



## A CROSS SECTIONAL STUDY ON CYTOMORPHOLOGICAL FEATURES OF SPACE OCCUPYING LESIONS OF LIVER BY ULTRASONOGRAPHY GUIDED FINE NEEDLE ASPIRATION CYTOLOGY

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**ABSTRACT** **Background :** Liver is the common site for primary and secondary tumors. These lesions usually present as single or multiple space occupying lesions(SOL) in liver.<sup>1</sup> FNAC is a major indicative procedure in the diagnosis of hepatic lesions. Ultrasound guided FNAC (US-FNAC) in the diagnosis of hepatic lesions including focal liver lesions showed high sensitivity in identifying liver lesions. With this basic idea in the background, we conducted this study in our tertiary care hospital. **Methods :** A cross sectional study was conducted on 45 patients with SOL in Liver who attended Dr Panjabrao Deshmukh Medical College in duration of 1.5 years. Patients with bleeding tendencies and those who were not cooperative were excluded from the study. Informed consent was taken from every patient. Strict anonymity and confidentiality was maintained throughout the study. **Results :** Of 45 patients 1 was of inadequate/insufficient sampling, 25 had Metastatic lesion, 13 had primary lesion, 3 had benign lesions and 3 had non-neoplastic lesions and one sample was inadequate. **Conclusion :** In this study we have evaluated 45 cases of SOL in Liver by USG Guided FNAC. We obtained adequate material for cytological evaluation in most of the cases (97.8 %) and there was no complications related to procedure in any of the case and in majority of cases we could define the lesion for clinical management purpose. On the basis of results of this study it can be concluded that ultrasound guided FNAC is the major indicative procedure for the diagnosis of space occupying lesions of the liver.

**KEYWORDS :** Space occupying Lesion of liver, Fine Needle aspiration cytology.

### INTRODUCTION :

The liver is a common site for primary and secondary tumors. The secondary tumors are not only the deposits from malignant tumors within the abdomen but also from extra-abdominal primary malignant neoplasm. Liver is also a site for deposits of sarcoma and lymphoma. These lesions usually present as single or multiple space occupying lesions (SOL) in liver.<sup>1</sup> FNAC is a major indicative procedure in the diagnosis of hepatic lesions. Ultrasound guided FNAC (US-FNAC) in the diagnosis of hepatic lesions including focal liver lesions showed high sensitivity in identifying liver lesions. The diagnostic technique yields adequate pathological materials in the majority of cases. The advantages of this technique are its high diagnostic accuracy and low cost, thereby rendering the older technique of blind percutaneous biopsy using a coarse needle obsolete.<sup>2,11</sup> One of the major advantages of radiologically guided percutaneous FNA cytology is that it can sample malignancy anywhere in the liver, such as in the left lobe or in the area of the porta hepatis, where the use of a large-bore needle may be too risky. Therefore for any mass or masses in the liver suspected to be malignant, radiologically guided FNA cytology is the method of choice. The need for study was to evaluate the use of USG guided FNAC in various neoplastic space occupying lesions and non-neoplastic tumor like conditions of the liver.

### MATERIALS AND METHODS :

This was hospital based Cross sectional study which included all the patients with space occupying lesion of the liver who attended hospital and consented for the study. Duration of the study is 1.5 years. Sampling Method is Universal Sampling. In the duration of one and half years all patients with hepatobiliary mass confirmed by radiological examination were included. Patients with marked hemorrhagic diathesis or skin infection at the site of aspiration and those who were not cooperative were excluded from the study.

### Statistical Analysis:

The data were collected and entered in Microsoft excel and analysed by statistical packaging for social sciences (SPSS version 16) and appropriate test of significance was applied.

### RESULTS :

We have included 45 patients in the present study.

#### 1. Distribution Of Study Subjects According To Age

26.66% patients each were in the age group of 40-50 years and 50-

60 years. 22.22% patients were in the age group of 60-70 years. 11.11% study subjects were in the age group of 30-40 years. 8.89% study subjects were in the age group of 70-80 years. 2.23% patients each were in the age groups of 20-30 years and 80-90 years.

#### 2. Distribution Of Patients According To Gender

62.22% (28) study subjects were males while 32.68%(17) subjects were females.

#### 3. Distribution Of Liver Diagnosis:

55.55% cases were metastatic in nature, 28.88% cases were of primary lesions, 11.11% cases were in nature, 2.22% cases were of non-diagnostic cases and pyogenic abscess.

#### 4. Distribution Of Neoplastic Lesions Of Liver

25 patients had metastatic lesions (55.55%), 13 patients had primary lesions (28.88%), and 3 patients had benign lesions (6.66%).

#### 5. Distribution Of Non-neoplastic Lesions Of Liver

2 patients had Focal nodular hyperplasia (4.44%), 1 patient had pyogenic abscess (2.22%) and 1 patient had inadequate sampling (2.22%).

#### 6. Distribution Of Benign Lesions Of Liver

2 cases of Hepatic Adenoma and 1 case of Benign Spindle Cell lesion of liver.

#### 7. Distribution Of Malignant Neoplastic Lesions Of Liver

13 patients had primary malignancy (28.88%) and 25 patients had secondary malignancy (55.55%).

#### 8. Distribution Of Primary Neoplastic Malignancy

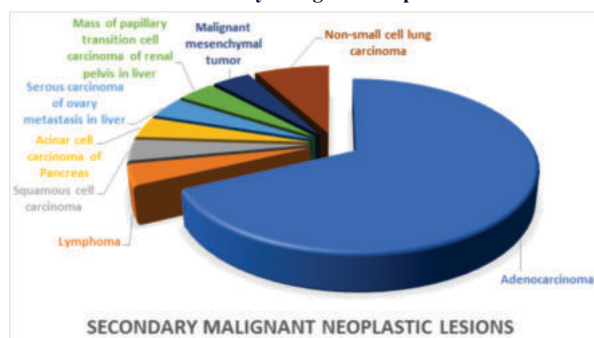
12 cases are of hepatocellular carcinoma (26.66 %) and 1 case is of cholangiocarcinoma (2.22 %).

#### 10. Distribution Of Sites Of Primary Sites Of Metastasis

In 20 % cases (9) primary site of metastasis was colon. Lung (2), gall bladder (2), ovary (2) and pancreas (2) were primary site of metastasis

in 4.44 percent cases each. Kidney was primary site of metastasis in 2.22% cases (1). Primary site of metastasis is not known in 15.55% cases (7).

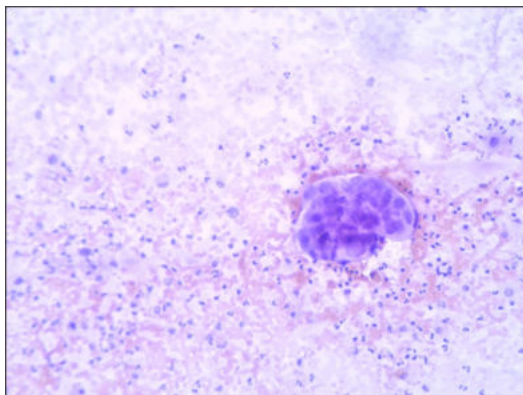
### 9. Distribution Of Secondary Malignant Neoplastic Lesions



### 11. Radiographical Findings

22.22% cases were of multiple nodules on radiographic evaluation and 77.77% cases were of solitary lesion on radiological evaluation. 93.33% cases were solid lesions, and 6.66% cases were of cystic lesion.

### Microscopic Picture Of Metastatic squamous Cell Carcinoma in Liver.



### DISCUSSION :

The advantage of ultrasound guided fine needle aspiration cytology is that the areas of interest within the liver can be identified and thereby the cellular confounders can be excluded to arrive at specific diagnosis.<sup>57</sup> One of the major advantages of radiologically guided percutaneous FNA cytology is that it can sample malignancy anywhere in the liver, such as in the left lobe or in the area of the porta hepatis, where the use of a large-bore needle may be too risky. Therefore for any mass or masses in the liver suspected to be malignant, radiologically guided FNA cytology is the method of choice. The need for study was to evaluate the use of USG guided FNAC in various neoplastic space occupying lesions and non-neoplastic tumor like conditions of the liver.

#### A) Distribution Of Study Subjects According To Age:

In this study 26.66% patients each were in the age group of 40-50 years and 50-60 years. 22.22% patients were in the age group of 60-70 years. 11.11% study subjects were in the age group of 30-40 years. 8.89% study subjects were in the age group of 70-80 years. 2.23% patients each were in the age groups of 20-30 years and 80-90 years. The findings of this study are in accordance with the findings of studies conducted by Khurana et al, Rastogi N et al, Reddy et al, Balani et al, Bakshi et al, Franca et al and Yang et al.

#### B) Distribution Of Patients According To Gender:

62.22% study subjects were males while 32.68% subjects were females. The results of this study are similar to the results of the studies carried out by Reddy et al, Balani et al, Bakshi et al, Franca et al, Yang et al, Khurana et al, Rastogi N et al.

#### C) Distribution Of Liver Diagnosis:

55.55% cases were metastatic in nature, 28.88% cases were of primary lesions, 11.11% cases were benign in nature, 2.22% cases were of non-diagnostic cases and pyogenic abscess. Franca et al, Yang et al, Khurana et al, Rastogi et al, Reddy et al conducted studies and found

results having similarity with the results of the present study.

#### D) distribution Of All Sols:

55.55% cases were metastatic in nature, 28.88% cases were of primary lesions and 06.66% cases were of benign lesions, 6.66 % were non-neoplastic and 2.22 % were inadequate. Rastogi N et al, Balani et al, Khurana et al carried out studies and obtained the similar results.

#### E) distribution Of Non Neoplastic Lesions Of Liver:

4.44 percent cases were of focal nodular hyperplasia, 2.22% case was of pyogenic abscess and 2.22 percent case was of non-diagnostic category or inadequate sampling. Bakhsi et al, Franca et al, Khurana et al also conducted similar studies which yielded the results similar to the results of this study.

#### F) distribution Of Benign Lesions:

2.22% cases were Benign spindle Cell lesion of liver and 2 cases were of Hepatic adenoma 4.44%

#### G) Distribution Of Malignant Neoplastic Lesions Of Liver:

28.88% cases were of primary malignancy while 55.55% cases were of secondary malignancy. Balani et al, Yang et al, Khurana et al found similar results to that observed in our study. Bakhsi et al, Reddy et al found dissimilar results.

#### H) Distribution Of Primary Neoplastic Malignancy:

26.66 % cases were of Hepatocellular carcinoma while 2.22% case was of cholangiocarcinoma Tsai YY et al, Khurana et al, Rastogi et al performed studies and had the observations having resemblance with the present study.

#### I) radiographical Findings:

22.22% cases were of multiple nodules on radiographic evaluation and 77.77% cases were of solitary lesion on radiological evaluation. 93.33% cases were solid lesions and 6.66% cases were of cystic lesion.

### CONCLUSION:

In this study we have evaluated 45 cases of SOL in Liver by USG Guided FNAC. We obtained adequate material for cytological evaluation in most of the cases (97.8 %) and there was no complications related to procedure in any of the case and in majority of cases we could define the lesion for clinical management purpose. On the basis of results of this study it can be concluded that ultrasound guided FNAC is the major indicative procedure for the diagnosis of space occupying lesions of the liver.

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