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A STUDY ON ROLE OF FINE NEEDLE ASPIRATION CYTOLOGY IN LIVER MASSES IN JLNMCH, BHAGALPUR

Pathology

Dr. Ankur Senior resident Department of pathology Jawaharlal Nehru Medical College, Bhagalpur, Bihar

Dr. Mritunjay Kumar Associate professor Department of surgery Jawaharlal Nehru Medical College, Bhagalpur, Bihar

ABSTRACT

Aim: The aim of the study is to assess the role of Fine Needle Aspiration Cytology (FNAC) in diagnosis of the hepatic lesions. Methods: In this study, Fine Needle Aspiration Cytology was done in 60 patients presented with Hepatic mass. The study was done from April 2016 to March 2017 in department of pathology, JLNMCH, Bhagalpur. Thorough pathological analysis of samples done. Both male and female patients were taken into study with age group between 15 yrs to 65 yrs. Results: Total 60 FNAC were done. Male to female ratio was 2:1. Average age group of presentation was 48years. Out of 60 aspirates, 48 were malignant, 10 were benign and in 02 cases the aspirate was not adequate to diagnose. Among benign, reactive changes and in malignant lesions, metastatic adenocarcinoma were most common. The most common malignant liver lesion was metastatic adenocarcinoma in 32 cases, HCC in 08 cases, metastatic sarcoma in 05 cases and metastatic anaplastic carcinoma in 03 cases. HBsAg positivity was observed in 36 cases. Conclusion: FNAC was less time consuming, safe, useful, reliable, accurate technique for making diagnoses of hepatic lesions. In our study we found that incidence of malignant hepatic lesions was more than benign.

KEYWORDS:

Fine-needle aspiration cytology, Liver, HCC, metastatic adenocarcinoma

Introduction-

Liver is most common organ involved in many carcinomatous conditions. The diagnosis and management of various hepatic mass lesions is a common clinical problem and their appropriate clinical management depends on accurate diagnosis. 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. Fine Needle Aspiration cytology is the study of cells obtained by vacuum. In cytology cell morphology is the preserved element of study, rest all the tissue elements are exhausted. But, the accuracy of Fine Needle Aspiration Cytology when applied by experienced and well trained practitioners can approach that of Histopathological Examination in providing an unequivocal diagnosis. The diagnostic technique yields adequate pathological materials in the majority of cases. The advantages of US guided FNAC in the diagnosis of liver diseases cannot be overemphasized. 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. Kun (1847), described needle aspiration as new instrument for diagnosis of tumors . Leydon (1883) used needles to isolate pneumonic microorganisms; later Menetrier used the technique to diagnose pulmonary carcinoma. Griegg and Grey diagnosed trypanasomiases in lymph node aspirates from patients with sleeping sickness (1904). Dudgeon and Patrick (1927) proposed needle aspiration of tumors as a means of rapid microscopic diagnosis. Hayes E Martin and Ellis (1930) instituted a system of tumor diagnosis using a syringe with large caliber needle. Joseph Zajicek (1950) among the first of pathologists to embrace Fine Needle Aspiration cytology in collaboration with Franzen at Karolinska hospital applied the requisite to define precise the diagnostic criteria and to determine diagnostic accuracy in a variety of conditions.

The aim of the current study was to evaluate the technique and assess its role in patients with liver mass lesions.

Material and Methods

In this study, Fine Needle Aspiration Cytology was done in 60 patients presented with Hepatic mass. The study was done from April 2016 to March 2017 in department of pathology, JLNMCH, Bhagalpur. Thorough pathological analysis of samples done. Both male and female patients were taken into study with age group between 15 yrs to 65 yrs.

Procedure- A 22-23 Gauge needle is fixed on the 10 ml dispovan syringe that is prefixed to FNAC gun. The cellular material will be aspirated into a syringe under US guidance and expelled onto slides. Four to five slides will be prepared for each patient. The wet-fixed smears will be stained with hematoxylin and eosin (H and E). While air dried smears will be stained with May-Grünwald–Giemsa (MGG) stain, and other two smears will be kept for special stains as per requirement.

Results

Total 60 FNAC were done. Male to female ratio was 2:1. Average age group of presentation was 48years.

Out of 60 aspirates, 48 were malignant, 10 were benign and in 02 cases the aspirate was not adequate to diagnose.

Aspirates	Number of cases
Benign	10
Malignant	48
Inadequate samples	02
Total	60

Among benign, reactive changes and in malignant lesions, metastatic adenocarcinoma were most common. The most common malignant liver lesion was metastatic adenocarcinoma in 32 cases, HCC in 08 cases, metastatic sarcoma in 05 cases and metastatic anaplastic carcinoma in 03 cases.

Malignant lesions	Number of cases
Metastatic adenocarcinoma	32
Hepatocellular carcinoma	08
Metastatic anaplastic carcinoma	03
Metastatic sarcoma	05

HBsAg positivity was observed in 36 cases.

HbsAg status	Number of cases
Positive	36
Negative	24

The sensitivity of FNAC for malignancy was 95%, the specificity was 100%. The technique was acceptable by all the patients. The complications of FNAC of liver in this study were negligible

DISCUSSION:

Focal hepatic lesions range from cysts and inflammatory processes to neoplasms, be they benign or malignant, primary or metastatic. Clinical, radiological and serological findings cannot reliably distinguish a benign from a malignant lesion, but they can help to narrow the differential diagnosis. In such instances, FNAC under image guidance has gained increasing acceptance as the diagnostic procedure of choice. Assistance of a cytopathologist during the procedure increases overall accuracy. The most important cytological features of HCC are the trabecular pattern of hepatocytes (>2-cell-

thick), irregular granular chromatin, multiple nucleoli, intracyto plasmic bile and atypical naked nuclei. Increased N:C ratio is the single most important feature favoring malignant hepatocytes. Intracytoplasmic eosinophilic inclusions strongly support HCC. The diagnostic sensitivity of FNAC in our study was 86%, with a diagnostic yield of 98% compared with 90% and 83.4%, respectively, in the study by Rasania et al. Our results are comparable with other studies such as Kuo et al., (86.1%), Tsai et al., (88.7%), Cochand-Priollet et al., (82.6%) and Franŋa et al., (78%). The sensitivity of FNAC for hepatic malignancy was 99.5% and 95.3% in the study by Soyuer et al., and Nazir et al. In our study, among benign, reactive changes and in malignant lesions, metastatic adenocarcinoma were most common. The most common malignant liver lesion was metastatic adenocarcinoma in 32 cases, HCC in 08 cases, metastatic sarcoma in 05 cases and metastatic anaplastic carcinoma in 03 cases. Similar result was seen in the earlier study conducted by Das et al. studied on 61 metastatic lesions which were included 43 (70.49%) adenocarcinomas, 6 (9.8%) small cell anaplastic carcinomas, undifferentiated carcinoma and soft tissue sarcoma each (1.63%). The results of this study indicate that FNAC of the liver is very reliable and highly accurate in diagnosis of hepatic lesions, especially malignant ones. It is safe, quick, and economic technique. These results are compatible with several other studies performed on lesions of the liver. In the present era, F.N.A.C. is now considered as a proved technique for the diagnostic evaluation in all the non-palpable and deep seated lesions. The diagnostic accuracy of F.N.A.C. by ultrasound is 92%. Nautiyal S et al (2004) found out the diagnostic accuracy of – 93.06%. RC Adhikari et al (2010) – 82.5%; Sidhalingreddy et al (2011) - 92.7% by ultrasound.

Conclusion

FNAC was less time consuming, safe, useful, reliable, accurate technique for making diagnoses of hepatic lesions. In our study we found that incidence of malignant hepatic lesions was more than benign.

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