



CT GUIDED FNAC OF LUNG MASSES: AT A TERTIARY CARE CENTRE, GWALIOR

Dr Sapna Dhakad* M.D, Demonstrator, Department Of Pathology *Corresponding Author

Dr Arun Jain M.D, Designated Professor

Dr. Rajesh Gaur M.D., Professor And Head, Department Of Pathology

ABSTRACT

Introduction: The diagnosis of a lung mass is possible by utilizing cytological analysis of the tissue obtained by Fine Needle Aspiration Cytology (FNAC). With the development of Computed Tomography (CT) guided FNAC, the safety and accuracy of the procedure has also improved. Although this modality of investigation shows wide variation in sensitivity and specificity, but its role in the investigation of a lung mass is quite well established. The aim of this study was to evaluate the effectiveness of CT-guided FNAC in patients presenting with lung masses and the patterns of diagnosis in such patients. Lung cancer is the major cause of cancer related deaths all over the world. CT guided FNAC of lung mass is an effective modality to diagnose lung cancer. It is a simple less invasive diagnostic method of relatively low cost, with negligible mortality and limited morbidity. **Material And Methods:** The study was carried out over a one-year period in the Department of Pathology at Gajra Raja Medical College of Gwalior. It involved 40 patients who underwent CT guided FNAC for lung masses. After obtaining an informed consent, the procedure was performed and the obtained material was processed, evaluated and finally diagnosed by a cytopathologist. **Results:** A total of 40 patients were studied. Majority (80%) of the patients were male. Among the diagnosed cases, 90% cases were malignant. Squamous cell carcinoma was the commonest malignancy (62.5%) followed by Adenocarcinoma (22.5%). One case each of Small cell carcinoma(2.7%) and lymphoma(2.7%) detected. Benign inflammation was seen in 5% of the diagnosed cases and 5% were unsatisfactory. **Conclusion:** CT guided FNAC is a vital tool in the diagnostic workup of lung masses, because of its safety and reliability and thus it helps in the early management of patients.

KEYWORDS :

INTRODUCTION

The use of a needle to aspirate tissue from a lesion lying superficially or in a deeper organ and studying it under a microscope has been known for quite some time, but the use of Fine Needle Aspiration Cytology (FNAC) as a diagnostic tool was first started by Martin and Ellis in the 1930's.¹ It is a simple and safe investigation, which gives highly reliable results in a short span of time and helps in early clinical management. With the advent of Computed Tomography (CT) scan, FNAC has become an even better modality because of real time visualization of the approaching needle and the target lesion. Lung is a common site for many benign, malignant and infectious lesions and they can be accurately diagnosed using FNAC.

Its use has been extended in differentiating lung malignancy into different cytopathological types, which aids in proper management of the malignant lesion.² CT guided FNAC of lung was first described in 1976.³ It has become an established diagnostic procedure with excellent results worldwide and although pneumothorax is the most common complication it can be readily managed.² Relative contraindications to image guided FNAC are severe chronic obstructive airway disease, bleeding diathesis, contralateral pneumonectomy and pulmonary arterial hypertension.⁴

MATERIAL AND METHODS

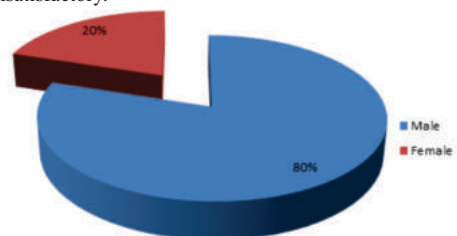
It is a hospital-based descriptive study and was carried out in the Department of Pathology Medical Centre over a one-year period from July 2022 to June 2023. A total of 40 cases underwent CT guided FNAC during this period. A detailed informed consent was obtained from every patient. After performing guided fnac all slides were sent to pathology department.

If the aspirated material was judged to be inadequate, then the procedure was repeated. A maximum of two needle passes was allowed in a patient. The slides were air dried and taken to the cytopathology lab for staining with May Grunwald Giemsa (MGG). All the relevant data was duly collected and properly examined.

RESULTS

A total of 40 cases underwent CT guided FNAC of lung during the duration of the study; 32 patients were male (80%) and 08 patients were female (20%). The youngest patient in our study was 55 years old and the oldest was 75 years old. The majority of the patients were in the age group of 55-75 years. Among the diagnosed cases, 90% cases were malignant. Squamous cell carcinoma was the commonest malignancy (62.5%) followed by Adenocarcinoma (22.5%). One case each of Small cell carcinoma(2.7%) and lymphoma(2.7%) detected.

Benign inflammation was seen in 5% of the diagnosed cases and 5% were unsatisfactory.



Graph 1: Distribution of cases according to gender

Table 1: Spectrum of disease in lung lesion on CT guided FNAC (n=100).

Disease	Number of cases	%
Squamous cell carcinoma	25	62.5%
Adenocarcinoma	9	22.5%
Small cell carcinoma	1	2.5%
Lymphoma	1	2.5%
Chronic nonspecific inflammation	2	5%
Inadequate	2	5%

DISCUSSION

CT guided transthoracic needle aspiration cytology is safe and accurate method for diagnosis and categorization of malignant and benign lesion. Accuracy of procedure varies in range from 64% to 97%.⁵

In our study all the cases were adult. This indicates lung mass lesion especially malignant lung tumour come to clinical attention at middle to old age. There was male preponderance (80%) among the patients undergone FNAC for lung lesion. In this study, out of 40 patients male patient were 80% and female patient were 20%.

Percentage of male patients in the studies by Saha et al⁵ 78.9% and Tan et al⁶ 71.1%. Bandyopadhyay et al⁸ found male patient 80.6% which is high to other study and also high comparing to this study.

The incidence of squamous cell carcinoma (62.5% cases) was higher than adenocarcinoma (22.5% cases) in our study similar to the study by Shah S.⁷

CONCLUSION

CT guided FNAC is a well accepted, simple, accurate, safe and cost

effective method for diagnosing a lung lesion with low morbidity rates. Combined with CT the aspiration needle can be guided safely into the lesion to improve the diagnosis of the cytological material. CT guided FNAC provides early diagnosis and sub classification of the lung masses hence directing the clinicians in proper management.

REFERENCES

1. Martin HE, Ellis EB. Biopsy by needle puncture and aspiration. *Ann Surg.* 1930 Aug;92(2):169-81
2. Mondal S, Nag D, Osta M, et al. Computed tomogram guided fine-needle aspiration cytology of lung mass with histological correlation-a study in eastern India. *South Asian Journal of Cancer* 2013;2(1):14-8.
3. Haaga J, Alfidri R. Precise biopsy localization by computed tomography. *Radiology* 1976;118(3):603-7.
4. Mohammad GM. CT guided fine needle aspiration cytology in the diagnosis of thoracic lesions. *JIMA* 2001;99(10):1-5.
5. Saha A, Kumar K, Choudhuri MK. Computed tomography-guided fine needle aspiration cytology of thoracic mass lesions: A study of 57 cases. *J Cytol.* 2009 Apr;26(2):55-9. doi: 10.4103/0970-9371.55222.
6. Tan KB, Thamboo TP, Wang SC, Nilsson B, Rajwanshi A, Salto-Tellez M. Audit of transthoracic fine needle aspiration of the lung : cytological subclassification of bronchogenic carcinomas and diagnosis of tuberculosis. *Singapore Med J.* 2002 Nov;43(11):570-5.
7. Shah S, Shukla K, Patel P. Role of fine needle aspiration cytology in diagnosis of lung tumours-a study of 100 cases. *Indian J Pathol Microbiol.* 2007 Jan; 50(1):56-8.
8. Bandyopadhyay A, Laha R, Das TK et al. CT guided fine needle aspiration cytology of thoracic mass lesions: A prospective study of immediate cytological evaluation: *Indian J pathological Microbiology.*