

ORIGINAL ARTICLE

Role of Fine Needle Aspiration Cytology in Hepatic Lesions

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ABSTRACT

Background: Fine needle aspiration cytology (FNAC) is used as a diagnostic tool for masses or lumps. Ultrasound-guided FNAC is usually used for the diagnosis of hepatic lesions.**Aim:** To analyze the role of ultrasound-guided fine needle aspiration cytology in the differentiation of hepatic lesions in benign and malignant lesions.**Methods:** During one year total 83 cases were selected and their FNAC was performed. Cases were analyzed after routine staining. Cell blocks were prepared where blood stained material was aspirated.**Results:** Mean age of the patients was 52 ± 7.8 years and M: F of 1.3:1. 8 cases (9.64%) had low cellularity smear, 18 cases (21.69%) were of benign origin and 57 cases (68.67%) revealed malignant lesions, eight cases (9.64%) were of primary origin and 51 cases (59.03%) were of secondary origin.**Conclusion:** Ultrasound-guided FNAC is a useful and accurate method and can be used for diagnosis of different kinds of hepatic lesions.**Keywords:** Hepatic lesions, Ultrasound-guided fine needle aspiration cytology, cell blocks,

INTRODUCTION

Fine needle aspiration cytology (FNAC) is used for rapid diagnosis of superficial lesions. However deep lesions such as hepatic lesions can be reached with the help of different imaging modalities such as ultrasound, CT scan, CTAP (CT arteriportography), CTHA (CT hepatic arteriography) PET (Positron Emission Tomography) and laparoscopy depending on the availability and the experience of radiologists and clinicians¹⁻³. Liver being an important organ of the body serves certain metabolic functions. Due to the anatomical and functional complexity, hepatic lesions are of diverse nature and can be categorized into non-neoplastic such as cysts, abscesses, inflammatory lesions, and neoplastic lesions i.e. benign and malignant^{4,5}. Ultrasound-guided FNAC is minimally invasive and relatively inexpensive and the use of large needle core biopsy in case of hepatic lesions has been decreased after the introduction of ultrasound-guided FNAC⁶. In 1893, Erlich applied percutaneous fine needle aspiration cytology for the first time and in 1923, it was first used for diagnostic purpose⁷.

With the help of ultrasound-guided biopsies, multiple passes can be made, leading to increased cellularity and viable cells which help in the categorization of the lesions. Few complications noticed after ultrasound-guided FNAC are needle tracking, bile leaking, and bleeding^{9,10}. The purpose of this study is to evaluate the role of ultrasound-guided fine needle aspiration cytology in the differentiation of hepatic lesions in benign and malignant lesions

MATERIAL AND METHODS

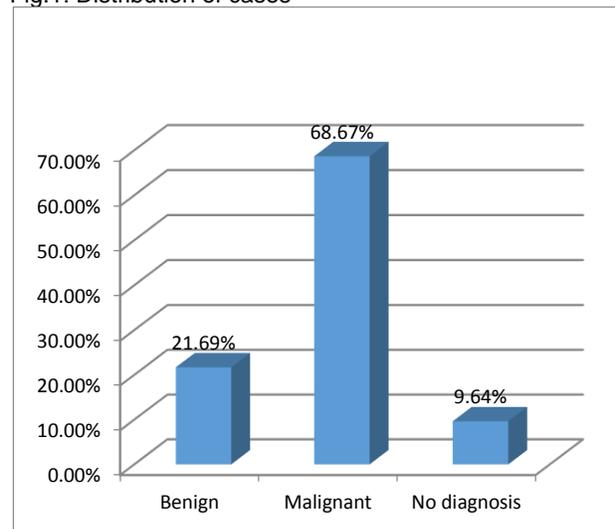
Total of 83 cases was included in this study after clinical and radiological diagnosis through convenient sampling throughout one year. Ultrasound-guided fine needle aspiration cytology was performed in the Radiology

Department of Shaikh Zayed Hospital Lahore after permission from Ethical Committee. Patient having blood coagulation disorders, peritoneal implants or lesion less than 1 centimeter in diameter were excluded from the study. Smears were prepared immediately after taking the aspirate and fixed in 95% alcohol and stained with hematoxylin and eosin (H&E), Pap stains and Giemsa stain. In the case of bloodstained material, cell blocks were prepared.

RESULTS

During the one year of study, aspiration of 83 cases was done. The mean age of the patients was 52 ± 7.8 years with a male to female ratio M: F of 1.3:1. Age range was 35 to 73 years and maximum cases were observed between 46-61 years. Few complaints noted after FNAC were fever, pain abdomen and jaundice.

Fig.1: Distribution of cases



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All the cases were analyzed. Cellularity of the smear was checked. 8 cases (9.64%) had low cellularity smear and no definite diagnosis was made out of these smears. Rest of the cases were divided into benign, malignant or suspicious of malignancy. Out of 75 cases, 18 cases (21.69%) were benign i.e. 7 cases had abscess and 11 cases revealed inflammatory changes. 57 cases (68.67%) revealed malignant lesions. Eight cases (9.64%) were of primary origin i.e. Hepatocellular carcinoma (5 cases), cholangiocarcinoma and others (three cases) and 51 cases (59.03%) were composed of secondary metastatic lesions such as adenocarcinoma, squamous cell carcinoma, and malignant melanoma, etc. After follow up and analyzing different radiological images, it was found that primaries were located in the stomach, colon, rectum, pancreas, melanoma, breast, etc.

DISCUSSION

Hepatic disease is the seventh most common causes of death among disease related deaths. In order to reduce the number of deaths, timely and accurate diagnosis of the disease is crucial¹⁰.

Fine needle aspiration cytology is the mainstay in the diagnosis of hepatic lesions and it has replaced the use of conventional needle core biopsy. It helps in accurate diagnosis of the disease, has a lesser number of risks and complications and is cost-effective¹¹. Ultrasound-guided fine needle aspiration cytology is mostly used. One study reveals 94% sensitivity and 92% specificity of FNAC for hepatic lesions so it can help in categorization into benign and malignant lesions and further classify malignant lesions in primary and secondary lesions¹².

In our study, out of 57 cases, eight cases (9.64%) were of primary origin and 51 cases (59.03%) were metastatic. These results are according to the study by Neeraj et al, which states that out of 54 cases, 12 were of primary origin and 42 cases were of metastatic¹³. Our study is in concordance with the study by Haque et al which states 77% of malignant cases in patients with hepatic lesions¹⁴. Tao et al reported 1037 cases (75%) metastatic cancers among 1383 cases¹⁵.

Hepatocellular carcinoma was diagnosed in 5 cases out of 8 cases having a malignancy of primary origin. 57 cases (68.67%) show secondary origin. In our study, mostly secondary origins were from stomach, colon, rectum, pancreas, melanoma, and breast. These results are in concordance with study by Barbhuiya and Shah^{16,17}.

It has been also been documented in one study that without histological details, categorization of the lesions might be difficult in some cases so the cell block usage is recommended for multiple sections and immunohistochemistry.

In our study, fever, pain abdomen and jaundice were few complications that were observed. However, no major complication was noticed and there was no mortality among 83 patients. Ramadas and Chopra observed no significant complications after FNAC among patients presenting with hepatic lesions. Barbhuiya also reported no significant complications^{16,19}.

CONCLUSION

Ultrasound-guided fine aspiration cytology is among the most accurate and cost-effective diagnostic tool in patients presenting with hepatic lesions having minimal to low risks. Carcinomas with primary and secondary origins can also be diagnosed with clinical and radiological history. However results may be limited due to low cellularity in some cases so effective, adequate passes up to three might be necessary in some cases.

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