, 1986.
- 7) COLE, W.H. : Relationship of causative factors in spontaneous regression of cancer to immunologic factors possibly effective in cancer. *Journal of Surgical Oncology*, 8 (5) : 391-411, 1976.
- 8) AZZOPARDI, J.G., HOFFBRAND, A.V. : Retrogression of testicular seminoma with viable metastases. *Journal of Clinical Pathology*, 18 : 135-141, 1965.
- 9) WEGENKE, J.D., CHUPREVICH, T.W., NILSSON, T.E. G. : Retroperitoneal seminoma. *The Journal of Urology*, 117 : 262-263, 1977.
- 10) WEAVER, G.R., COHN, J.H., MINTZER, R.A. : Transient spontaneous regression of an anterior mediastinal mass. *Chest*, 87 (4) : 547-548, 1985.