CASE REPORT
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Thoracic Surgery

A Case of Squamous Cell Carcinoma of the Thymus Arising in a Thymic Cyst

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Abstract
Computed tomography scan showed an approximately 6 cm sized cystic lesion at anterior mediastinum in a 75-year-old man. At thoracotomy, the cystic mass was covered by mediastinal pleura. Tumor adhered to sternum, ascending aorta, pericardium and contralateral mediastinal pleura. The tumor was extirpated totally. Pathological diagnosis was squamous cell carcinoma of the thymus that developed in a thymic cyst. Additional radiation therapy was done. In those cases, although surgical resection was done, there wasn't sufficient data about addition therapy. In our study, we emphasized treatment for these rare lesions.

Keywords: Mediastinum, Surgery, Thymus, Squamous cell carcinoma, Thymic cyst

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INTRODUCTION

Primary carcinomas of thymus are uncommon. Most of them are squamous cell and variants. Thymic carcinoma arising in a thymic cyst was less reported. There are representations of a few articles in English literature. Such articles mentioned through surgical therapy better results than the other thymic carcinoma were obtained (1-5). We herewith represent the case squamous cell carcinoma developing on the basis of thymic cyst, together with treatment method and results thereof as well as the literature.

CASE

A 75 year-old man had complaints of left chest pain and cough over one month. Chest radiography and Computed tomography scan showed an approximately 6 cm sized cystic mass at anterior mediastinum (figure 1a and 1b). Preoperatively, additional diagnostic procedure was not apply because of lesion had cystic characteristic and complete resection could be achieved.

At left posterolateral thoracotomy, there was approximately 6 cm sized cystic mass, which was covered by mediastinal pleura and settled adjacent to phrenic nerve. The lesion adhered to sternum, ascending aorta, pericardium and contralateral mediastinal pleura, however it was not invasion these adjacent tissues. Its' bottom side has a calcified and cartilage nature partially. The mass was dissected from adjacent tissues and extirpated totally together with adjacent mediastinal fatty tissue.

At macroscopic examination, it was found that the material was constituted of multilocular cystic and solid areas with 6x4,5x3 cm size. The lumen of the cystic areas was filled with dark brown liquid. Microscopically, thymic tissue (figure 2), hemorrhage, necrosis, cholesterol granuloma, and chronic inflammation elements were present on cystic wall. Pseudoepitheliomatous hyperplasia, displasia, and insitu carcinoma areas were observed in epithelium lining cyst were observed. Atypical cells constituted by squamous cells in stroma at solid areas drawn attention (figure 3). Such findings made us to think that carcinoma with squamous cell arising in an acquired thymic cyst. Furthermore it was detected that it invaded adjacent mediastinal fatty tissue.

Postoperative period was uneventful, and radiotherapy at 4400 cGy was applied. No complication was observed related to radiotherapy. The patient is under follow-up over 7 months and still living without any symptom.

DISCUSSION

Thymic cysts form 3% of mediastinal lesions and may be unilocular or multilocular feature. Thymic cyst in our case had multilocular feature. Thymic tissue, hemorrhage, necrosis, cholesterol granuloma, and chronicle inflammation elements were present on cystic wall. Multilocular thymic cysts are surrounded by squamous, columnar and cubeoidal epithelium and continue with thymic tissue present within their walls. Cysts have multilocular cavity form and are full with dark blood or gray-brown fluid. Hemorrhage and fibrous areas are observed within cyst. Cyst wall is fibrous and has various thicknesses. It shows hyalinization and calcification in some areas. Hemorrhage, de-

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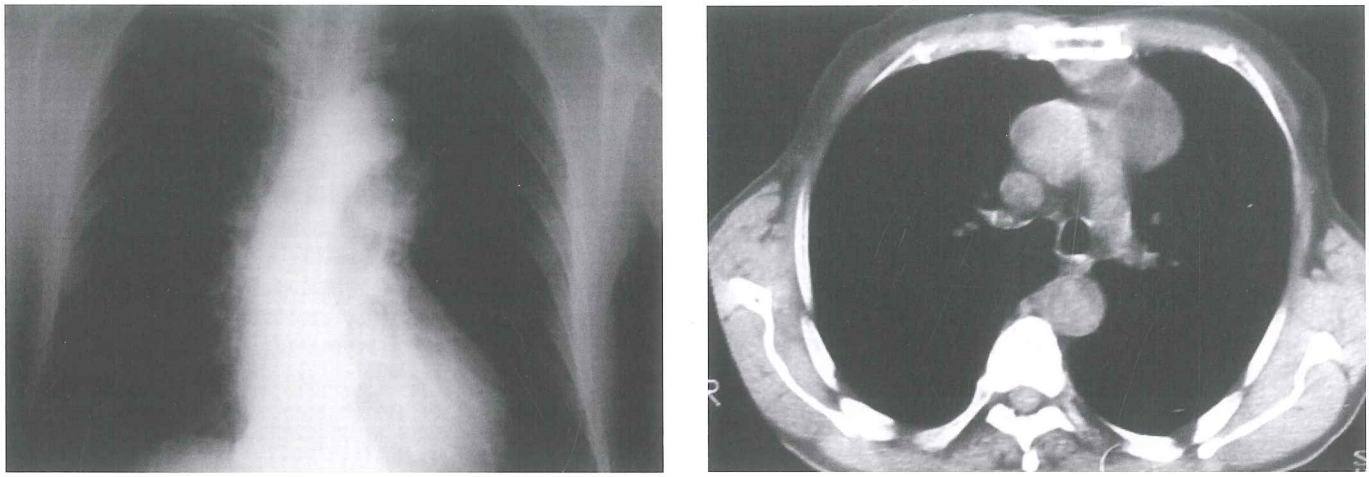

Figure 1a and 1b. X-ray and computed tomographic scan of chest show cystic mass at anterior mediastinum

posits of hemociderin pigment and granuloma formation of cholesterol may be observed in other areas (5-7).

Much of thymic cysts are asymptomatic however cyst may form symptom by enhancing bleeding therein. Furthermore, it may indicate microscopic and macroscopic features of cystic thymic neoplasm and it may be together with other neoplasm. Therefore, thymic cysts should be surgically treated in order to prevent local expansion and to verify histology. They seldom reoccur (5-7).

Thymic carcinoma is a neoplasm appearing relatively seldom and may exhibit cystic variation. Rare publications reported thymic carcinoma with squamous cell originated from thymoma or thymic cyst. Squamous cell, basaloid and adenocarcinoma cases arising in thymic cyst were reported. It was also reported that surgery treatment resulted better results for such events (2-4,8).

Preoperatively, lesion was evaluated cystic and completely resectabl, and addition diagnostic procedure did not apply. Intraoperatively, frozen section analysis was not done, because of complete resection with adjacent tissues could be achieved. It was histoligically reported that lesion was extirpated totally together with adjacent mediastinal fatty tissue.

Surgical treatment constitutes the basis of the therapy in all thymic neoplasm and complete resection including adjacent tissues shall be the purpose. However, it was reported that a curative resection in a thymic carcinoma was hardly achieved. Benefits of "Debulking" surgery or chemo/radiotherapy were not keenly indicated. However chemotherapy and especially radiotherapy are used with a limited success during postoperative period (1,7). For our case who complete resection was done, adjuvant radiotherapy was applied from clinic of Radiation Oncology in another instution.

Thymic carcinoma invaded fatty tissue was found in our case and was extirpated totally. Radiotherapy was ap-

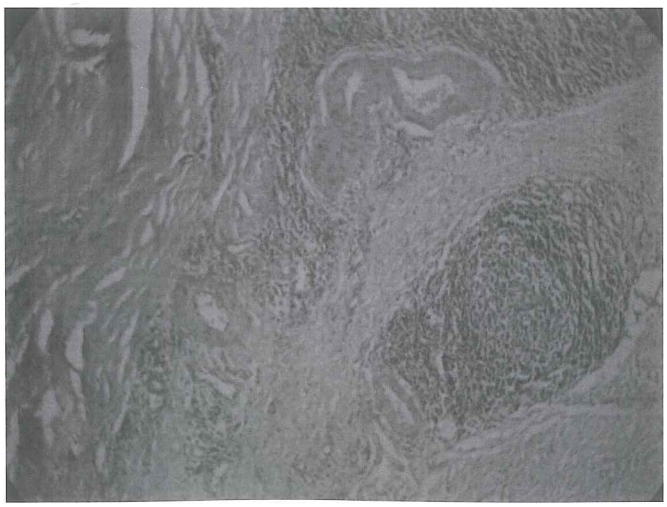

Figure 2: Microscopik appearance of thymic tissue on the cyst wall

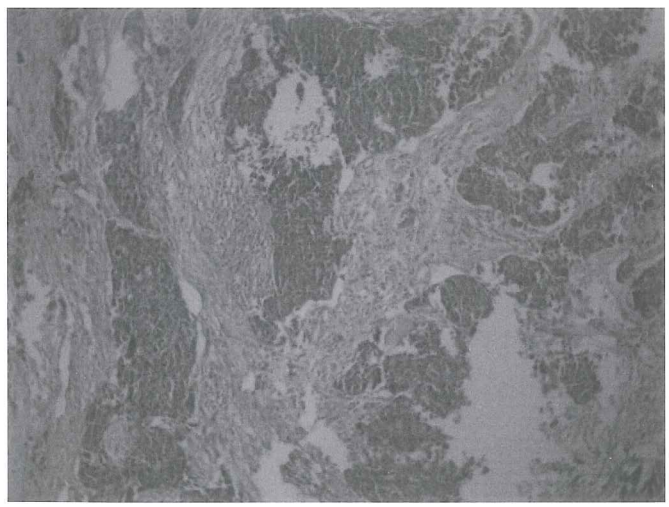

Figure 3: Squamous cell carcinoma areas

plied at postoperative period considering invasion to mediastinal fatty tissues. Our patient is still surviving without any disease 7 month after operation. Similar to our case, Kobayashi and Yamashita reported 2 cases, who were operated for anterior mediastinal mass and detected squamous cell thymic carcinoma arising in the thymic cyst, were reported. First case was followed up 2 years and other who received radiotherapy was followed up 6,5 years and recurrence or metastasis was not detected (3,4).

Regarding prognosis, thymic carcinoma has poor surviving and high recurrence rates. Resectability is meaningfully a good prognostic factor. Furthermore squamous cell carcinoma and basaloid type show a better prognosis (1).

Malignancy may develop in thymic cyst as well as malignancy may already be present. Diagnosis in general may be set histopathologically after surgical resection, however preoperative close adherence with surrounding tissues should recall malignancy, diagnosis must be set by "Frozen section analysis" and complete resection must be considered. It was observed through literature investigation that surviving after cystic carcinoma was better that other thymic carcinoma.

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