Pathology

ERA OF GUIDED FNAC-A GOLD STANDARD TOOL FOR HIGH DIAGNOSTIC EFFICACY IN LUNG MASSES

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ABSTRACT

Background :- Fine-needle aspiration cytology (FNAC) is a simple, relatively safe, rapid, reliable technique for the diagnosis of pulmonary lesions, particularly with the aid of radiological guidance like ultrasonography (USG). In cases of malignancy of the lungs, cytopathological examination of material obtained by guided FNAC offers a quick and specific diagnosis which helps clinicians to implement appropriate anticancer measures like chemotherapy and radiotherapy.

Aims & Objectives :- To evaluate efficacy of FINE NEEDLE ASPIRATION CYTOLOGY in lung masses with radio guided aspiration.

Material And Methods :- A total of 55 patients Referred to radiology department for USG and CT guided FNAC with suspected Lung mass lesion admitted in various surgical and medicine wards. FNAC was done by 21- 22gauge needles. Smears were made as soon as radio guided aspiration was done in the department of radiology by pathologist. Slides were received in department of pathology along with proper history and radiological findings. Slides with adequate material were stained and reported.

Results And Observations :- Cases were in between age 12 years to 85 years with average age of presentation being 58 years. There were 46 male and only 9 females with male predominance (83%) and male to female ratio being 5:1. Out of 55 samples only 7 samples were reported as inadequate aspirates for diagnosing hence diagnostic yield was around 88%. Results were prepared from the sample size of 55 cases, among which 43(78%) were reported neoplastic and 5 were non neoplastic.

OUT OF 43 Neoplastic - 40 were malignant while 3 were benign.

Out of 40 malignant we categorised the lung lesion in two main categories small cell and non-small cell.

· 5 cases showing small cell carcinoma of lung. 35 were non-small cell.

· Out of 35 non-small cell cancers 25 were Adenocarcinoma constituting majority, however we could not differentiate whether it was primary Adenocarcinoma of lung or metastatic lesion from some other primary.

· 8 were squamous cell and 2 were large cell type.

5 non neoplastic lesion showed chronic inflammatory pathology

Conclusion: Male predominance was present in our study like all other studies hence it can be concluded that lung lesions are more common in male than females. Average age of presentation is 58 years which concludes age of presentation is likely to be older age group. Diagnostic yield of study is 88% which is very good for giving early results. FNAC with other techniques like cell block and ancillary techniques like immunocytochemistry or molecular studies can be very effective in deciding the further management of patients.

KEYWORDS :

INTRODUCTION

Opacity in the lung is many a times puzzle to the clinicians, the conventional diagnostic procedures like X ray chest, complete sputum examinations, bronchoscopy and others may remain inconclusive in number of cases. Radio guided fine needle aspiration can be very helpful in these cases. Fine-needle aspiration cytology (FNAC) is a simple, relatively safe, rapid, reliable technique for the diagnosis of pulmonary lesions, particularly with the aid of radiological guidance like ultrasonography (USG).[1]FNAC not only distinguishes between benign and malignant lesions but also helps in tumor typing of lung cancer, so initiation of specific therapy like chemotherapy or surgery is possible without unnecessary delay.

Wallace et al.[2] concluded that CT-guided FNAC of small thoracic mass lesions (one cm or smaller) can provide high diagnostic accuracy rates approaching those of larger lesions. In cases of malignancy of the lungs, cytopathological examination of material obtained by CT-guided FNAC offers a quick and specific diagnosis which helps clinicians implement appropriate anticancer measures like chemotherapy and radiotherapy. It has also been demonstrated in literature that CT-guided FNAC is an accurate and sensitive way of diagnosing malignancy of the lungs.[3] On the other hand, post procedure complications are fewer except for pneumothorax, pulmonary haemorrhage, and hemoptysis in a small percentage of cases. Severe chronic obstructive pulmonary disease, bleeding diathesis, and pulmonary arterial hypertension are relative contraindications[4]. The present study was undertaken to know the pathological spectrum of pulmonary lesions; to categorize between infective; benign and malignant lesion.

MATERIAL AND METHODS

Present study has been conducted in the Department of Pathology, GAJRA RAJA Medical College, GWALIOR, MADHYA PRADESH, with the help of Departments of Medicine, Surgery, and Radiology during the period January 2020 to November 2021. A total of 55 patients referred to radio department for USG and CT guided FNAC with suspected Lung mass lesions admitted in various surgical and medicine wards After detailed medical and surgical history, clinical examination was done, Routine investigations (CBC, BT, CT, PT and aPTT) were done before the procedure. Written consent was taken from each patient. FNAC was done by 21- 22gauge needles under guidance of ultrasonography or CT scan. Smears were made as soon as radio guided aspiration was done in the department of radiology in presence of pathologist. Slides were received by department of pathology with proper history and radiological findings. Slides with adequate material were stained with the help of giemsa and reported.

RESULTS

Cases were in between age 12 years to 85 years with average age of presentation being 58 years.

Table 1 – Gender Distribution

GENDER	NO OF PATIENT	PERCENTAGE
MALE	46	83%
FEMALE	09	17%

There were 46 male and only 9 females so male predominance (83%) is noted with male to female ratio being 5:1.

Table 2- Diagnostic Yield

	No of sample	Percentage
DIAGNOSTIC	48	88
NON DIAGNOSTIC	07	12

Out of 55 sample only 7 were reported as inadequate aspirates for

diagnosing hence diagnostic yield being 88% approximately.

Table 3- Neoplastic And Non-neoplastic Lesions

CATEGORY		NUMBER OF CASES
NON-NEOPLASTIC		5
NEOPLASTIC	BENIGN	3
	MALIGNANT	40

Results were prepared from the sample size of 55 cases, among which 43(78%) were reported neoplastic.
· 5 were NON-NEOPLASTIC.
· OUT OF 43 Neoplastic 40 were malignant while 3 were benign.

Out of 40 malignant lesions we categorised the lung lesion in to two main categories small cell and non-small cell.
· 5 cases showing small cell carcinoma of lung. 35 were non-small cell.
· Out of 35 non-small cell cancers 25 were Adenocarcinoma constituting majority, however we could not differentiate whether it was primary Adenocarcinoma of lung or metastatic lesion from some other primary.
· 8 were squamous cell carcinoma and 2 were large cell type.

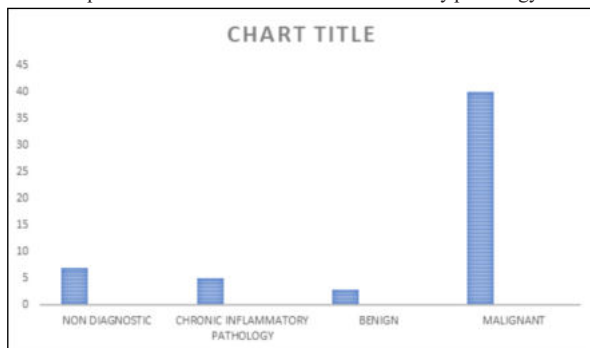5 non neoplastic lesion showed chronic inflammatory pathology

Figure 1 - Daignostic Categories

Table 4 -Malignant Lesions

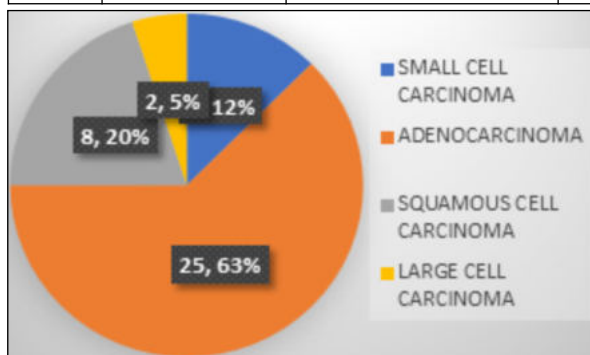| MALIGNANT	SMALL CELL CARCINOMA		05
	NON-SMALL CELL CARCINOMA	ADENOCARCINOMA	25
		SQUAMOUS CELL CARCINOMA	08
		LARGE CELL CARCINOMA	02

Figure 2 - Malignant Lesions

DISCUSSION

In our present study 55 cases were studied over a period of 2 years. Among them 7 cases were not diagnosed due to unsatisfactory material. The mean age was 58 years similar to other studies. Mondal et al. has a mean age of 56.6 years,[5] Singh et al.[6] 56.4 years was the average age and Saha et al. 56.8 years[7]. There was a male preponderance [83.6%]. Percentage of male in other studies were Tan et al. 71.1%, Saha A et al. 78.9%, Bandyopadhyay et al. 80.6% [8] and Mondal et at 64.51%. From 55 cases 7 were inadequate for reporting , Out of the 48 cases, 3 (6.25%) were benign and 40 (86.4%) were malignant. Mondal et al. had benign lesion 8.07% and malignant lesion

91.93%. Tan et al. had 65.8% malignant, 1.8% atypical and 25.4% benign and 7% inadequate[9]. The incidence of Adenocarcinoma was higher than Squamous cell carcinoma in our study similar to Mondal et at, Tan et al.[9] and Madan al.[10]showed incidence of adenocarcinoma was more than squamous cell carcinoma. Other National and international studies showed squamous cell carcinomas to be more than Adenocarcinoma. However, increased incidence of adenocarcinoma in our study could due to inability to diagnose primary adeno carcinoma and secondaries from some other organs lung being fertile soil for secondaries.

CONCLUSION

Radio Guided Fine Needle Aspiration cytology is a simple, safe, highly sensitive and specific procedure with high diagnostic accuracy for diagnosis of Lungs mass lesions. Male predominance was present in our study like all other studies hence it can be concluded that lung lesions are more common in males than females. And average age of presentation is 58 year hence old age male are at higher risk. Diagnostic yield of study is 88% which is very effective for obtaining early and accurate results. Malignancy can be diagnosed in most of the cases and consumes less time which becomes very crucial at late stages of diseases and if we supplement radio guided FNAC with other techniques like cell block and ancillary techniques like immunocytochemistry and molecular studies it can be very effective in deciding the further management of patients.

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