



Early View

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Pathological characteristics of mediastinal masses in Sri Lanka 2017-2021: A retrospective observational study

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To the Editor,

We read the article titled “Mediastinal tumours and pseudo-tumours: a comprehensive review with emphasis on multidisciplinary approach” by Ghina *et al.*, with interest. Mediastinal masses are a relatively uncommon entity with diverse clinicopathological characteristics. They encompass approximately 3% of thoracic tumours [1], however, the precise estimates of incidence remain unclear. Furthermore, correlating the demographic characteristics such as age and sex with radiological and laboratory findings is important to make a clinical diagnosis [2]. We have previously reported a pathological analysis of mediastinal masses in Sri Lanka in the year 2017 [3]. Here, we report the results of a five-year continuation of our previous study.

We conducted a retrospective observational study among patients referred to the National Hospital for Respiratory Diseases (NHRD), Welisara, Sri Lanka from 2017 to 2021. Being the ultimate referral centre for patients with mediastinal masses in Sri Lanka, we could recruit a nationally representative patient sample from the NHRD. We included all patients who underwent histopathological analysis of mediastinal masses during this period and excluded patients with thyroid and tracheo-oesophageal masses and those with inconclusive histological diagnoses (N=30). We analysed demographic and pathological characteristics and their associations.

The study sample was comprised of 550 patients (male=304, female=246). The age of the participants ranged from one to 83 (mean=43, SD=17) years. The mediastinal masses were distributed in anterior (55.5%, N=305), middle (24.5%, N=135), superior (11.1%, N=61) and posterior (8.9%, N=49) mediastina in the descending frequency. Overall, the commonest mass was due to thymic lesions (31.1%, N=171) followed by lymphoma/leukaemia (18.2%, N=100) (Table 1). The most common masses in the anterior, middle, posterior and superior mediastina were thymic lesions, lymphadenopathy due to infectious/inflammatory diseases, sarcoma and lymphoma, respectively. Among thymic masses, 114/171 (66.7%) were thymoma with predominantly type AB thymoma (36/114), followed by type B2 (34/114), type B1 (21/114), type B3 (15/114), mixed B1/B2 (3/114), type A (2/114), micronodular (2/114) and mixed B2/B3 (1/114). Germ cell tumours and lymphoma were commonly found in young patients (One-way ANOVA with post-hoc Tukey comparisons; $F(df=8) = 22.7$,

$p < .001$). Germ cell tumours were more common in males while lymphoma/leukaemia were more common in females (Pearson's Chi-Square test with post-hoc Bonferroni correction; $\chi^2(df=8) = 23.3, p < .05$).

Mediastinal masses are commonly diagnosed among patients in their third to fifth decades, with a male preponderance [1]. The majority of the masses are located in the anterior mediastinum [2]. In line with the previous reports, we observed similar demographic and histopathological patterns of mediastinal masses in our study population. When considering age and sex distribution of mediastinal masses, Hodgkin's lymphomas and diffuse large B-cell lymphomas (the most common histological type of non-Hodgkin lymphoma found in the mediastinum) are predominantly diagnosed in young females [2, 4], while mediastinal germ cell tumours are predominantly found in young males [2], corroborating our analysis. The ratio of benign to malignant neoplasms varies widely across studies, with a gradually increasing incidence of malignant neoplasms over the last four decades [1, 5]. However, approximately two-thirds of the mediastinal masses in our study were benign neoplastic lesions. The most frequent malignant tumours we encountered were thymoma and lymphoma. The distribution of histological subtypes of thymoma in our population was comparable with the western figures [2]. However, in contrast to previous reports [1], we found a higher incidence of non-Hodgkin's lymphoma ($n=56$) compared to Hodgkin's lymphoma ($n=40$). Among non-neoplastic lesions, we encountered a substantial number of cases with infectious/inflammatory masses encompassing granulomatous lymphadenopathy due to sarcoidosis ($n=35$) and tuberculosis ($n=17$). While the prevalence of tuberculous mediastinal lymphadenopathy in the regional developing countries is reported to be considerably high [1], sarcoidosis has long been considered a rare clinical entity in Sri Lanka.

Comparing the epidemiological patterns of mediastinal masses between different series is difficult because of the absence of a universal selection criterion. Lesions such as infectious processes, inflammatory diseases (sarcoidosis, mediastinitis), cysts, metastases, mediastinal goitres, and cardiac and vascular lesions are variably included as mediastinal masses in different studies. However, the overall epidemiological patterns of the different mediastinal masses in Sri Lanka were largely similar to the reports from other countries. The integration of patient demographic characteristics with clinical and radiological features helps establish accurate presumptive diagnoses of mediastinal masses, which, in turn, ensure timely initiation of treatment and improve prognosis [2]. Therefore, clinicians should be mindful of the

regional epidemiological patterns of the histopathological characteristics of mediastinal masses.

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Tables

Table 1: Frequencies of sex and age of 550 consecutive mediastinal masses encountered in a five-year period (2017 to 2021) at the National Hospital for Respiratory Diseases (NHRD), Welisara, Sri Lanka.

Conflicts of interests

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author Contributions

IH conceptualized the study. IH and YM collected data. YM analysed data and wrote the first draft of the manuscript. All authors were involved in drafting and commenting on the paper and have approved the final version.

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None

Data availability statement

The original contributions presented in the study are included in the article, further inquiries can be directed to the corresponding author/s.

Table 1: Frequencies of sex and age of 550 consecutive mediastinal masses encountered in a five-year period (2017 to 2021) at the National Hospital for Respiratory Diseases (NHRD), Welisara, Sri Lanka.

	N	Sex		Age (years)	
		M	F	Range	Mean (SD)
Thymic lesions	171	100	71	12-83	49 (17)
Cyst	10	7	3	12-68	38 (18)
Hyperplasia	14	6	8	12-59	28 (15)
Thymolipoma	1	1	0	34	34
Thymoma	114	57	57	15-82	53 (14)
Thymic carcinoma (type C)	19	17	2	17-83	52 (19)
Carcinoid tumour	13	12	1	19-71	46 (14)
Lymphoma/leukaemia	100	45	55	11-75	33 (13)
Non-Hodgkin lymphoma	56	33	23	11-75	35 (15)
Hodgkin lymphoma	40	12	28	13-59	29 (10)
Unclassified	4	0	4	30-38	35 (4)
Infectious/inflammatory diseases	75	35	40	17-78	46 (15)
Tuberculosis	17	4	13	17-59	33 (13)
Sarcoidosis	35	17	18	17-74	50 (12)
Granulomatous inflammation unclassified	19	12	7	17-78	50 (15)
Rosai-Dorfman disease	2	0	2	17-33	25 (11)
Sinus histiocytosis	2	2	0	63-63	63 (0)
Germ cell tumours	67	50	17	3-59	28 (11)
Seminoma	11	11	0	18-43	25 (9)
Teratoma	37	20	17	3-59	29 (12)
Malignant non-seminomatous tumours	19	19	0	5-53	27 (12)
Metastasis	58	38	20	20-75	56 (11)
Benign connective tissue tumours	34	18	16	1-72	47 (20)
Castleman disease	2	2	0	34-57	45 (16)
Lipoma	1	0	1	69	69
Angioma	3	2	1	25-71	52 (24)
Schwannoma	21	13	8	23-72	51 (15)

Neurofibroma	1	0	1	56	56
Ganglioneuroma	6	1	5	1-64	26 (25)
Developmental cysts	13	6	7	19-66	49 (16)
Bronchogenic	7	4	3	19-58	40 (15)
Pleuro-pericardial	2	1	1	42-64	53 (16)
Unclassified	4	1	3	59-66	63 (3)
Sarcoma	28	11	17	18-73	42 (16)
Other unclassified tumours	4	1	3	5-44	24 (16)