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Radiodiagnosis

CT DIAGNOSIS OF THORACIC LESIONS AND COMPARISON WITH FINAL DIAGNOSIS BASED ON HISTOPATHOLOGY/CYTOLOGY:

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ABSTRACT **Background:** Today's Lifestyle especially combined with the air pollution is supposed to be the rising cause of Lung Pathologies. The incidence of malignant disease ranges from 20 to 60% with an average of 40%.1 Common other causes of pulmonary pathologies are hamartomas, metastases, infarcts, vascular malformations, focal inflammatory masses and lipoid pneumonia etc. in decreasing order of frequency. This study puts in a sincere effort to record and correlate the tissue procured by CT guided interventional procedures with the cytopathological and histopathological findings in the diagnosis of thoracic lesions.

KEYWORDS : Imaging Signs, Thoracic Malignancy, Histo-pathology, Cytology.

INTRODUCTION:

Today's Lifestyle especially combined with the air pollution is supposed to be the rising cause of Lung Pathologies. The incidence of malignant disease ranges from 20 to 60% with an average of 40%.[1] Common other causes of pulmonary pathologies are hamartomas, metastases, infarcts, vascular malformations, focal inflammatory masses and lipoid pneumonia etc. in decreasing order of frequency.[2]

A solitary pulmonary nodule (SPN) is a round or oval opacity smaller than 3 cm in diameter that is completely surrounded by pulmonary parenchyma and is not associated with lymphadenopathy, atelectasis, or pneumonia. Lung lesions greater than 3 cm in size are defined as lung masses.[3] A SPN is noted on up to 0.2% of chest radiographs.[3] Bronchogenic carcinoma is the commonest cancer in men and in women it comes after breast, colon and skin cancers. The single most important etiological factor is cigarette smoking.

The rate of growth of metastases is highly variable; in some choriocarcinomas and osteosarcomas, for example, it may be explosive and the lesions double in volume in less than 30 days.[6,7]

This study puts in a sincere effort to record and correlate the tissue procured by CT guided interventional procedures with the cytopathological and histopathological findings in the diagnosis of thoracic lesions.

AIMS AND OBJECTIVES:

To Study the CT Diagnosis of Thoracic Lesions and Comparison with final Diagnosis based on Histopathology/Cytology. Thirty two patients were selected.

MATERIALS AND METHODS:

The study was done in Srinivasa Institute of Medical Sciences, Mangalore.

The duration of the study is for a period of 18 months from September 2015 to April 2018.

INCLUSION CRITERIA:

Patients with thoracic lesions referred for CT guided biopsy.

EXCLUSION CRITERIA:

Non co-operative patients incapable of adequate breath-holding.

The nature of the lesions that was presented on CT was noted and then the specimen was collected using FNAC/CNB.

The specimens that were thus procured were sent to the Department of Pathology for the final Diagnosis.

OBSERVATION AND RESULTS:

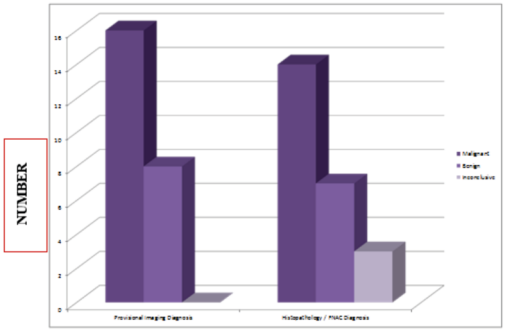
Table 1 - Sex and age distribution of patients.

MALE	FEMALE	TOTAL NUMBER
21	11	32

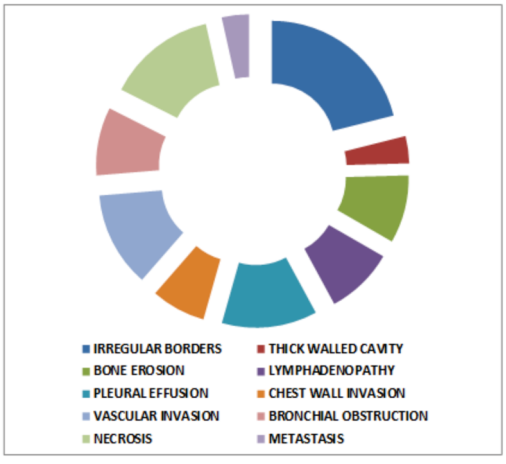
Table 2 - CT evaluation of thoracic lesions.

TOTAL NUMBER	BENIGN	MALIGNANT	INDETERMINATE
32	08	20	04

Graph 1 – Benign and malignant lesions based on imaging and pathological diagnosis.



Graph 2 – Imaging signs of malignancy.



DISCUSSION:

The 32 patients underwent imaging investigations like chest radiograph and CT scan for diagnosis of thoracic lesions. Then CT guided interventions which comprised of percutaneous transthoracic core needle biopsy and transthoracic fine needle aspiration cytology were done after the patients gave written consent for the procedure and after through patient preparation was done as described previously. The patients were also explained in their own language the type of procedure including risks and the complications like pneumothorax and pulmonary hemorrhage which may arise after the procedure. All patients were subjected for bleeding and clotting parameters in the form of clotting time, bleeding time, prothrombin time and activated partial thromboplastin time. Subjects with normal clotting and bleeding parameters were included in the study and the rest were excluded. The CT scan although cannot be considered as a gold standard, it helps to screen a patient. It can be considered the gold standard for screening. Newer techniques in image guided biopsy offer the potential to further improve the patient experience. Cone beam CT is a relatively new technique whereby a three dimensional CT image is

generated with a rotating fluoroscopic C-arm[8,9,10]. This has the advantage of allowing an open environment, rather than an enclosed bore CT scanner. It also allows greater flexibility in the imaging planes used, as it is not limited to the range of movement of the CT gantry, with options for computer aided navigation for needle placement. Recent studies have shown similar complication rates with cone beam CT guided lung biopsy compared with conventional CT guided procedures, demonstrating equivalence in complication rates[11-16]. Further modifications in CT guided biopsy technique have been shown to affect the biopsy complication rate, for example CT fluoroscopy mode versus 3 slice biopsy mode and spiral acquisition versus biopsy mode. The spiral acquisition mode generally entails a longer procedure time (and increased patient dose), thus contributing to the increased complication rate during the procedure. Our institution uses the 3 slice biopsy mode, minimising the procedure time and thereby reducing the risk of complications through the prolonged procedure time. The majority of the published studies to date are also from centres using the 3 slice biopsy mode, thus our practice is in concordance with other institutions.

The specificity and the sensitivity of the test was 75 percent and 86 percent. It has high specificity and high sensitivity. Taking the ROC curve for this analysis would be ideal as it has high sensitivity and specificity.

CONCLUSION:

CT guided interventions are effective tools in the diagnosis and management of patients with thoracic lesions.

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