



Role of MDCT in Evaluation of Mediastinal Mass

Authors

**Dr Chidananda Mishra¹, Dr Satyendra Mohapatra², Dr Savitri Bhagat³,
Dr Braja Behari Panda⁴**

^{1,2}PG Resident, Veer Surendra Sai Institute of Medical Sciences and Research (VIMSAR), Burla

³Professor & H.O.D., Department of Radiodiagnosis, Veer Surendra Sai Institute of Medical Sciences and Research (VIMSAR), Burla, Sambalpur, Odisha

⁴Associate Professor, Department of Radiodiagnosis, Veer Surendra Sai Institute of Medical Sciences and Research (VIMSAR), Burla

Abstract

Aim & Objectives: *To study the distribution, CT characteristics and involvement of neighbouring structures of Mediastinal masses in Plain and Contrast enhanced scans.*

Result: *patient between 46 to 60 years are the most common group having mediastinal mass and anterior mediastinal mass is the most common mediastinal mass.*

Conclusion: *MD CT can be used diagnose of mediastinal mass and their effect on surrounding structure.*

Keywords: *Mediastinum, thymoma, mediastinal lymphadenopathy, neurogenic tumor.*

Introduction

Mediastinum is a compartment in thoracic cavity bounded laterally by pleural covering, superiorly by thoracic inlet and inferiorly by diaphragm. It is further divided in anterior, middle and posterior compartments.^[1]

Around 50% of mediastinal mass originate from anterior mediastinum including thymoma, lymphoma, teratoma and thyroid disease. Mass of middle mediastinum are commonly metastatic lymphadenopathy, vascular pathology and congenital cyst. Mass arising from posterior mediastinum are often neurogenic tumor.^[2,3]

Patient with mediastinal mass usually present with cough, chest pain, fever, dyspnea and secondary

symptoms related to invasion of the surrounding structure by the mass.

MDCT has revolutionised the diagnosis of mediastinal lesion because of its non-invasive nature and better spatial resolution shorter imaging time. It also delineate the coexisting lung pathology and calcification within the lesion.

Materials and Method

The study was carried out on 50 patient within 2 year (September 2017 to September 2019) from the patient referred to Department of Radiodiagnosis, VIMSAR for clinically suspected mediastinal mass or chest radiograph showing mediastinal abnormality.

After thorough clinical history and clinical examination patient were subjected to contrast enhanced CT of thorax in CANON 160n Slice MDCT machine .Patient with clinically suspected mediastinal mass or chest radiograph showing mediastinal abnormality were included in our study. Patient with trauma and cardiac cause were excluded from the study.

Both pre and post contrast scanning were done. Location of the mass, pre and post attenuation value, presence of calcification and mass effect

and invasion to surrounding structure were studied.

Observation

ALL the patient with mediastinal abnormality in chest radiography were subjected to CT evaluation for compartment localisation, tissue orientation, CT characterisation ,extent and effect on surrounding structure .Both plain and contrast CT were performed in our study containing of 50 patients

Table 1: Age and sex distribution

AGE IN YEARS	MALE		FEMALE		TOTAL	
	No of Cases	Percentage	No of Cases	Percentage	No of Cases	Percentage
0-15	9	64.2	5	35.8	14	28
16-30	2	40	3	60	5	10
31-45	4	57.1	3	42.9	7	14
46-60	13	68.4	6	31.6	19	38
> 61	4	80	1	20	5	10
TOTAL	32		18		50	

Table 2: Clinical symptoms Distribution

	NO OF CASE	PERCENTAGE
COUGH	20	40
DYSPNEA	19	38
FEVER	11	22
CHEST PAIN	10	20
OTHOERS	16	32

Table 3: Compartmental distribution of mediastinum masses

Compartment	No of Cases	Percentage
Anterior Mediastinum	28	56
Middle Mediastinum	9	18
Posterior Mediastinum	13	26

Table 4: Anterior Mediastinal Lesions distribution

	NO of CASES	Percentage
Thymic masses	8	28.5
Metastatic lymph Node	5	17.8
Lymphoma	4	14.2
TB Lymph Node	5	15.4
Aortic Mass	3	10.7
Germ cell Tumour	1	3.5
Thyroid Mass	2	7.1
TOTAL	26	100

Table 5: CT enhancement pattern of mediastinal masses

	No Of Cases	Percentage
Non enhancing	6	12
Heterogeneous enhancement	20	40
Intense enhancement	5	10
Rim enhancement	5	10
Homogenous enhancement	14	28

Table 6: Distribution of the masses based on their nature

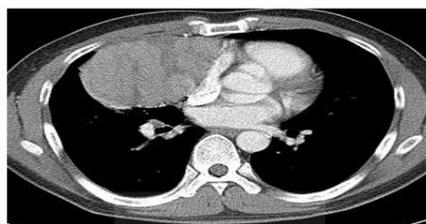
	No of cases	Percentage
Solid masses	26	56
Cystic	6	12
Solid + Cystic masses	12	24
Fatty masses	1	2
Vascular masses	4	8
Fatty + Cystic + Solid	1	2

Table 7: Calcification

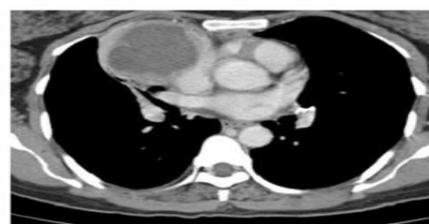
	No of cases	Percentage
Present	12	24
Absent	38	76

Table 8: Mass effect on adjoining mediastinal structures

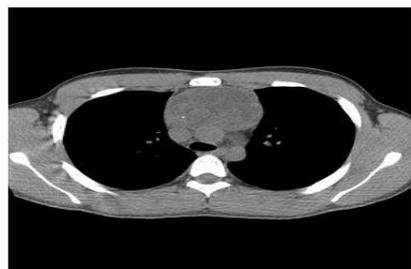
	No of masses	Percentage
Present	31	62
Absent	19	38



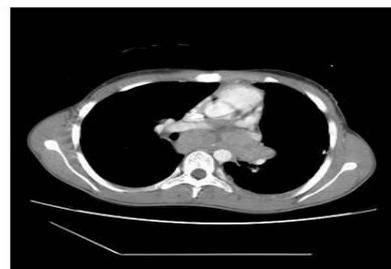
Anterior Mediastinal Mass - Thymoma



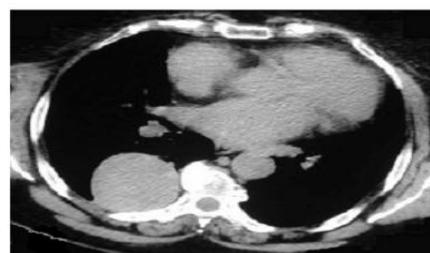
Thymic Cyst



Mediastinal Lymphoma



Mediastinal Lymphadenopathy



Neurogenic Tumor

Discussion

In our study of 50 patients which shows abnormal mediastinal on chest radiograph or clinically suspected involvement of mediastinum are subjected to contrast enhanced CT scan of thorax.

In our study most common age group are between 46 to 60 years (38%) followed by age group of 0-15 years (28%) which is comparable with the study conducted by Naidich et al^[4]

In our study among the sample patients cough was the most common clinical symptoms constituting 40% followed by dyspnea 38%, fever 22% and chest pain 20%. According to Davis et al^[5] Study comprise of 400 patient having mediastinal mass chest pain was the most common symptoms (30%) followed by fever (20%)

In our study majority of the mass are from anterior mediastinum constituting 56% followed by posterior mediastinum (26%), middle mediastinum (18%) nearly similar to the Strollo et al^[6,7] study in which anterior mediastinal mass comprise of 50%

In our study heterogenous enhancement (40%) was the most common CT enhancement pattern similar to the study conducted by Kaur et al^[8] which showed heterogenous enhancement in 53.8% cases.

Our study shows only 28% of the case have calcification in the mediastinal mass which contradict with the Arumugum et al.^[9] Study in which 60% of the mass shows calcification. However in point of mass effect and infiltration of the mass our study is comparable with the Arumugum et al study.

Among the anterior mediastinal mass thymic mass were the most common (28.5%) in our study similar to the study conducted by Pulasani et al^[10] According to our study majority of the mass were solid similar to the study conducted by the Kaur et al.

Conclusion

MDCT used in evaluation of different mediastinal mass in our study. Maximum no of patients are

between 45 to 60 year and most are males. In our study comprising of 50 patient anterior mediastinum is the most common compartment to involve (56%). Thymic mass is the most common mass of mediastinum, metastatic lymphadenopathy is the most common mass of middle mediastinum and neural mass are most common in posterior mediastinum.

Evaluation of mediastinal mass by MDCT can provide information regarding compartment localisation, extent of the lesion, tissue composition, lesion enhancement pattern, surrounding structure invasion. So we conclude that MDCT has a major role in evaluation of mediastinal mass.

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