

# Characteristics of Mediastinal Tumor Patients in Cipto Mangunkusumo National Hospital Jakarta

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## ABSTRACT

Tumors of the mediastinum represent a wide diversity of disease states. Here in Indonesia, especially in Cipto Mangunkusumo National Hospital, we are still lacking of epidemiology, clinical, radiology, dan histopathology characteristics of mediastinal tumors.

Aim: to determine the characteristic of mediastinal tumor cases based on medical records. Methods: retrospective study was based on data that had been reported in Chest meetings those were held by Pulmonology Division of Internal Medicine in Cipto Mangunkusumo Hospital from January 2007 to Desember 2008. There were 27 cases of mediastinal tumor at that time.

Results: most patients were diagnosed with mediastinal tumor at age of above 40 years old (56%) and more than half patients are males (67%). From 13 patients (52%), it was confirmed that 9 of them had history of smoking. Cough, breathless, and weight loss were three most common symptoms found. Most common histological type of tumor was thymoma (33%). Seventeen (63%) patients underwent surgery. Radiotherapy and chemotherapy were done in 44% and 26% of patients.

Conclusions: researcher has managed 27 cases of mediastinal tumor from January 2007 to December 2008. More than half of them were at age of above 40 years old and thymoma was the most common histopathological finding.

**Keywords:** mediastinal tumor, thymoma.

## ABSTRAK

Tumor mediastinum mewakili keragaman penyakit di berbagai negara. Di Indonesia, khususnya di Rumah Sakit Nasional Cipto Mangunkusumo, masih kekurangan karakteristik epidemiologi, klinis, radiologi, dan karakteristik histopatologi dari tumor mediastinal.

Tujuan: untuk menentukan karakteristik kasus-kasus tumor mediastinum berbasis rekam medis. Metode: penelitian retrospektif ini didasarkan pada data yang telah dilaporkan dalam *Chest meetings* yang diselenggarakan oleh Divisi Pulmonologi Penyakit Dalam Rumah Sakit Cipto Mangunkusumo dari Januari 2007 sampai Desember 2008. Saat penelitian, terdapat 27 kasus tumor mediastinum.

Hasil: kebanyakan pasien didiagnosis tumor mediastinum pada usia di atas 40 tahun (56%) dan lebih dari separuh pasien berjenis kelamin laki-laki (67%). Dari 13 pasien (52%) telah dipastikan bahwa 9 dari mereka memiliki riwayat merokok. Tiga gejala yang paling umum ditemukan di antaranya batuk, terengah-engah, dan terjadinya penurunan berat badan. Jenis histologis yang paling umum dari tumor adalah thymoma (33%). Tujuh belas pasien (63%) di antaranya pernah menjalani pembedahan. Radioterapi oleh 44% pasien dan kemoterapi oleh 26% pasien.

Kesimpulan: peneliti menangani 27 kasus tumor mediastinum dari Januari 2007 hingga Desember 2008. Lebih dari separuh kasus terjadi pada usia di atas 40 tahun dan thymoma adalah temuan histopatologis yang paling umum.

**Kata kunci:** tumor mediastinum, thymoma.

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**INTRODUCTION**

Diseases related to mediastinal are mostly primary tumor, metastase, cyst, or acute or chronic infection. Mediastinal mass is mass that is found in mediastinum; a space between both lungs. Mediastinum space is limited and cannot be extended, if there is a mass there, it will compress other nearby organs then lead to critical and dangerous situation.<sup>1-3</sup> In a study of 400 patients by Davis et al., most of cases were mediastinal tumor. Lymphoma, thymoma and teratoma were the most common types of tumor found. From literature, mostly found tumor types in anterior mediastinum are lymphoma, thymoma, and germinal cell tumors.<sup>4</sup>

Most mediastinal tumors in adults occur in the anterior mediastinum and usually cancerous (malignant) lymphomas or thymomas. These tumors are most common in people ages 30 - 50. Almost half of mediastinal tumors cause no symptoms and are found on a chest x-ray performed for another reason.<sup>5</sup> Due to their location in the mediastinum, mediastinal tumors (both benign and malignant) that are left untreated can cause serious complications including invading the heart, pericardium (the lining around the heart), and great vessels (the aorta and vena cava). Tumors located in the posterior mediastinum can cause compression of the spinal cord.<sup>6</sup> Characteristic data about mediastinal tumor will be very helpful in making a diagnosis and treatment strategy. Compared to literatures from other countries, data on patients with mediastinal tumors in Indonesia is still minimal. In Cipto Mangunkusumo National Hospital, we are still lacking of epidemiology, clinical, radiology, dan histopathology characteristics of mediastinal tumors.

**MATERIAL AND METHODS**

This study was a retrospective study, based on data that had been reported in Chest meetings those were held by Pulmonology Division of Internal Medicine in Cipto Mangunkusumo Hospital from January 2007 to Desember 2008. There were 27 cases of mediastinal tumor which analyzed by the team.

**RESULTS**

Most patients who were diagnosed mediastinal tumor, above 40 years old (56%), while 33% was diagnosed at age between 20 and 40 years old and the rest was diagnosed under 20 (11%). More than half patients were males (67%). From 13 patients

(52%), it was confirmed that 9 of them had history of smoking.

**Table 1: Demographic patterns of patients with mediastinal tumor**

Characteristics	N	%
Gender		
Male	18	67
Female	9	33
Age		
<20 y	3	11
20 – 40 y	9	33
>40 y	15	56
Education Level		
No data	20	74
Junior high school	2	7
Senior high school	4	15
Bachelor	1	4
Ethnic group		
No data	12	44
Javanese	11	41
Sumatra	3	11
Papua	1	4
Smoking history		
No data	13	48
Yes	10	37
No	4	15

Cough, breathless, and weight loss are three most common symptoms found. While ronchi was found in almost half of samples (44%), Superior Caval Vein Syndrome (SCVS) and pleural effusion were most common complications found.

**Table 2: Clinical symptoms in patients with mediastinal tumor**

Clinical symptoms	N	%
Respiration symptoms		
Cough	20	74
Breathless	18	67
Chest pain	6	22
Non respiration syndrome		
Weight loss	18	67
Fever	9	33

**Table 3: Clinical signs in patients with mediastinal tumor**

Physical Examination	N	%
Lymphadenopathy	6	22
Ronchi	12	44
Wheezing	3	11
Complications		
SCVS	7	26
Pleural effusion	8	30
Myasthenia gravis	4	15

Researcher got data of histopathological from 18 patients. Six and two of them, respectively, had thymoma and thymic carcinoma. The rest are rhabdomyosarcoma, seminoma, teratoma, lymphoma, and squamous cell carcinoma each found in one sample. Seventeen (63%) patients underwent surgery. Radiotherapy and chemotherapy were done in 44% and 26% of patients.

**Table 4: Mediastinal tumor found based on histopathologic examination**

Mediastinal tumor	N	%
Thymoma	6	33.3
Lymphoma	1	5.5
Seminoma	1	5.5
Teratoma	1	5.5
Rhabdomyosarcoma	1	5.5
Thymic carcinoma	2	11.1
Squamous Cell Carcinoma	1	5.5

## DISCUSSION

Even though males were found most common gender, literature said that gender was not a predilection towards a particular type of specific mediastinal tumor, this result is as reported by Mingbai et al.<sup>7</sup> which collected data from 238 cases the results obtained 113 male and 125 female.

According to study described by Strollo et al., mediastinal tumor patients are at various ages according to the type of mediastinal tumor.<sup>8</sup> The relationship between tumor type with age of the patient obtained the following results on the most thymoma age over 40 years as many as 56%. This result is in accordance with result by Krupnick et al. which stated that most of thymoma patients are at the age above 40 years.<sup>9</sup>

Most patients with primary mediastinal tumors come to medical attention either because of development of local symptoms or as a result of the finding of an asymptomatic lesion on routine chest radiography. Local symptoms are generally caused by compression or invasion of adjacent structures and can include substernal chest pain, dyspnea, cough, or dysphagia. All these symptoms were found in our patients. Constitutional symptoms (eg. weight loss, fatigue, fever, night sweats) often accompany malignant tumors arising in the mediastinum.<sup>8</sup>

Pleural effusion in this study was found in 30% of patients. Percentage of pleural effusion caused by mediastinal tumor varies depends on type of the tumors. Thymoma, lymphoma, germ cell tumor cause different degree of pleural effusion. Zerhouni

et al. mentioned that pleural effusion occurring in patients with invasive thymoma is a very rare case.

Myasthenia gravis is included in the symptoms that often occur in patients with mediastinal tumor, thymoma in particular. Several theories explaining the relationship between myasthenia gravis in patients with thymoma explained that number of autoreactive T cell-specific anti cholinesterase receptor (AChR) is high in patients with thymoma.

Thymoma as the most common mediastinal tumor found was similar with study by Davis et al., (17%); Júnior RS et al., (35.1%); Pratama S (37.8%); Dubashi et al., (39%); Bastos et al., (31%);, and Shrivastava CP et al., (31%), that showed thymoma as the most common type found. Whereas studies by Vaziri et al., (31.5%); Nelson TG et al., (29 in 141 samples); Adegboye VO et al., (21.9%); showed mediastinal lymphoma and Kim KR et al., (28.4%) found germinal cell tumor of the mediastinum was the most tumor types found.

Limitations of the study is a retrospective study that retrieves data from secondary source; patient's medical record. Completeness and reliability of data depends on doctor assessing the patient at that time. Some of anamnesis, physical examination and other investigations are not always listed in any medical record.

## CONCLUSION

Researcher managed 27 cases of mediastinal tumor from January 2007 to December 2008. More than half of them were at age of above 40 years old and thymoma was the most common histopathological finding.

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