Original Research Article

Evaluation of lung and mediastinal masses by computed tomography with histopathological correlation

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Abstract

Aim: To study the computed tomographic characteristics of Lung and Mediastinal masses in plain and contrast enhanced scans. **Material and methods:** A total of 50 cases were used in this study to assess the efficacy of computed tomography in the diagnosis of lung and mediastinal diseases. Before the CT scan, a thorough clinical history and examination were performed. The distribution, CT features of the lung and mediastinal mass, as well as the involvement of adjoining tissues, were all assessed in all cases sent for CT. **Results:** The maximum number of cases occurred above 60th decade. Lung and Mediastinal lesions occurred more commonly in males. In this study among mediastinal masses, the anterior mediastinum was the most common compartment to be involved with 41% involvement followed by superior mediastinum (25%) and then middle and posterior mediastinum (16.6% each) and lung mass was found in upper lobe of left lung (42%) followed by upper lobe of right lung (31%) and then lower lobes of both lungs (23%). Neurogenic tumors, metastatic lymphadenopathy, teratoma were the most common lesions in posterior, middle and anterior mediastinum respectively. Cough was the most common presenting symptom (86% of cases). The CECT diagnosis of lung and mediastinal masses corroborate with histopathology in 45 cases (90%). **Conclusion:** In terms of the distribution pattern, benign and malignant characterization, and mass effect on surrounding structures, computed tomography played an important role in the evaluation of a lung and mediastinal masses.

Keywords: tomographic,cancer, lung.

Introduction

Lung cancer is a type of cancer that develops in the tissues of the lungs, most commonly in the cells that lining the airways. In both men and women, it is the leading cause of cancer death. The largest rates are in North America, Europe, and East Asia, with China accounting for more than a third of new cases. The prevalence is substantially lower in Africa and South Asia. In 2012, lung cancer afflicted 1.8 million persons worldwide, killing 1.6 million. As a result, it is the leading cause of cancer-related mortality in men and the second leading cause of cancer-related death in women, after breast cancer. Long-term cigarette smoking is a contributory factor in 85% of instances, with 10 to 15% of cases occurring in people who have never smoked. These occurrences are frequently caused by a combination of causes, such as asbestos exposure, passive smoke, or other types of air pollution [1].Bronchogenic carcinoma, lung metastasis, mycobacterial or fungal pneumonia, pulmonary pseudotumor, lung abscess, round atelectasis are all probable diagnoses for a lung mass; other less common entities include pulmonary arteriovenous malformation, hamartomas, bronchogenic cyst, pulmonary sequestration, and hydatid cyst, among others. Bronchogenic carcinoma is the commonest diagnosis of pulmonary mass. It is classified into two major types based on histology: non-small cell lung cancer and small cell lung carcinoma.

Mediastinum is described as “The space between the lungs”. The thoracic inlet is located superiorly, the diaphragm is located inferiorly, the sternum is located anteriorly, the spine is located posteriorly, and the pleural spaces are located laterally. The mediastinum is divided into anterior, middle, and posterior compartments, which aids in formulating a differential diagnosis and planning for biopsy or resection when an abnormality is found [2]. The clinical range of mediastinal masses is very wide. Owing to compression of multiple organs in the mediastinum, the patient may be asymptomatic or experience extreme symptoms [3].

Developing an accurate differential diagnosis for a specific patient will save time and money by preventing unnecessary and often misleading biopsies and tests. The reliability of the assessment is improved by using a system to direct image analysis and additional testing. This is especially important because incidental anterior mediastinal anomalies are becoming more common as a result of increased imaging of asymptomatic patients for extrathoracic primary malignancies screening or staging [4].

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The aim of radiologic evaluation of pulmonary mass lesions is to distinguish benign and malignant lesions as accurately as possible without invasive procedures. The following are the key morphologic characteristics that help to distinguish benign from malignant lesions on CT: The margins of malignant lesions are irregular, ill-defined, lobulated, or spiculated, while the margins of benign lesions are smooth and sharply defined. Lung carcinomas are irregular, lobulated, or notched in shape, while hamartomas and metastases are round or oval in shape. Lesions with pure ground glass opacity (GGO) or mixed GGO are more likely to be malignant than those with a solid opacity [5].

Because of the improved anatomical and contrast clarity of MDCT images, it reliably differentiates between different causes of mediastinal widening in suspected lung and mediastinal lesions. MDCT also provides for a more accurate evaluation of the entire thorax in a single breath-hold mode without sacrificing resolution, as well as more consistent contrast enhancement with a single bolus of contrast. As a result, MDCT lowers the cost of the test. It's also faster, more accessible, and less expensive [6].

CT may distinguish a mediastinal mass from normal mediastinal structures, characterize its density, accurate location, and distinguish between vascular and avascular lesions. CT allows for a deeper understanding of coexisting lung disorders and calcification within the lesions. It may help differentiate vascular variants or benign mediastinal pathologies including lipomatosis from true pathological conditions. A CT scan may help to distinguish between vascular and avascular causes of mediastinal widening [7].

CT is a better imaging technique because it has better spatial resolutions, a shorter imaging time, is less costly, and is readily available. CT allows for a clearer understanding of coexisting lung pathology and calcifications within the lesions. Apart from accurately assessing the mediastinal mass, CT guided biopsies can be performed [8].

Materials and Methods: This study of evaluating the efficacy of computed tomography in the diagnosis of mediastinal lesions was performed on 50 cases. All patients referred to Department of Radio-Diagnosis with clinically suspected mediastinal space occupying lesions or who had a chest radiogram with a suspicious mediastinal abnormality are taken up for study. The study was conducted in the Department of Radio diagnosis, between September 2019 to September 2021. Thorough clinical history and clinical examination was done before CT examination. All the cases taken up for the CT were evaluated for the distribution, CT features of the lung and mediastinal mass and also the involvement of adjoining structures.

Inclusion criteria: Patients with lung and mediastinal masses, who have undergone CECT scan and histopathology in this institution along with patients who are agreeable to USG or CT guided biopsy in this institution. All the scans were done using GE OPTIMA 64 slice CT scanner with 120 KVp, 200 mA with 5 mm slice thickness and 0.5 sec gantry rotation. Helical MDCT was performed with 4 mm collimation and with a pitch of 1- 1.3 mm. CECT chest was performed with mediastinal (window width, 350 H; window level, 40 H), lung (window width, 1400 H; window level, -500 H) windows and bone windows for evaluation of bony involvement (Window width, 2000; Window level, 350 H) in relevant cases.

Preparation of the patient: Patients were kept nil orally 4hrs prior to the CT scan to avoid complications while administering contrast medium. Risks of contrast administration were explained to the patient and consent was obtained prior to the contrast study.

Technique: Routine anteroposterior topogram of the thorax was initially taken in all patients in the supine position with the breath held. An axial section of 5mm thickness was taken from the level of thoracic inlet to the level of adrenals. In all cases plain scan was followed by contrast scan, images were obtained in intermittent suspended inspiration. For contrast enhancement initially 70-90 ml (1 ml/ kg) of contrast material Ultravist (iopromide) was given, and axial sections were taken from thoracic inlet to the level of adrenals. Sagittal and coronal reconstructions were made wherever necessary. The magnification mode was commonly employed, and the scans were reviewed on a direct display console at multiple window settings (i.e., soft tissue (mediastinal) window at 320/40; lung window 1400/600; bone window of 2400/200 to examine the wide variation of tissue density and also to look for osseous involvement. The pre and post contrast attenuation values, the size, location of the mass, presence of calcification, mass effect on adjoining structures and others associated findings were studied by a panel of radiologists. Further based on histopathological findings sensitivity, specificity, NPV, PPV and accuracy of CECT thorax in the diagnosis and characterization of mediastinal and lung masses was calculated.

Results: In this study 50 patients were included. Age group of the patients has been categorized as 1-15(2%), 16-30(8%), 31-45(20%), 46-60(28%) and >60 (44 %). In the present study males accounted 68% and females accounted 32%.

Table 1: Gender and age distribution of participants

	Male	Female	Total	
Age in Yrs	**No.**	**No.**	**No.**	**Percentage**
0-15	1	0	1	2
16-30	1	2	3	6
31-45	5	5	10	20
46-60	7	7	14	28
>61	20	2	22	44
	34	16	50	

In our study, cough was the most common clinical symptom constituting 86% of patients followed by dyspnea 62%, chest pain 30%, fever 16% and others.

Table 2: Lobar distribution of lung masses

	Lobe	Number of Cases	Percentage
Left lung	Upper lobe	16	42
	Lower lobe	6	15
	Multiple lobes	6	15
Right Lung	Lower lobe	7	18
	Middle lobe	2	5
	Upper lobe	12	31
	Multiple lobes	3	7

In our study it was observed that maximum number of lung masses were present in upper lobe of left lung (42%) as well as right lung (31%) followed by lower lobe.

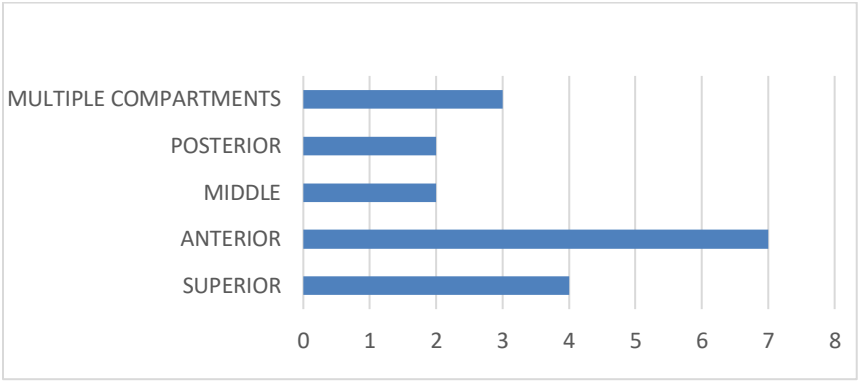

Fig 1: Compartmental distribution of mediastinal masses

In this study, isolated compartmental involvement is common in anterior mediastinum 5(41%) followed by superior 3(25%) then middle mediastinum 2(16.6%) and posterior mediastinum 2(16.6%). In our study, out of all mediastinal masses 25% were found to be teratoma, 16% lymphoma, 16% mediastinal lymphadenopathy, and 8.3% thymoma. Out of all posterior mediastinal masses, both extramedullary haematopoiesis and neuroblastoma were found to be 8.3%. In the present study one bronchogenic cyst and one mediastinal lymphadenopathy were seen in middle mediastinum.

Table 3: Distribution of patients according to definition of masses

Definition of the mass	Number of Cases	Percentage
Well defined	21	42
Ill defined	29	58

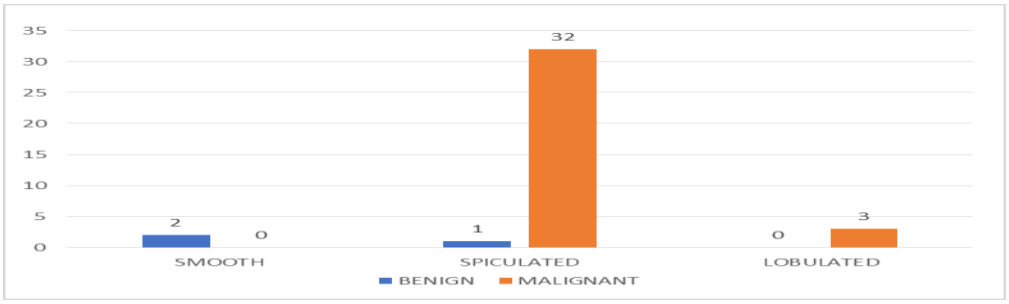

Fig 2: Distribution of patients according to margin in lung mass

In our study, out of 38 cases of lung masses, among benign masses 2(66.6%) of patients had smooth margins, 41(33.3%%) of patients had speculated margin, none had lobulated margins whereas among malignant lung mass 91.4% was having spiculated margins followed by 8.5% having lobulated margins and none had smooth margins.

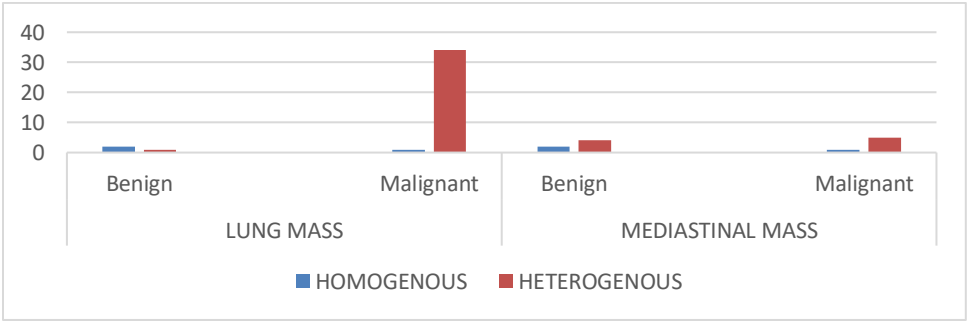

Fig 3: Distributions of lung mass patients according to the pattern of contrast enhancement

In study of 50 cases, among benign lung masses 2(66.6%%) of cases had homogenous pattern and 1(33.3%) case had heterogeneous pattern, among malignant lung masses 1(2.8%) case had homogenous pattern and 34(97.1%) had heterogeneous pattern and among benign mediastinal masses 2(33.3%) of cases had homogenous pattern and 4(66.6%) had heterogeneous pattern, among malignant mediastinal masses 1(16.6%) of cases had homogenous pattern and 5(83.3%) had heterogeneous pattern.

Table 4: Other associated findings in malignant and benign, lung and mediastinal masses

Other Associated Findings	Benign	Malignant
Pleural effusion	3 (33.3%)	14 (34.1%)

Consolidation	3 (33.3%)	6 (14.6%)
Collapse	1 (11.1%)	5 (12.1%)
Cavities	3 (33.3%)	9 (21.9%)
Ground-glass opacification	4 (44.4%)	15 (36.5%)
Chest wall invasion	0	25 (60.9%)
Mediastinal invasion	0	6 (14.6%)
Calcification	5 (55.5%)	1 (2.4%)
Pericardial effusion	0	2 (4.8%)
Svc obstruction	0	3 (7.3%)
Pneumothorax	0	2 (4.8%)
Fat attenuation	2 (83.3%)	1 (2.4%)

In our study, associated findings like Pleural effusion, consolidation, collapse, cavity, ground-glass opacification, calcification, and fat attenuation are seen in 33.3%, 33.3%, 11.1%, 33.3%, 44.4% ,55.5% and 34.1%, 14.6%, 12.1%, 21.9%, 36.5%, 60.9%, 14.6% in benign and malignant lung and mediastinal masses respectively. Chest wall invasion, mediastinal invasion, pericardial effusion, SVC obstruction, pneumothorax was not seen in benign lung and mediastinal masses and were seen in 2.4%, 4.8%, 7.3%, 4.8% and 2.4% of malignant lung masses. In study of 50 cases, metastasis was present in 19 (38%) cases and absent in 31(62%) cases. In our study among lung masses, majority of 18(47.3%) cases were diagnosed as adenocarcinoma followed by 12(31.5%) as squamous cell carcinoma, whereas among mediastinal masses, majority of 3(25%) cases were diagnosed as teratomas. In the present study the sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of CT in the diagnosis of mediastinal masses in correlation with histopathology was calculated to be 83.33 each. The sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of CT in the diagnosis of lung masses in correlation to histopathology was calculated to be 97.14, 33.33, 94.44, 50 and 92.10 respectively.

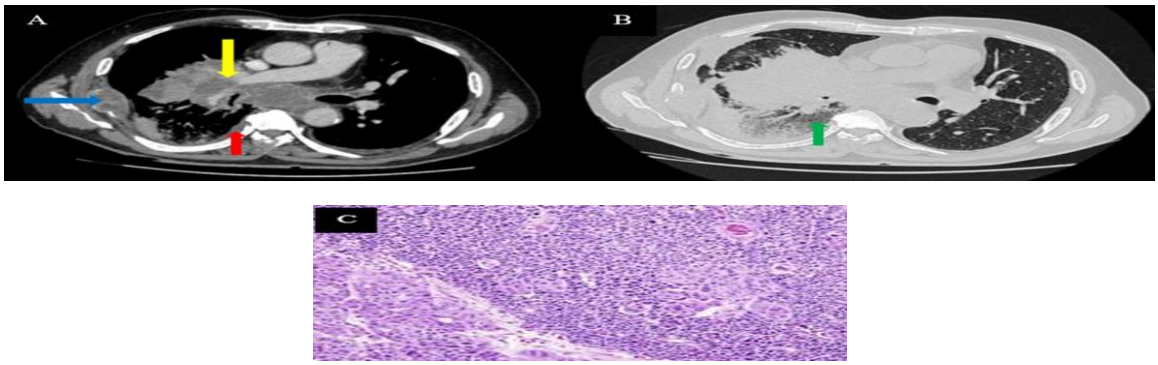

Fig 4: Malignant lung mass

A: CECT thorax showing heterogeneously enhancing lobulated centrally located mass lesion in upper lobe of right lung with associated minimal right pleural effusion (Red arrow) and infiltration of right main pulmonary artery (yellow arrow) and right main bronchus and metastatic lesion in 5th rib of right side (blue arrow). B: showing right pleural and fissural effusion with ground-glass opacification (green arrow) and mass lesion in right lung. C: On histopathology it was found to be squamous cell carcinoma.

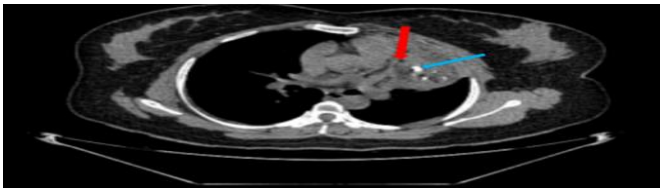

Fig 5: Anterior mediastinal mass

NCCT image showing a well-defined mass lesion in anterior mediastinum with calcification (blue arrow) and fat (red arrow) with in. On histopathology it was confirmed as mature teratoma.

Discussion

A total of 50 patients were included in this research. The patients were divided into five age groups: 1-15 (22%), 16-30 (8%), 31-45 (20%), 46-60 (28%), and >60 (28%). Males made up 68% of the participants in this research, while females made up 32%. In a study by Adya Kinkar Panda et al (2017) [8], patients age varied from 16-84 years (mean age-50 years) with the predominant age group 45-54 years. In a study by Biswas P et al (2016) [9], most of the subjects were in 6th and 7th decade of their life - 60 out of total 90 (66.7%). In a study by Yadlapalli C. Deepak et al (2018) [10], the age of the patients ranged from 2 years to 75 years in which pediatric age group (1 to 14 years) constituted 16.6 %, adolescent and young adults (15 to 29 years) 29.2%, 4th and 5th decade patients 27 % and 6th decade and above aged patients 27.2 %. Cough was the most common clinical complaint in our study, accounting for 86 percent of patients, followed by dyspnea (62%), chest pain (30%), fever (16%), and others. In a study by Yadlapalli C. Deepak et al (2018) [10], the most common symptoms reported by participants in this research were a cough and vague chest pain. There were 48 patients in this research, and 87.5% of them had cough as their primary complaint, followed by chest pain (81.5 %), dyspnea (79.1 %), and weight loss (41.6 %). In a study by Dr Chidananda Mishra et al (2019)[11], cough was seen in 40% cases, dyspnea in 38%, fever in 22% and chest pain in 20% cases. In a study by Dr. Dharmaraj Meena et al (2019) [12], it was observed that cough followed by anorexia and weight loss are the most common symptoms of patients. In a study by Deepika Yadav et al (2016) [13], cough was the most common

pulmonary symptom seen in 25 (83.3%) patients followed by dyspnea in 24 (80%) patients, chest pain in 16 (53.3%) patients and hemoptysis in 9 (30%) patients, hoarseness of voice in 6 patients (20%) and fever in 5 patients (16.6%).The highest number of lung masses were located in upper lobe of the left lung (42%) and right lung (31%) in our research, followed by the lower lobe. In a study by Biswas P et al (2016) [9], maximum number of mass lesions were detected in the upper lobe of right lung seen in 33 cases (36.7 %) followed by 21 (23.3%) in upper lobe of left lung.In this study, isolated compartmental involvement is common in anterior mediastinum 5(41%) followed by superior 3(25%) then middle mediastinum 2(16.6%) and posterior mediastinum 2(16.6%). In a study by Dr. Aniket M. Zope et al (2016) [14], isolated compartment involvement was most common in the anterior mediastinum followed by posterior mediastinum and middle mediastinum. In a study by Venkateshwaran Arumugam et al (2015) [15], the majority of the mediastinal masses were in the anterior mediastinum constituting 62% followed by middle and posterior mediastinum, which were 44% and 18% respectively. Yadlapalli C. Deepak et al (2018) [10], found that the majority of malignant mediastinal masses were located in the anterior mediastinum and accounted for 64.6% (31 cases) of all mediastinal tumours in this group. A total of 12 cases of middle mediastinal tumours were found, whereas a total of five posterior mediastinal tumours were found. In a study by Dr Chidananda Mishra et al (2019) [11], more than half of the masses were present in anterior mediastinum (56%) followed by 26% and 18% masses in posterior and middle mediastinum respectively.

Teratoma accounted for 25% of all mediastinal masses in our research, followed by lymphoma (16%), mediastinal lymphadenopathy (16%), and thymoma (8.3%). In a study by Venkateshwaran Arumugam et al (2015) [15], most common anterior mediastinal mass was Lymphoma (32.3%), then followed by Thymoma (16.1%), Germ cell tumor (16.1%), Multinodular goiter (9.75), mediastinal lymphadenopathy (6.5%). In a study by Yadlapalli C. Deepak et al (2018) [10], of all anterior mediastinal masses, lymphomas (Non-Hodgkins and Hodgkins) accounted for 58% followed by thymic neoplasms 6.4% and 6.4% of germ cell tumours.Out of all posterior mediastinal masses, both extramedullary hematopoiesis and neuroblastoma were found to be 8.3%. In a study by Dr. Aniket M. Zope et al (2016) [14], the most common mass to involve solely the posterior mediastinum were nerve sheath tumors followed by aneurysm. In a study by Venkateshwaran Arumugam et al (2015) [15], most common posterior mediastinal mass was Paravertebral abscess (44.4%), then Oesophageal carcinoma (33.3%), Oesophageal leiomyoma (11.1%). This variation between our study and the above references is most likely due to small sample size for mediastinal masses. In the present study one bronchogenic cyst and one mediastinal lymphadenopathy were seen in middle mediastinum. In a study by Dr. Aniket M. Zope et al (2016) [14], the most common mass to involve solely the middle mediastinum are aneurysms (6) 54.6% followed by metastatic lymph nodes (3) 27.2% followed by tuberculous lymph nodes (1) 9.1%. This variation is because we have excluded the vascular masses in middle mediastinum where biopsy cannot be done.In our study, out of 38 cases of lung masses, among benign masses 2(66.6%) of patients had smooth margins, 41(33.3%%) of patients had speculated margin, none had lobulated margins whereas among malignant lung mass 91.4% was having spiculated margins followed by 8.5% having lobulated margins and none had smooth margins. In by Biswas P et al (2016) [9], out of 5 benign lesions 3 (6%) had speculated margins and in malignant group out of 66, speculated margins were present in 55 (83%) masses. In a study of 50 cases, 2(66.6%) of benign lung masses had homogenous pattern and 1(33.3 %) case had heterogeneous pattern, 1(2.8%) of malignant lung masses had homogenous pattern and 34(97.1 %) of malignant lung masses had heterogeneous pattern, and 2(33.3%) of benign mediastinal masses had homogenous pattern and 4(66.6%) of malignant mediastinal masses had heterogeneous pattern. A study by Biswas P et al (2016) [9], studied 90 patients in which they found 2 heterogenous benign, 6 homogenous benign, 80 heterogenous malignant, 1 homogenous malignant masses. In a study by Dr Chidananda Mishra et al (2019) [11], Homogenous enhancement was present in 28% cases, Heterogeneous enhancement in 40% and non-enhancing in 12% cases. In a study by Harmeet Kaur et al (2014) [11], the majority of lesions showed heterogeneous enhancement, i.e., 58.3 percent (n = 70), followed by 15% (n = 18) showing homogenous enhancement, while 10% (n = 12) lesions showed intense vascular enhancement because of an aortic aneurysm with or without dissection. Non enhancing masses and lesions showing luminal enhancement both constituted 5% (n = 6) each.In our study, associated findings like Pleural effusion, consolidation, collapse, cavity, ground-glass opacification, calcification, and fat attenuation are seen in 33.3%, 33.3%, 11.1%, 33.3%, 44.4% ,55.5% and 34.1%, 14.6%, 12.1%, 21.9%, 36.5%, 60.9%, 14.6% in benign and malignant lung and mediastinal masses respectively. Chest wall invasion, mediastinal invasion, pericardial effusion, SVC obstruction, pneumothorax was not seen in benign lung and mediastinal masses and were seen in 2.4%, 4.8%, 7.3%, 4.8% and 2.4% of malignant lung masses.In a study by Dr. Pintu Biswas et al. (2016) [9], showed other associated findings such as pleural effusion, collapse, cavity, calcification, pericardial effusion were seen in 4.1%, 7.6%, 7.6%, 18.7%, 25% and 95.8%, 84.6%, 76.9%, 75%, 50% of benign and malignant lung masses respectively. Chest wall invasion, mediastinal invasion, SVC obstruction were not seen in benign lung mass in the above-mentioned study. this study also shows higher percentages of associated features with malignant lung masses than benign masses which is consistent with our study. In study of 50 cases, mass effect was present in 26(52%) cases and absent in 24(48%) cases. In a study by Dr Chidananda Mishra et al (2019) [11], mass effect over adjoining mediastinal structures were seen in 62% of the total cases included. A study by Dr. K.R. Prasad et al (2008) [16], recorded 62% masses with mass effect over adjoining mediastinal structures.In study of 50 cases, metastasis was present in 19 (38%) cases and absent in 31(62%) cases. In a study by Dr. Dharmaraj Meena et al (2019) [12], out of 53 patients with bronchogenic carcinoma distant metastasis of Bronchogenic carcinoma were seen in 16 patients (30.19 %). In our study we found that liver is the most common site of metastasis with 8 patients (15.09 %) followed by bone in 6 patients (11.32 %), adrenal in 4 patients (7.55 %) and peritoneum in 1 patient (1.89%) respectively. In a study by Deepika Yadav et al (2016) [13], distant metastases were seen in 17 (56.6%) patients. Bones were the common site of metastasis and was seen in 8 patients (26%) followed by liver in 6 patients (20%), adrenal in 6 (20%) patients. This variation is likely due to small sample size.In our study among lung masses, majority of 18(47.3%) cases were diagnosed as adenocarcinoma followed by 12(31.5%) as squamous cell carcinoma, whereas among mediastinal masses, majority of 3(25%) cases were diagnosed as teratomas. In a study by Dr. Dharmaraj Meena et al (2019) [12], out of 53 patients with bronchogenic carcinoma, 47.17 percent of patients had adenocarcinoma (n = 25), 32.08 percent of patients had squamous cell carcinoma (n = 17), 15.09 percent of patients had small cell carcinoma (n = 8), and 5.66 percent of patients had undifferentiated large cell carcinoma (n = 3).In the present study the sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of CECT in the diagnosis of mediastinal masses in correlation with histopathology was calculated to be 83.33 each. The sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of CECT in the diagnosis of lung masses in correlation to histopathology was calculated to be 97.14, 33.33, 94.44, 50 and 92.10 respectively.

In a study by Biswas P et al (2016) [9], the sensitivity and specificity of CT scan study for detection of malignancy in pulmonary mass lesions were found to be 94.5% and 55.5% respectively and the overall diagnostic accuracy of CT scan study of pulmonary mass lesions was found to be 89%. In a study by Venkateshwaran

Arumugam et al (2015) [15], among the 50 cases of mediastinal lesions, 44 cases (88%) were predicted correctly by CT when compared with histopathology diagnosis. In a study by Dr. Dharmaraj Meena et al (2019) [12], found that CT is a highly sensitive (96.23 %) and highly specific (87.50 %) test and also has a high positive predictive value (98.08%) to diagnose Bronchogenic carcinoma. CT was conclusive in 45/79 cases (56.96%) in a study by S. A. Hussein et al (2020) [17], Our study is in correlation with all the above studies. In CECT thorax 2 cases were diagnosed to be benign masses (tubercular aetiology) because of associated features like mass with fine spiculated margins with central cavitatory changes and surrounding GGO, associated pleural effusion, mediastinal lymphadenopathy with central necrosis and multiple discrete nodules surrounding the mass lesion. But on histopathology the lesion was found to be of malignant aetiology. One more case in CECT thorax was diagnosed to be malignant mass due to the presence of features like heterogeneously enhancing lung mass with associated pleural effusion and necrotic lymphadenopathy and on histopathology it was found to be of tubercular aetiology. CECT failed to differentiate between tuberculosis and malignancy because of similar enhancement pattern and associated features on imaging.

Conclusion

The CECT diagnosis of lung and mediastinal masses corroborate with histopathology in 45 cases (90%). Lung masses are more common in upper lobes and mediastinal masses are more common in anterior compartment followed by superior and posterior compartments. Most common anterior mediastinal mass was found to be teratoma, followed by lymphoma, mediastinal lymphadenopathy and thymoma. Malignant lung masses show predominantly irregular spiculated margins with heterogenous contrast enhancement and benign lung masses show predominantly smooth and lobulated margins with homogenous enhancement on CECT thorax. Malignant mediastinal masses predominantly show ill-defined irregular margins with heterogenous enhancement whereas benign lesions show well defined smooth margins with homogenous enhancement. Associated findings like pleural effusion, consolidation, collapse, cavity, ground-glass opacification, calcification, and fat attenuation are more common with malignant masses than as that of benign. However, findings like chest wall and mediastinal invasion, pericardial effusion, SVC obstruction, and pneumothorax are associated with only malignant lung and mediastinal masses. Mass effect in the form mediastinal shift can be accurately evaluated by CECT thorax which helps in further timely management. Most common site of metastasis from lung masses is liver followed by bone, adrenal, and peritoneum. Because of high sensitivity, positive predictive value, and diagnostic accuracy of CECT thorax, it should be used as a modality of choice for the diagnosis of lung and mediastinal masses. Relatively low specificity and negative predictive value in our study may be explained by small sample size. Therefore, CECT thorax is considered as the modality of choice for characterisation, extension, adjacent structure invasion, distant metastasis and staging of lung and mediastinal masses followed by further management. However, CECT thorax cannot clearly differentiate between tuberculosis and malignancy and histopathology plays an important role in the differentiation between them. We conclude that both mediastinal and lung masses are more prevalent in elderly (above 60 years) males. Most common presentation of lung and mediastinal masses are cough followed by dyspnoea and chest pain.

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