Analysis of 332 Mediastinal Masses in Thailand: Histopathology and Predictive Factors for Lymphoma

Weerapat Owattanapanich MD*, Rattapan Lamool MD*,
Tawatchai Pongpruttipan MD**, Theera Ruchutrakool MD*

** Division of Hematology, Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand*
*** Department of Pathology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand*

Background: *Mediastinal mass is an uncommon condition in clinical practice. Few mediastinal mass studies have been reported from Thailand.*
Objective: *To determine the prevalence of mediastinal mass, the histopathologic variations of mediastinal mass, and the predictive factors for diagnosis of lymphoma in Thai patients.*
Material and Method: *This retrospective hospital-based chart review was conducted in patients who were definitively diagnosed with mediastinal mass at Siriraj Hospital between January 1, 2011 and December 31, 2015. Demographic data, radiographic findings, and histopathology were collected and analyzed.*
Results: *Three hundred thirty two of 3,107,341 cases who received treatment during the study period were diagnosed with mediastinal mass for a prevalence rate of 0.01%. Mean age was 47.4±17.4 years. Gender distribution was 187 men and 145 women for a ratio of 1.3:1, respectively. Seventy-five percent of cases were symptomatic. Common symptoms included dyspnea (39.4%), cough (38.5%), weight loss (27.6%), and chest pain (23.9%). About 95% of masses were located in the anterior compartment. The histopathologic results were, as follows: thymic disorders (thymoma and malignant thymoma), lymphoma, metastatic cancer, and germ cell tumor in 45.8%, 21.7%, 12.9%, and 9% of cases, respectively. In multivariate analysis, patients with younger age (adjusted OR 0.93; 95% CI 0.91 to 0.96), fever (adjusted OR 4.78; 95% CI 1.31 to 17.36), intrathoracic lymphadenopathy (adjusted OR 3.57; 95% CI 1.49 to 8.58), and pericardial effusion (adjusted OR 3.46; 95% CI 1.23 to 9.72) were found to have increased probability of mediastinal lymphoma.*
Conclusion: *Mediastinal mass is a rare condition that affects all age groups with a prevalence of 0.01%. Thymic disorders are the most common cause. Predictive factors for diagnosis of lymphoma are younger age, fever, intrathoracic lymphadenopathy, and pericardial effusion.*

Keywords: *Mediastinum, Mediastinal mass, Thymoma, Lymphoma, Thailand*

J Med Assoc Thai 2017; 100 (6): 630-7
Full text. e-Journal: *http://www.jmatonline.com*

Mediastinal mass is an uncommon condition in clinical practice. Previous epidemiologic studies reported the prevalence of mediastinal mass to be 0.8 to 0.9%[1,2]. The common etiologies of mediastinal mass were found to be thymic disorders (17 to 60%), lymphoma (30 to 43.6%), thyroid mass (9.9 to 22%), and germ cell tumor (7 to 15%)[2-5]. Most patients had symptoms at initial presentation (94 to 97%), with severity varying from mild degree to life-threatening conditions, such as superior vena cava (SVC) syndrome[3-5]. Few studies in mediastinal mass have been reported from Thailand. The studies that have been published had sample sizes that were too small to facilitate the calculation of a reliable prevalence rate for this disease.

Correspondence to:
Ruchutrakool T, Division of Hematology, Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, 2 Wang Lang Road, Bangkoknoi, Bangkok 10700, Thailand.
Phone: +66-2-4194448, Fax: +66-2-4112012
E-mail: sitrc@mahidol.ac.th

Mediastinal lymphoma is one of the common causes of mediastinal mass which responds well to corticosteroid therapy. If lymphoma is the most likely diagnosis in a critically ill patient with mediastinal mass by any clinical clues, physicians should consider immediate empirical treatment with corticosteroids. This treatment could reverse a potentially life-threatening condition that could develop before a pathologic result is reported.

The aim of this study was to determine the prevalence of mediastinal mass, the histopathologic variations of mediastinal mass, and the predictive factors for diagnosis of lymphoma in Thai patients.

Material and Method

Study population

This retrospective hospital-based chart review was conducted in patients who were definitively diagnosed with mediastinal mass at Siriraj Hospital between January 1, 2011 and December 31, 2015.

Siriraj Hospital is Thailand's largest national tertiary referral center. Adult patients with confirmed mediastinal mass were identified, and demographic characteristics, clinical manifestations, laboratory results, imaging studies, diagnostic procedures, and histopathologic results were collected and evaluated. The inclusion criteria for this study were: 1) presence of mediastinal mass confirmed by computed tomography (CT) or magnetic resonance imaging (MRI), 2) patient age greater than 18 years, and 3) definitive diagnosis of mediastinal mass by histopathologic evaluation. Patients who had received prior care from another center and those with recurrent disease from a prior diagnosis were excluded. The protocol for this study was approved by the Siriraj Institutional Review Board (SIRB), Faculty of Medicine Siriraj Hospital, Mahidol University. This study complied with the guidelines outlined in the Declaration of Helsinki and all of its subsequent amendments.

Statistical analysis

Data were prepared and analyzed using PASW 18.0 (SPSS Inc., Chicago, IL, USA). Continuous variables were expressed as mean and standard deviation (SD), or median and interquartile range (IQR) as appropriate. Number and percentage were described for categorical variables. Independent sample t-test or Mann-Whitney U test, as appropriate, was used to compare continuous variables between lymphoma and non-lymphoma groups. Categorical variables between groups were compared with Chi-square test or Fisher's exact test. Simple and multiple logistic regression models (backward stepwise) were used to investigate the relationship between potential factors and lymphoma. Adjusted odds ratio (adjusted OR) and corresponding 95% CI were used to evaluate the strength of association between predictive factors and lymphoma. All tests of significance were tailed, *p*-value <0.05 was considered statistical significance.

Results

Prevalence and patient characteristics

Three hundred forty seven of 3,107,341 overall cases who received treatment during the study period were diagnosed with mediastinal mass. Fifteen patients were excluded, eight patients had received prior treatment at other centers and seven patients had recurrent disease. The remaining 332 patients were included. The prevalence rate of mediastinal mass was 0.01%. Mean age was 47.4±17.4 years. Gender distribution was 187 men and 145 women for a ratio of 1.3:1, respectively. Nearly three-fourths (73.2%) of patients had abnormal symptoms at initial presentation, including 127 (38.3%) with dyspnea, 124 (37.4%) with cough, 89 (26.8%) with weight loss, 77 (23.2%) with chest pain, 43 (12.9%) with SVC syndrome, 34 (10.2%) with proximal muscle weakness, 31 (9.3%) with superficial lymphadenopathy, 30 (9%) with fever, and 30 (9%) with hoarseness of voice (Table 1).

The overwhelming majority of cases had anterior mediastinal mass, followed by mass at posterior and middle mediastinum (92.5%, 6.9%, and 3.6%, respectively). Only 3% of cases had mass involving multiple compartments. About 90% of patients had widening mediastinum from plain chest x-ray, while pleural effusion was found in about half of cases (Table 1). Thymic disorders were the most common cause of mediastinal mass (45.8%), followed by lymphoma (21.7%), metastatic cancer (12.9%), germ cell tumor (9%), and thyroid disorders (0.9%) (Table 2).

Among the 152 patients with thymic disorders, 57 (37.5%) were thymoma type AB, 22 (14.5%) were thymoma type B1, 22 (14.5%) were thymoma type B2, 18 (11.8%) were thymic carcinoma, 17 (11.2%) were thymoma type B3, 11 (7.2%) were thymoma type A, and 5 (3.3%) patients had other benign lesions or unknown types.

Among the 72 lymphoma patients, 24 (33.3%) had primary mediastinal B-cell lymphoma (PMBL), 19 (26.4%) had diffuse large B-cell lymphoma (DLBCL), 19 (26.4%) had Hodgkin lymphoma (HL), and 5 (6.9%) had acute lymphoblastic lymphoma/leukemia (ALL).

The 43 metastatic cancer patients had the following types: 29 (67.4%) patients had lung cancer, 10 (23.3%) patients had cancer of unknown primary, 4 (9%) patients had skin and soft tissue cancer, 1 (2.3%) patient had GI tract cancer, and 4 (9.3%) patients had another unspecified type of cancer.

Predictive factors for mediastinal lymphoma

Baseline characteristics of each group

When we compared the baseline characteristics between lymphoma and non-lymphoma patients, patients in the lymphoma group were younger than patients in the non-lymphoma group (35.1±14.3 vs. 50.8±16.6 years, respectively; $p<0.001$). Lymphoma patients had significantly more symptoms than non-lymphoma patients at initial presentation, including dyspnea (55.6% vs. 33.5%; $p = 0.001$), cough (59.7% vs. 31.2%; $p<0.001$), weight loss (47.2% vs. 21.2%;

Table 1. Demographic and clinical characteristics of patients

Demographic and clinical characteristics	Number (n = 332)
Baseline characteristics	
Age (years), mean ± SD	47.4±17.4
Male:female (n)	187:145
Male:female (ratio)	1.3:1
Duration of symptoms (days), median (^{25}P, ^{75}P)	67.5 (30, 180)
Clinical presentation (n = 332), n (%)	
- Asymptomatic	89 (26.8)
- Dyspnea	127 (38.3)
- Cough	124 (37.4)
- Weight loss	89 (26.8)
- Chest pain	77 (23.2)
- SVC syndrome	43 (12.9)
- Proximal muscle weakness	34 (10.2)
- Superficial lymphadenopathy	31 (9.3)
- Fever	30 (9.0)
- Hoarseness of voice	30 (9.0)
Laboratory findings	
CBC	
- Hb level (g/dL), mean ± SD	12.6±2.1
- WBC (x109/L), median (^{25}P, ^{75}P)	8.12 (6.4, 10.5)
- Platelets count (x109/L), median (^{25}P, ^{75}P)	290 (241, 368)
LDH (U/L), median (^{25}P, ^{75}P)	439 (312, 769)
Tumor markers	
- α-fetoprotein (U/dL), median (^{25}P, ^{75}P)	1.9 (1.33, 2.65)
- CEA (U/dL), median (^{25}P, ^{75}P)	1.8 (1.0, 3.1)
- β-hCG (U/dL), median (^{25}P, ^{75}P)	0.1 (<0.1, 1.0)
Radiographic findings	
Location of mass, n (%)	
- Anterior mediastinum	307 (92.5)
- Middle mediastinum	12 (3.6)
- Posterior mediastinum	23 (6.9)
- Multiple compartments	10 (3.0)
Plain film CXR, n (%)	
- Widening mediastinum	301 (90.7)
- Pleural effusion	59 (17.8)
- Lung mass	12 (3.6)
- Normal CXR	23 (6.9)
CT findings*, n (%)	
- Size (cm), mean ± SD	6.9±3.0
- Mediastinal mass	311/326 (95.4)
Calcification (rim or internal)	55/325 (16.9)
Fat content	10/325 (3.1)
Cystic lesion	16/325 (4.9)
Necrotic lesion	34/325 (10.5)
Invasion	58/325 (17.9)
- Intrathoracic lymphadenoapthy	100/325 (30.8)
- Vascular thrombosis	17/325 (5.2)
- Lung mass	17/326 (5.2)
- Pleural effusion	71/325 (21.9)
- Pericardial effusion	44/325 (13.5)
- Intra-abdominal lymphadenopathy	27/162 (16.7)
- Hepatomegaly	15/206 (7.3)
- Splenomegaly	7/205 (3.4)

SVC = superior vena cava; CBC = complete blood count; Hb = hemoglobin; WBC = white blood cell; LDH = lactate dehydrogenase; CEA = carcinoembryonic antigen; β-hCG = β-human chorionic gonadotropin; CXR = chest X-ray; CT = computed tomography
* Only patients with available data were included in the analysis

Table 2. Etiologies of mediastinal mass

Etiology	Number (n = 332) n (%)
Thymic disorders	152 (45.8)
Lymphoma	72 (21.7)
Primary mediastinal B cell lymphoma	24 (7.2)
Diffuse large B cell lymphoma	19 (5.7)
Hodgkin lymphoma	19 (5.7)
Acute lymphoblastic lymphoma/leukemia	5 (1.5)
Others	5 (1.5)
Metastatic cancer	43 (12.9)
Lung	29 (8.7)
Cancer of unknown primary	10 (3.0)
Skin and soft tissue	4 (1.2)
GI tract	1 (0.3)
Others	4 (1.2)
Germ cell tumor	30 (9.0)
Thyroid disorders	3 (0.9)
Others (e.g., schwannoma, ganglioneuroma, cyst, TB)	32 (9.6)

GI = gastrointestinal; TB = tuberculosis

p<0.001), SVC syndrome (29.2% vs. 8.5%; p<0.001), superficial lymphadenopathy (25% vs. 5%; p<0.001), and fever (22.2% vs. 5.4%; p<0.001) (Table 3).

Regarding initial investigations, the mediastinal lymphoma group had a higher median platelet count (342,000/mcL vs. 278,500/mcL; p<0.001), higher mean serum globulin level (3.7 g/dL vs. 3.4 g/dL; p = 0.003), and higher median lactate dehydrogenase (LDH) level (557 U/L vs. 380 U/L; p = 0.01) than the non-lymphoma group. In contrast, the lymphoma group had lower median α-fetoprotein (1.6 U/dL vs. 2 U/dL; p = 0.05) and carcinoembryonic antigen (CEA) (0.9 U/dL vs. 2 U/dL; p = 0.03) levels, as compared to the non-lymphoma group (Table 3).

For imaging studies, the lymphoma group had many more abnormal findings from chest X-ray (CXR) or CT scan than the non-lymphoma group, including widening mediastinum from CXR (98.6% vs. 88.5%; p = 0.009), pleural effusion from CXR (30.6% vs. 14.2%; p = 0.001), mass size from CT (8.4 cm vs. 6.5 cm; p<0.001), necrotic lesion from CT (21.4% vs. 7.5%; p = 0.001), mediastinal invasion from CT (34.3% vs. 13.3%; p<0.001), intra-thoracic lymphadenopathy from CT (61.4% vs. 22.4%, p<0.001), pericardial effusion from CT (30% vs. 9.02%; p<0.001), intra-abdominal lymphadenopathy from CT (35.2% vs. 7.4%; p<0.001), and hepatomegaly from CT (17.2% vs. 3.38%, p = 0.001). In contrast, significantly less abnormal calcification was observed on CT scan in the lymphoma group than in the non-lymphoma group (2.9% vs. 20.8%; p<0.001). Moreover, we did not

Table 3. Comparison of clinical characteristics, laboratory findings, and radiographic findings between patients with mediastinal lymphoma and patients with other causes of mediastinal mass

Clinical characteristics	Lymphoma (n = 72)	Non-lymphoma (n = 260)	*p*-value
Age (years), mean ± SD	35.1±14.3	50.8±16.6	<0.001
Duration of symptoms, median (^{25}P, ^{75}P)	60 (30, 120)	90 (30, 180)	0.053
Clinical presentation, n (%)			
Asymptomatic	3 (4.2)	87 (33.5)	<0.001
Dyspnea	40 (55.6)	87 (33.5)	0.001
Cough	43 (59.7)	81 (31.2)	<0.001
Weight loss	34 (47.2)	55 (21.2)	<0.001
Chest pain	22 (30.6)	55 (21.2)	0.094
SVC syndrome	21 (29.2)	22 (8.5)	<0.001
Proximal muscle weakness	2 (2.8)	32 (12.3)	0.018
Superficial lymphadenopathy	18 (25.0)	13 (5.0)	<0.001
Fever	16 (22.2)	14 (5.4)	<0.001
Hoarseness of voice	4 (5.6)	26 (10.0)	0.244
Laboratory			
CBC			
Hb level (g/dL), mean ± SD	12.5±2.1	12.60±2.11	0.648
MCV (fL), mean ± SD	83.1±6.3	83.9±9.0	0.468
WBC (x109/L), median (^{25}P, ^{75}P)	8.8 (6.5, 11.3)	8 (6.4, 10.3)	0.195
Platelets count (x109/L), median (^{25}P, ^{75}P)	342 (272, 400)	278.5 (236.5, 348.5)	<0.001
Globulin (g/dL), mean ± SD	3.7±0.7	3.4±0.7	0.003
LDH (U/L), median (^{25}P, ^{75}P)	557 (358, 898)	380 (277.5, 650.5)	0.010
Tumor markers			
α-fetoprotein (U/dL), median (^{25}P, ^{75}P)	1.6 (1.0, 2.4)	2.0 (1.5, 2.9)	0.050
CEA (U/dL), median (^{25}P, ^{75}P)	0.9 (0.5, 1.9)	2.0 (1.3, 3.3)	0.030
β-hCG (U/dL), median (^{25}P, ^{75}P)	0.1 (0.1, 0.4)	0.1 (0.1, 1.4)	0.208
Radiologic findings			
Location of mass (n = 332), n (%)			
Anterior mediastinum	70 (97.2)	237 (91.2)	0.084
Middle mediastinum	5 (6.9)	7 (2.7)	0.143
Posterior mediastinum	4 (5.6)	19 (7.3)	0.795
Multiple compartments	6 (8.3)	4 (1.5)	0.009
Plain CXR (n = 332), n (%)			
Widening mediastinum	71 (98.6)	230 (88.5)	0.009
Pleural effusion	22 (30.6)	37 (14.2)	0.001
Lung mass	3 (4.2)	9 (3.5)	0.727
CT findings*, n (%)			
Size (cm), mean ± SD	8.4±2.7	6.5±2.9	<0.001
Mediastinal mass	69/70 (98.6)	242/256 (94.5)	0.207
- Calcification (rim or internal)	2/70 (2.9)	53/255 (20.8)	<0.001
- Fat content	0/70 (0)	10/255 (3.9)	0.127
- Cystic lesion	0/70 (0)	16/255 (6.3)	0.028
- Necrotic lesion	15/70 (21.4)	19/255 (7.5)	0.001
- Invasion	24/70 (34.3)	34/255 (13.3)	<0.001
Intrathoracic lymphadenopathy	43/70 (61.4)	57/255 (22.4)	<0.001
Vascular thrombosis	6/70 (8.6)	11/254 (4.3)	0.220
Lung mass	0/70 (0)	17/256 (6.6)	0.029
Pleural effusion	26/70 (37.1)	45/255 (17.6)	0.003
Pericardial effusion	21/70 (30.0)	23/255 (9.0)	<0.001
Intra-abdominal lymphadenopathy	19/54 (35.2)	8/108 (7.4)	<0.001
Hepatomegaly	10/58 (17.2)	5/148 (3.4)	0.001
Splenomegaly	1/58 (1.7)	6/147 (4.1)	0.676

MCV = mean corpuscular volume
* Only patients with available data were included in the analysis
p-value <0.05 indicates statistical significance

find any cystic or fat characteristics of the mediastinal mass on CT scan in the lymphoma group (Table 3).

Univariate and multivariate analysis

In univariate analysis, age, asymptomatic at presentation, SVC syndrome, fever, weight loss, night sweating, superficial lymphadenopathy, serum globulin level, and certain characteristics on CT imaging (multiple sites in mediastinum, pleural effusion, size of mass, necrosis, intrathoracic lymphadenopathy, pericardial effusion, intra-abdominal lymphadenopathy, and hepatomegaly) were associated with a high likelihood of mediastinal lymphoma. After adjusting all potential factors that were significantly associated with lymphoma in mediastinal mass patients from univariate analysis, the results showed that patients with younger age (adjusted OR 0.93; 95% CI 0.91 to 0.96), fever (adjusted OR 4.78; 95% CI 1.31 to 17.36), intrathoracic lymphadenopathy (adjusted OR 3.57; 95% CI 1.49 to 8.58), and pericardial effusion (adjusted OR 3.46; 95% CI 1.23 to 9.72) were found to have increased probability of mediastinal lymphoma (Table 4).

Discussion

The prevalence of mediastinal mass in Thailand during this study period was 0.01%, which was much lower than the 0.8%[2] and 0.9%[3] rates reported from two previous studies. We hypothesize that certain identifiable factors may have influenced the low prevalence of mediastinal mass found in this study. First, this was not a surveillance study, so data of asymptomatic patients with undiagnosed mediastinal mass were not included in our analysis. Second, plain CXR was routinely used for diagnosis of mediastinal mass in Thailand during the study period, and plain CXR is not as sensitive as CT scan or MRI for diagnosing this condition. By comparison, CT and MRI were the imaging modalities used to diagnose mediastinal mass in the two aforementioned studies[2,3].

The common clinical presentations of patients with mediastinal mass in this study included dyspnea, cough, weight loss, and chest pain, all of which were not different from those reported in other studies[1-8]. Similar to another previous report[9], up to 26% of patients in this study were asymptomatic mediastinal mass at presentation. All of those patients were diagnosed from annual health examination. Thus, the estimated prevalence of incidental mass was 0.002%.

In symptomatic patients, plain CXR was found to be effective for diagnosis of mediastinal mass, with abnormal findings being identified in approximately 90% of patients.

Table 4. Univariate and multivariate analysis of predictive factors for mediastinal lymphoma

Parameters	Univariate			Multivariate		
	Crude OR	95% CI	*p*-value	Adjusted OR	95% CI	*p*-value
Age	0.94	0.92 to 0.95	<0.001	0.93	0.91 to 0.96	<0.001
Asymptomatic	0.09	0.02 to 0.27	<0.001	-	-	-
SVC syndrome	4.46	2.28 to 8.71	<0.001	-	-	-
Weight loss	3.34	1.92 to 5.78	<0.001	-	-	-
Fever	5.02	2.32 to 10.88	<0.001	4.78	1.31 to 17.36	0.018
Night sweating	9.14	2.73 to 30.65	<0.001	-	-	-
Superficial lymphadenoapthy	6.33	2.93 to 13.70	<0.001	-	-	-
Globulin	1.75	1.20 to 2.54	0.003	-	-	-
Multiple compartments of mediastinum	5.82	1.60 to 21.22	0.008	-	-	-
Pleural effusion	2.65	1.44 to 4.88	0.002	-	-	-
Size of mass	1.23	1.12 to 1.35	<0.001	-	-	-
Necrotic lesion	3.39	1.62 to 7.06	0.001	-	-	-
Intrathoracic lymphadenopathy	5.53	3.15 to 9.73	<0.001	3.57	1.49 to 8.58	0.004
Pericardial effusion	4.32	2.22 to 8.42	<0.001	3.46	1.23 to 9.72	0.018
Intra-abdominal lymphadenopathy	6.79	2.73 to 16.88	<0.001	-	-	-
Hepatomegaly	5.96	1.94 to 18.30	0.002	-	-	-

p-value <0.05 indicates statistical significance

The first and second most frequent etiologies of mediastinal mass were thymic disorders and lymphoma, which is consistent with previous studies[4,5,8]. However, metastatic cancers were the third most common etiology in our study, while germ cell tumor was listed third in several other previous studies[4,5,8]. In contrast to the previous study in India, metastatic cancer was the most common prevalence of mediastinal mass whereas non-Hodgkin lymphoma and thymic lesion were the second and third common etiologies, respectively[10]. Regarding prevalence of specific cell type in mediastinal lymphoma patients, the findings of our study were consistent with previously reported cell type rates[11]. Primary mediastinal B cell lymphoma was the most common, followed by diffuse large B cell lymphoma and Hodgkin lymphoma.

From univariate and multivariate analysis, patients with younger age, fever, and some specific characteristics on CT imaging, such as mediastinal lymphadenopathy and pericardial effusion had a significantly higher probability of having lymphoma. Fever was the only significant clinical symptom for the prediction of mediastinal lymphoma. Similar to our study, a previous study also found that B symptoms and superficial lymphadenopathy were common in diffuse large B cell lymphoma patients with mediastinal mass[11]. Even though high LDH was reported to be the predictive marker for lymphoma in previous studies[12-14], it was not found to be a predictive factor of mediastinal lymphoma in our study. Interestingly, mediastinal lymphadenopathies and pericardial effusion detected by imaging study were predictive factors for lymphoma in our study.

Based on the results of this study, in emergency settings (especially SVC syndrome) and apart from diuretic agents, corticosteroid should be empirically given until histopathologic diagnosis is established if clinical clues of mediastinal mass are present. Significant predictive factors from this study include young age, fever, enlarged mediastinal lymphadenopathy, and pericardial effusion.

This is the first epidemiologic study of mediastinal mass in Thailand. However, taking into account that this was not a surveillance study, the prevalence of mediastinal mass reported in this study may be lower than in the general population.

Conclusion

Mediastinal mass is a rare condition that affects all age groups with a prevalence of 0.01%. Thymic disorders are the most common cause. Predictive factors for diagnosis of lymphoma are younger age, fever, intrathoracic lymphadenopathy, and pericardial effusion.

What is already known on this topic?

There were some previous studies about the etiologies of mediastinal masses, but this study included a large number of cases. The common etiologies of mediastinal masses in our study were slightly different from the previous results.

What this study adds?

The prevalence of mediastinal mass in Thailand was 0.01%. Several predictive factors for the diagnosis of lymphoma was identified which could help physicians to manage patients in an emergency situation such as SVC syndrome.

Authors' contributions

Owattanapanich W and Lamool R designed the study, collected the data, performed statistical analysis, and drafted the manuscript. Ruchutrakool T and Pongpruttipan T supervised the project and made critical revisions to the manuscript. All authors read and approved the final manuscript.

Acknowledgments

The authors gratefully acknowledge Ms. Khemajira Karaketklang for assistance with statistical analysis.

Potential conflicts of interest

None.

References

1. Balk RA, Stevens D. Pulmonary disease board review manual: Etiology and diagnosis of mediastinal masses. Pulmonary Disease 1999; 6 Part 2: 1-11.
2. Henschke CI, Lee IJ, Wu N, Farooqi A, Khan A, Yankelevitz D, et al. CT screening for lung cancer: prevalence and incidence of mediastinal masses. Radiology 2006; 239: 586-90.
3. Araki T, Nishino M, Gao W, Dupuis J, Washko GR, Hunninghake GM, et al. Anterior mediastinal masses in the framingham heart study: Prevalence and CT image characteristics. Eur J Radiol Open 2015; 2: 26-31.
4. Aroor AR, Prakasha SR, Seshadri S, Teerthanath S, Raghuraj U. A study of clinical characteristics of mediastinal mass. J Clin Diagn Res 2014; 8:

77-80.
5. reza Asgary M, Aghajanzadeh M, Hemmati H, Jafari M. Epidemiology of mediastinal tumors during six years (2006-2012) in Rasht City. Emergencias 2014; 2: 88-94.
6. Dubashi B, Cyriac S, Tenali SG. Clinicopathological analysis and outcome of primary mediastinal malignancies - A report of 91 cases from a single institute. Ann Thorac Med 2009; 4: 140-2.
7. Carter BW, Marom EM, Detterbeck FC. Approaching the patient with an anterior mediastinal mass: a guide for clinicians. J Thorac Oncol 2014; 9 (9 Suppl 2): S102-9.
8. Davis RD Jr, Oldham HN Jr, Sabiston DC Jr. Primary cysts and neoplasms of the mediastinum: recent changes in clinical presentation, methods of diagnosis, management, and results. Ann Thorac Surg 1987; 44: 229-37.
9. Whooley BP, Urschel JD, Antkowiak JG, Takita H. Primary tumors of the mediastinum. J Surg Oncol 1999; 70: 95-9.
10. Nasit JG, Patel M, Parikh B, Shah M, Davara K. Anterior mediastinal masses: A study of 50 cases by fine needle aspiration cytology and core needle biopsy as a diagnostic procedure. South Asian J Cancer 2013; 2: 7-13.
11. Mangasarova I, Magomedova AU, Kravchenko SK, Zvonkov EE, Kremenetskaia AM, Vorob'ev VI, et al. Diffuse large B-cell lymphoma with primary involvement of mediastinal lymph nodes: diagnosis and treatment. Ter Arkh 2010; 82: 61-5.
12. Schilling RF, McKnight B, Crowley JJ. Prognostic value of serum lactic dehydrogenase level in Hodgkin's disease. J Lab Clin Med 1982; 99: 382-7.
13. Hagberg H, Siegbahn A. Prognostic value of serum lactic dehydrogenase in non-Hodgkin's lymphoma. Scand J Haematol 1983; 31: 49-56.
14. Flanagan NG, Ridway JC, Platt CC, Rowlands AJ, Whitson A. Lactic dehydrogenase estimation in haematological malignancies. Clin Lab Haematol 1989; 11: 17-26.
15. Totanarungroj K, Watcharaporn C, Muangman N. Helpful CT findings for giving specific diagnosis of anterior mediastinal tumors. J Med Assoc Thai 2010; 93: 489-96.

การศึกษาลักษณะทางคลินิกของผู้ป่วยที่มีก้อนในช่องอกในประเทศไทยจำนวน 332 ราย: ผลทางพยาธิวิทยา และปัจจัยที่ใช้ทำนายโรคมะเร็งต่อมน้ำเหลือง

วีรภัทร โอวัฒนาพานิช, รัฐพันธ์ ละมูล, ธวัชชัย พงศ์พฤฒิพันธ์, ธีระ ฤชุตระกูล

ภูมิหลัง: *ก้อนในช่องอกเป็นความผิดปกติที่พบได้ไม่บ่อย ผู้ป่วยอาจไม่มีอาการหรือมีอาการมาก เช่น การอุดกั้นของหลอดเลือดดำใหญ่บริเวณคอ ซึ่งต้องการรักษาอย่างเร่งด่วน และหากการอุดกั้นมีสาเหตุจากมะเร็งต่อมน้ำเหลือง การให้สเตียรอยด์ก่อนที่จะทราบการวินิจฉัยที่แน่นอนจากผลการตรวจทางพยาธิวิทยาจะช่วยบรรเทาอาการให้ดีขึ้นอย่างรวดเร็ว อย่างไรก็ตามการศึกษาเกี่ยวกับความชุกและสาเหตุของก้อนในช่องอกในประเทศไทยยังมีจำกัด และการศึกษาส่วนใหญ่มีผู้ป่วยจำนวนไม่มาก*

วัตถุประสงค์: *เพื่อศึกษาความชุกของภาวะก้อนในช่องอก สาเหตุของภาวะก้อนในช่องอกโดยมีผลทางพยาธิวิทยายืนยัน และเพื่อศึกษาปัจจัยที่ใช้ในการทำนายว่าก้อนในช่องอกที่พบเกิดจากมะเร็งต่อมน้ำเหลือง*

วัสดุและวิธีการ: *การศึกษาครั้งนี้เป็นการศึกษาย้อนหลังในผู้ป่วยที่มีก้อนในช่องอก ซึ่งเข้ารับการรักษาในโรงพยาบาลศิริราช ตั้งแต่เดือนมกราคม พ.ศ. 2554 จนถึง ธันวาคม พ.ศ. 2558 โดยทำการเก็บข้อมูลพื้นฐาน อาการทางคลินิก ผลการตรวจทางห้องปฏิบัติการ ภาพถ่ายรังสี และผลทางพยาธิวิทยา โดยผลการศึกษาแบ่งเป็น 2 ระยะ คือ ระยะที่ 1 เพื่อศึกษาความชุกของภาวะก้อนในช่องอก และระยะที่ 2 เพื่อศึกษาปัจจัยที่ใช้ในการทำนายการเกิดมะเร็งต่อมน้ำเหลือง*

ผลการศึกษา: *จากการศึกษาพบผู้ป่วยที่มีก้อนในช่องอกทั้งสิ้น 332 ราย จากผู้ป่วยที่มารับการรักษา ณ โรงพยาบาลศิริราชจำนวน 3,107,341 ราย คิดเป็นความชุกร้อยละ 0.01 โดยค่าเฉลี่ยอายุของผู้ป่วยคือ 47.4 ปี ผู้ป่วย 2 ใน 3 มีอาการทางคลินิกเมื่อแรกวินิจฉัย โดยอาการที่พบได้บ่อยคือ เหนื่อย (ร้อยละ 39.4) ไอ (ร้อยละ 38.5) น้ำหนักลด (ร้อยละ 27.6) และเจ็บหน้าอก (ร้อยละ 23.9) จากภาพถ่ายรังสีทรวงอกพบว่าตำแหน่งของก้อนส่วนใหญ่ (ร้อยละ 95) อยู่ด้านหน้าของช่องอก (anterior mediastinum) สำหรับสาเหตุของก้อนในช่องอก ได้แก่ โรคของต่อมไทมัส (ร้อยละ 45.8) มะเร็งต่อมน้ำเหลือง (ร้อยละ 21.7) มะเร็งแพร่กระจาย (ร้อยละ 12.9) และมะเร็งของเซลล์สืบพันธุ์ (ร้อยละ 9) สำหรับปัจจัยที่ใช้ในการทำนายว่าก้อนในช่องอกเป็นมะเร็งต่อมน้ำเหลือง ได้แก่ ผู้ป่วยอายุน้อย การมีไข้ ต่อมน้ำเหลืองในช่องอกโต และน้ำในเยื่อหุ้มหัวใจจากภาพถ่ายเอกซเรย์คอมพิวเตอร์*

สรุป: *ภาวะก้อนในช่องอกเป็นภาวะที่พบได้ไม่บ่อย มีความชุกร้อยละ 0.01 โดยโรคของต่อมไทมัสเป็นสาเหตุที่พบได้บ่อยที่สุด สำหรับปัจจัยที่ใช้ในการทำนายว่าก้อนในช่องอกเป็นมะเร็งต่อมน้ำเหลือง ได้แก่ ผู้ป่วยอายุน้อย การมีไข้ ต่อมน้ำเหลืองในช่องอกโต และน้ำในเยื่อหุ้มหัวใจจากภาพถ่ายเอกซเรย์คอมพิวเตอร์*