

ROLE OF COMPUTED TOMOGRAPHY IN EVALUATION OF ANTERIOR MEDIASTINAL MASSES

Borra Santhi Nipuna¹, Kovuru Hima Pravallika², Jayavarapu Vyshnavi³, Bandila Sai Achyuth⁴, Sriramineni Venkateswarao⁵

^{1,2,3,4} JR ,Radiodiagnosis, Asram Medical College ,NTR University,Eluru, Andhra Pradesh

⁵Professor and HOD department of Radiodiagnosis Asram medical college NTR University,Eluru, Andhra Pradesh

Corresponding Author

Borra Santhi Nipuna

JR ,Radiodiagnosis,Asram Medical
College ,NTR University,Eluru,
Andhra Pradesh

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ABSTRACT

AIM AND OBJECTIVES:

- To study the characteristics and determine the differential diagnosis of anterior mediastinal masses by Computed Tomography.
- To correlate the histo-pathological diagnosis to the findings of CT scan where possible.

BACKGROUND AND PURPOSE:

- The mediastinum is the region between the two lungs divided into three compartments anterior, middle and posterior.
- The spectrum of diseases affecting the anterior mediastinum varies considerably, ranging from tumors (benign to extremely malignant), cysts, vascular anomalies and lymph node masses.
- Computed Tomography has revolutionized in the diagnosis of mediastinal lesions.

MATERIALS AND METHODS:

Study area: ASRAM MEDICAL COLLEGE AND HOSPITAL

Study subjects: All cases referred to the department of Radio-Diagnosis for clinically suspected Mediastinal masses at ASRAM MEDICAL COLLEGE AND HOSPITAL over a period of 6 months(June 2024-december 2024) were included in the study.

Research design: Prospective Study.

Equipment: All the cases were studied on a GE REVOLUTION computed tomography machine.

Study sample: 10 study samples.

Duration of study: Period of 6 months(June 2024-december 2024)

INCLUSION CRITERIA:

- Patients with symptoms of clinically suspected mediastinal masses seen on radiograph.
- Investigated by CT scan and subsequently proved by histopathology.

EXCLUSION CRITERIA

- Patients with prior treatment elsewhere on presentation.
- Recurrent mediastinal masses after treatment.
- Patient with abnormal renal function test and contrast sensitivity.

RESULTS :

In 10 study samples of anterior mediastinal masses lymphoma occupied 40%, thymoma and tubercular adenitis were 20%, thymic carcinoma and germ cell tumors were 10%. So in this study the most common anterior mediastinal mass is lymphoma.

CONCLUSION:

Through my study now I could say lymphoma is the most commonly occurring neoplasm among all anterior mediastinal masses .

Keywords: Anterior Mediastinal Masses, Computed Tomography (CT), Lymphoma Diagnosis

INTRODUCTION

The mediastinum is the region between the two lungs divided in to three compartments anterior, middle and posterior[2]

The spectrum of diseases affecting the anterior mediastinum varies considerably, ranging from tumors (benign to extremely malignant), cysts, vascular anomalies and lymph node masses.[2]

It is one of the finest non-invasive imaging modalities available for imaging of the thorax.[1]

It is capable of defining the precise anatomical details and characterizing the nature, site and extent of the disease.[1]

MATERIALS AND METHODS

- Study area: ASRAM MEDICAL COLLEGE AND HOSPITAL, ELURU
- Study subjects: All cases referred to the department of Radio-Diagnosis for clinically suspected Mediastinal masses at ASRAM MEDICAL COLLEGE AND HOSPITAL over a period of 6 months were included in the study.
- Research design: Prospective Study.
- Equipment: All the cases were studied on a GE REVOLUTION 32 Slice Computed Tomography machine.
- Study sample: 18 study samples.
- Duration of study: Period of 6 months

Inclusion Criteria

Patients with symptoms of clinically suspected mediastinal masses seen on radiograph.
Investigated by CT scan and subsequently proved by histopathology.

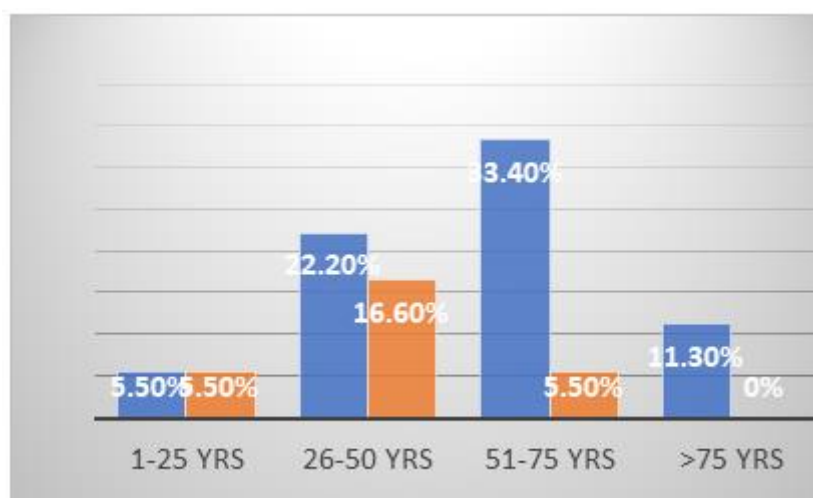
- **Exclusion Criteria**
- Patients with prior treatment elsewhere on presentation.
- Recurrent mediastinal masses after treatment.
- Patient with abnormal renal function test and contrast sensitivity.

RESULTS AND OBSERVATIONS;

- In 18 study samples of anterior mediastinal masses lymphoma occupied 44%, thymoma were 22% tubercular adenitis were 17%, thymic carcinoma were 11% and germ cell tumors were 6%. So in this study the most common anterior mediastinal mass is lymphoma.
- Lymphoma is seen most commonly in 26-50 yrs age group with 3:1 male predominance.
- Thymoma is seen most commonly in 51-75 yrs and >75yrs age group with 1:0 male predominance.
- Thymic carcinoma is seen most commonly in 51-75 yrs age group with 1:0 male predominance.
- Tubercular adenitis is seen most commonly in <25yrs and 26-50 yrs age group with 1:1 equal bimodal distribution.
- Germ cell tumors is seen most commonly in 26-50 yrs age group with 1:0 male predominance.

AGE AND SEX DISTRIBUTION

Age in yrs	Males		Females		Total	
	no	%	no	%	no	%
1-25	1	5.5	1	5.5	2	11
26-50	4	22.2	3	16.6	7	38.8
51-75	6	33.4	1	5.5	7	38.9
>75	2	11.3	0	0	2	11.3
Total	13	72.3	5	27.6	18	100

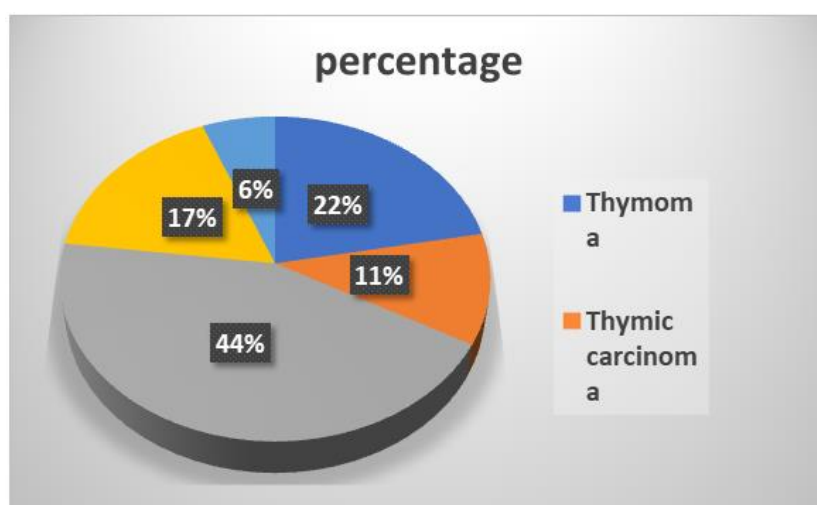


DISTRIBUTION OF ANTERIOR MEDIASTINAL MASSES IN AGE GROUPS

ANTERIOR MEDIASTINAL MASSES	<25		26-50		51-75		>75		Total
	M	F	M	F	M	F	M	F	
THYMOMA	0	0	0	0	2	1	1	0	4
THYMIC CARCINOMA	0	0	0	0	2	0	0	0	2
LYMPHOMA	1	0	2	2	2	0	1	0	8
TUBERCULAR ADENITIS	1	1	1	0	0	0	0	0	3
GCT	0	0	1	0	0	0	0	0	1

PIE CHART SHOWING DISTRIBUTION OF ANTERIOR MEDIASTINAL MASSES.

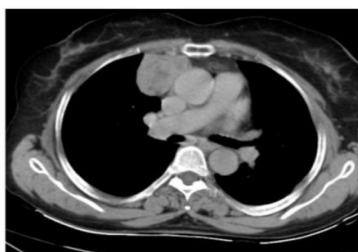
ANTERIOR MEDIASTINAL MASSES	NO OF CASES	PERCENTAGE
THYMOMA	4	22
THYMIC CARCINOMA	2	11
LYMPHOMA	8	44
TUBERCULAR ADENITIS	3	17
GCT	1	6



DISCUSSION

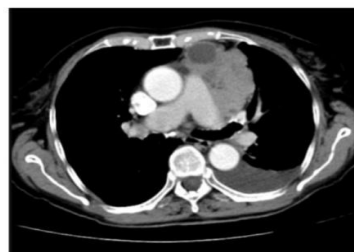
- Our study comprises a total of 18 patients from in-patient department and is conducted for a period of 6 months ,of which 72.6% are males and 27.6% are females
- Most commonly involves the age group of 50-75 yrs in which lymphoma is frequently seen. Of the total study samples, lymphoma occupied 44%, thymoma(22%) tubercular adenitis (17%), thymic carcinoma (11%) and germ cell tumors (6%).

Thymoma



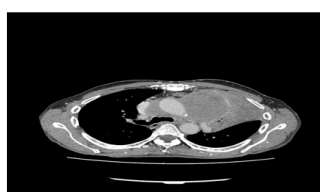
There is a well defined solid moderately enhancing lesion with a few non-enhancing necrotic areas within, is seen in the anterior mediastinum. No calcification cystic or fat component is seen within.

Thymic carcinoma



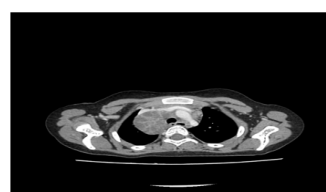
There is large and aggressive mass with areas of necrosis, hemorrhage, calcification, or cyst formation with invasion of adjacent mediastinal structures

LYMPHOMA



Large homogeneously enhancing anterosuperior mass in noted encasing the arch of aorta, right brachiocephalic trunk, left CCA, left subclavian artery, left superior pulmonary vein and SVC

TUBERCULAR LYMPHADENITIS



Discrete and conglomerate necrotic lymph nodes are noted in bilateral lower cervical, paratracheal, AP window, right hilar and subcarinal regions.

My study	Computed Tomography Evaluation of Mediastinal Masses. Indian Journal of Public Health Research & Development, 2019	Role of Computed Tomography in the Evaluation of Mediastinal Masses and its Correlation with Histopathological Diagnosis – Asian Journal Of Medical Radiological Research, 2021
SAMPLE-18	SAMPLE-51	SAMPLE-30
	Anterior mediastinum most commonly involved comprised of Lymphoma (36.46%), Invasive thymoma (19.2%), thymoma (15.38%), Metastatic lymph nodes (11.53%), Tuberculous lymph nodes (7.69%)	The most commonly involved compartment was the anterior mediastinum, followed by the posterior and middle mediastinum respectively. Lymphoma was the most familiar lesion in the anterior mediastinum, Carcinoma Oesophagus in the middle mediastinum, and Schwannoma being common in the posterior mediastinum.

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CONCLUSION

- Through my study now I could say lymphoma is the most commonly occurring neoplasm among all anterior mediastinal masses with 3:1 male preponderance.
- Lymphoma occur most common in 51-75yrs age group. GCT occur most common in 26-50yrs age group. TB lymphadenitis occur most common in <50yrs age group. Thymoma occur most common in 51-75yrs age group. Thymic carcinoma is the most commonly occurs in 51-75 yrs age group.
- All the cases were verified with histopathology and CT accurately predicts the diagnosis in 93.4 % of cases.
- From the above results, we conclude that computed tomography definitely has a major role to play in the evaluation of anterior mediastinal masses regarding the imaging features and mass effect upon adjacent structure and provisional diagnosis.

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