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Type-A Thymoma in a 56-Year-Old Male: A Case Report

Timoma tipo A en un varón de 56 años: reporte de un caso

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SUMMARY

Thymoma is the epithelial neoplasm of the thymus gland that is most commonly found in the anterior mediastinum in individuals aged in the fourth to the sixth decades. Its incidence is approximately 2.5 cases per 1 million people/year with a cure rate of 100 %. This case is interesting enough to be discussed because it is a very rare incidence and the case has a typical histopathological feature. This case report presents a 56-year-old man with complaints of cough and lower right chest pain. CT - Scan examination showed a solid tumor with central necrotic in the inferior lobe of the right lung. The result of macroscopic examination showed the tumor to have a size of 18 x 11 x 7 cm, solid consistency, brownish-white color, smooth surface partially protuberant with wide necrosis. Although it was a difficult type A thymoma from type B3 thymoma based on the morphology, we diagnosed this case as type A thymoma because we found spindle-oval tumor cells, basophilic cytoplasm, partially clear, spindle core, finely granular chromatin with inconspicuous nucleoli, hemangiopericytoma-like, glumeruloid and fascicular growth patterns. Mass infiltration appears to pericapsular connective tissue. Based on clinical examination, imaging and histopathology, it's can be concluded as type A, infiltrative to pericapsular connective tissue (pT2).

Keywords: *Mediastinal tumor, thymoma.*

RESUMEN

El timoma es la neoplasia epitelial de la glándula del timo que se encuentra con mayor frecuencia en el mediastino anterior en individuos entre la cuarta y la sexta décadas de la vida. Su incidencia es de aproximadamente 2,5 casos por 1 millón de personas/año con una tasa de curación del 100 %. Este caso es lo suficientemente interesante como para ser discutido debido a que es una incidencia muy rara y el caso tiene una característica histopatológica típica. Este reporte de caso presenta a un hombre de 56 años con quejas de tos y dolor en el lado inferior derecho del pecho. El examen de tomografía computarizada mostró un tumor sólido con necrosis central en el lóbulo inferior del pulmón derecho. El resultado del examen macroscópico mostró que el tumor tenía un tamaño de 18 x 11 x 7 cm, consistencia sólida, color blanco pardusco, superficie lisa parcialmente protuberante con amplia necrosis. Aunque era un timoma tipo A difícil de un timoma tipo B3 en base a la morfología, diagnosticamos este caso como timoma tipo A porque encontramos células tumorales

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fusiformes ovales, citoplasma basófilo, parcialmente claro, núcleo fusiforme, cromatina finamente granular con nucléolos poco visibles, patrones de crecimiento tipo hemangiopericitoma, glumeruloide y fascicular. Aparece infiltración masiva al tejido conjuntivo pericapsular. Basado en el examen clínico, imágenes e histopatología, se puede concluir como tipo A, infiltrante al tejido conectivo pericapsular (pT2).

Palabras clave: *Tumor mediastínico, timoma.*

INTRODUCTION

Thymoma is a tumor derived from epithelial cells of the thymus gland. Thymoma includes rare mediastinal neoplasms with an incidence of about 2.5 cases per 1 million person/year. The highest incidence of thymoma is in the age range 50-60 years; it rarely occurs before 25 years of age. There is no difference in predilection between women and men. In some studies of type A thymoma, it is suggested that women were slightly more dominant than men (1-6). This case is interesting enough to discuss because of its very rare incidence and this case has a typical histopathology feature.

CLINICAL CASE

A 56-year-old male from Balinese came to Sanglah Hospital Denpasar with complaints of a cough and lower right chest pain over about 1 week. The pain was said to be punctured but not too severe. The patient had a fever for two days and he did not lose weight.

On chest examination of the heart, the ictus cordis was not palpable, and the sound of the heart was single, regular, with no gallop or murmur. A lung examination showed the symmetrical shape of the chest. The percussion was dull at the right lower lung. Vesicular auscultation, no rhonchi, and wheezing in both lung fields. Laboratory tests showed 18.98 / μL of leukocyte count (normal value: 4.1-11.0/μL) and the albumin level was 3.1 mg/dL (normal value: 3.4 - 4.8 mg/dL).

Chest X-ray examination showed round opacity with a sharp bordered on paracardial to the right parahilar, with a dull acute angel sinus on the right pleural, and a sharp one on the left. The right diaphragm was covered by shadows, while the left one was normal. The impression was a suspected right lung mass with a differential diagnosis of a mediastinal mass, with minimal right pleural effusion (Figure 1). The recommendation was to perform a thoracic CT scan examination.

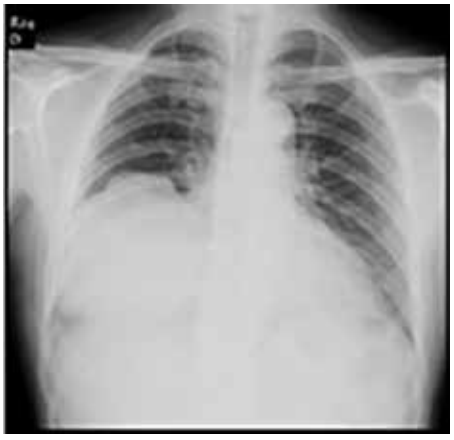

Figure 1. Chest X-Ray examination showed round opacity with a sharp bordered on paracardial to the right parahilar.

Thoracic CT-Scan examination showed a solid tumor with central necrotic in the right inferior of the right lung; it was inhomogenous and well-circumscribed; the size of the tumor was 10.07 cm x 10.85 cm x 12.12 cm, attached to the lateral wall of the hemithorax. The recommendation was to perform a biopsy. Bronchoscopy examination showed the constriction of segment B4 lumen in the right medial lobe et causa extra lumen inflammation.

On December 22, 2017, thoracotomy and histopathology examination were performed. The tissue was examined in the Anatomical Pathology Laboratory of Sanglah Hospital. On the macroscopic examination, the tissue was shown to be 18 x 11 x 7 cm and solid in consistency. In one focus, the tumor appears to be attached to the lung tissue with a size of 8 x 1 x 0.8 cm. The outer surface of the tumor is partially smooth and partially protuberant. On mass incision, the tumor appears a brownish-white color, septa, and with a wide necrotic area (Figures 2 and 3).

Figure 2. Macroscopic of the tumor before incision with a size of 18 x 11 x 7 cm and solid consistency.

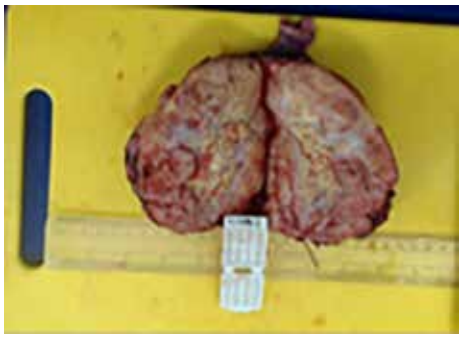

Figure 3. Macroscopic of tumor after incision shows a brownish-white color, septa, with a wide necrotic area.

On microscopic examination, the tumor tissue was covered with a thick fibrous capsule. The tumor mass consisted of cell proliferation with spindle-oval morphology, basophilic cytoplasm, partially clear, spindle nucleus, finely granular chromatin with inconspicuous nucleoli forming a hemangiopericytoma-like, glumeruloid and fascicular growth pattern. Around the tumor cells also appear areas of extensive bleeding, fibrosis, and necrosis. Mass infiltration appears to pericapsular connective tissue. From the routine histopathology examination above, it was concluded that this case has a consistent histomorphology feature to type A thymoma, infiltrative to pericapsular connective tissue (pT2) (Figures 4-7).

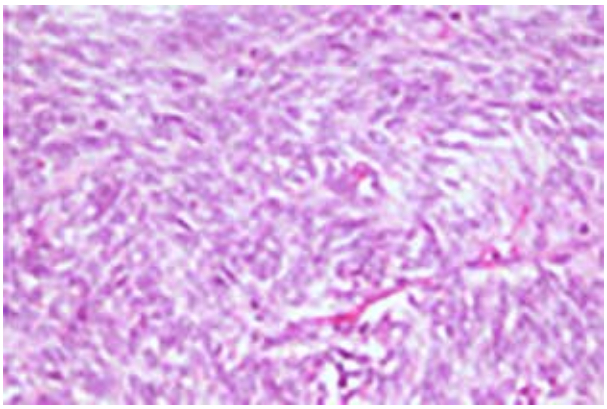

Figure 5. Microscopic features of tumor cells showed the spindle-oval morphology, basophilic cytoplasm, partially clear, spindle nucleus, and smooth chromatin with inconspicuous nucleoli (HE, 400x).

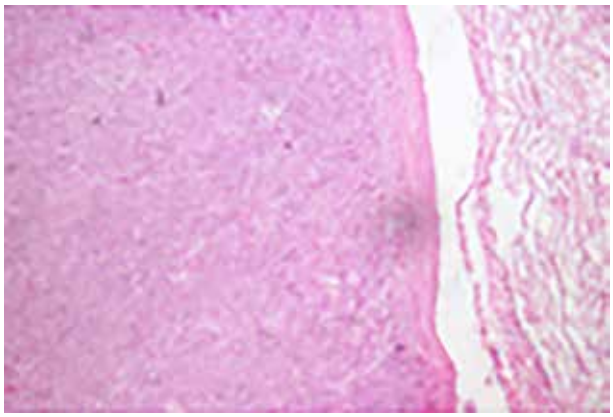

Figure 4. The microscopic feature of tumor cells consists of neoplastic cell proliferation covered by a thick fibrous capsule (HE, 40x).

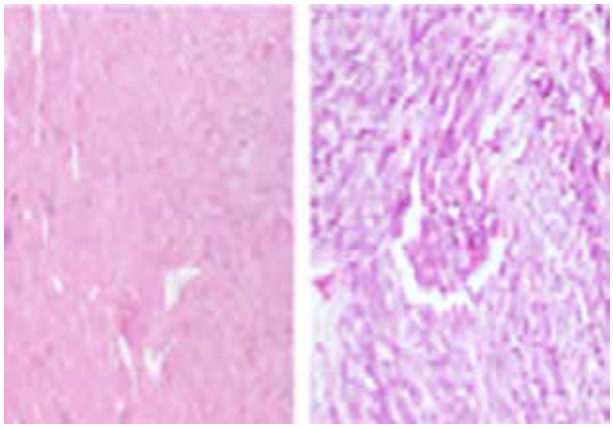

Figure 6. Microscopic features of tumor tissue showed the growth pattern of hemangiopericytoma-like (A) glumeruloid and fascicular (B) (HE, 100x).

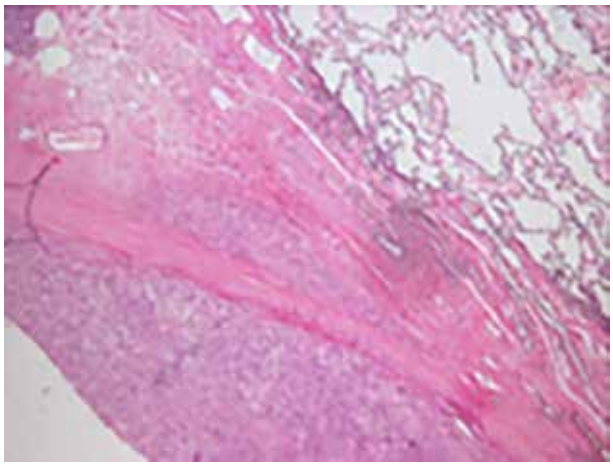

Figure 7. The microscopic feature showed the mass infiltration to the pericapsular connective tissue (HE, 40x).

DISCUSSION

Thymoma is a kind of rare primary mediastinal tumor derived from thymus epithelial cells. Thymoma represents the most common neoplasms of the anterior mediastinum. It usually presents in patients over 40 years of age, rarely in children. Its incidence increases with age (70 % of cases observed are in patients over the age of 40 years). In this case, the patient was 56 years old according to the literature (4,7-9).

The macroscopic feature of type A thymoma is generally well-circumscribed or encapsulated, with a brownish-white color and nebulous lobulated. The average tumor size is 5.9 -7.4 cm. On macroscopic examination, this patient showed a tumor mass of 18 x 11 x 7 cm, brownish-white in color with a broad necrosis area (4,10).

A microscopic feature of a type A thymoma, this tumor is surrounded by complete or incomplete fibrous capsules and nebulouslobulations with thick fibrous. Microcystic changes may occur but more frequently in the subcapsular area. Another characteristic is the growth pattern of rosettes, glandular or glomeruloid structures, Masson haemangioma-like papillary projections, meningioma-like whorls, fascicular and storiform growth. No Hassal corpuscles were found. Tumor cells in type A thymoma have spindle/oval-shaped, bland nuclei, finely granular chromatin, inconspicuous nucleoli, and are small or absent of immature lymphocytes. The mitotic activity is less than 4 per 2 mm^2. There are two typical characteristics of type A thymoma compared to other types of thymoma: there are so many spindle-oval epithelial cells and there are only a few or no immature T cells. Microscopic examination of this case also found the same feature as in the literature (4).

Approximately 55 % of asymptomatic thymoma are found accidentally through routine chest radiographic examination, in some cases causing symptoms associated with paraneoplastic syndrome. Symptoms are usually associated with mass effects, including compression and invasion of surrounding structures. Compression in the trachea, recurrent laryngeal nerve, or esophageal nerves causes cough, dyspnea, chest pain, respiratory infections, hoarseness, or swallowing disorders. Invasion of the surrounding cardiovascular structures causes superior cava vein syndrome and when the right atrial is compressed, it will cause sudden cardiac death, although this case is rare. This patient presents symptoms due to the local growth of the tumor as described above (11-13).

Histopathology Classification of Thymoma is according to WHO (type A, AB, B1, B2, and B3). Histopathological features of type A thymoma are primarily composed of epithelial cells with spindle / oval-shaped, bland nuclei, finely granular chromatin, inconspicuous nucleoli, only a few or no immature lymphocytes found; type AB thymoma has three typical features predominance of spindle cells, small lymphocyte cell components and many lymphocyte cells, epithelial cells with bland, spindle, oval and focal polygonal features, immune T cells: focal / widely diffused; type B1 thymoma are predominantly of cortical area, have lobes larger than the normal thymus, are separated by hypocellular collagenous septa. Individual epithelial cells between immature lymphocytes are dense. The cell boundaries are hard to see, have pale eosinophilic cytoplasm, irregular oval nuclei, mild pleomorphic, pale chromatin, clear nuclear membrane, and nucleoli are among the conspicuous structures; type B2 thymoma are blue (due to dense lymphocytes), fibrous and lobular (irregular) tumor capsules, with

epithelial cell groups (≥ 3 cells) spread among single lymphocyte / poorly differentiated cells. They have a round oval of nuclei, vesicular chromatin, a small promolentnucleoli, and focal anaplasia; in type B3 thymoma the lobes are separated by fibrous septa, pushing border, prominent perivesicular space with palisading epithelium, polygonal cells with eosinophilic/ clear cytoplasm, mild/moderate atypical, round/ elongated/grooved/raisinoid nuclei and nucleoli which are inconspicuous/prominent (4,13-16).

The diagnosis of thymoma is established based on the symptoms and clinical features, as well as radiological findings confirmed by histopathology examination as a gold standard. Generally, laboratory examination has no important role in establishing this thymoma (17).

Differential diagnosis of type A thymoma is an AB-type thymoma, type B3 thymoma, thymic carcinoma, and solitary fibrous tumor in the pleura. The differences between type A with type AB thymoma are based on morphology and the number of immature T cells. In type B3 thymoma, there is a prominent perivascular space whereas in type A thymoma, there are glands, rosettes, and a pericytomatous vascular pattern. In solitary fibrous tumors of pleura with the characteristic of spindle-shaped cells, there are sclerosis and wiry keloid-like collagen with growth patterns of fascicular and storiform, as well as mild cytoatypia. CD117 and especially CD5 expression can help to diagnose thymic carcinoma. Immunohistochemistry panels including p63, CD34, STAT6, CD56, TLE1, and molecular examination may help diagnosis (4,18).

The primary therapy for thymus tumors is surgery. Complete resection is a major factor in prognosis, so surgical resection is the basic therapy in patients with a thymoma. If the tumor appears invasive and large, preoperative (neoadjuvant) chemotherapy/radiotherapy may be used to decrease the size and make it resectable. When incomplete resection occurs, proved by pathologic examination suggesting that the remaining tumor remains, postoperative radiation therapy is recommended to achieve complete eradication. Overall survival rates in type A thymoma patients have been reported as 100 % for 5 to 10 years. Based on data from the International Thymic Malignancy Interest Group (ITMIG), the survival rate in 5 to 10 years reaches 90 % and 80 % respectively. The risk of recurrence in these tumors is low if surgery is complete (19-23).

CONCLUSION

Based on clinical examination, imaging and histopathology, it can be concluded that the histomorphology feature is consistent for type A thymoma, infiltrative to pericapsular connective tissue (pT2). Thymomas may be diagnosed incidentally at chest imaging, patients may be asymptomatic or present with symptoms due to thoracic mass. It is important to know diagnostic thymoma from clinical examination, imaging, and histopathology.

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