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PLETHORA OF HEPATOBILIARY LESIONS - OUR EXPERIENCE OF IMAGE GUIDED CYTOLOGY IN A TERTIARY CARE CENTRE OF EASTERN INDIA.

Pathology

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ABSTRACT

Introduction: Hepatobiliary masses offer a variety of findings spanning from non neoplastic to neoplastic ones. The neoplastic lesions can be benign or malignant which can be further divided into primary or secondary malignancies. With raising incidences of liver and gall bladder malignancies worldwide, a rapid and reliable diagnostic modality is the need of the hour. Fine needle aspiration cytology being a rapid and minimally invasive procedure can serve as a first line investigation in such cases. This study was done to evaluate the spectrum of hepatobiliary lesions diagnosed by image guided cytology. **Methods:** It was a retrospective cross sectional study done in the Department of Pathology ESIPGIMSR ESIC Medical College, Joka, Kolkata. Archives of six years from January 2017 to December 2022 comprising of total 153 cases of Computed topography and ultrasound guided FNAC of hepatobiliary lesions were taken from the department and studied for various cytological findings. **Results:** Out of 153 cases, there were 102 hepatic lesions and 51 biliary lesions. The hepatic lesions were divided into five categories infective/inflammatory (12.7%), benign (6.8%), malignant (57.8%), suspicious for malignancy (4.9%) and inconclusive (17.6%). Among the 59 malignant hepatic lesions 40 were metastatic adenocarcinoma, 11 were hepatocellular carcinoma, five were poorly differentiated carcinoma and there were one case each of cholangiocarcinoma, metastatic melanoma and metastatic squamous cell carcinoma. Biliary lesions fell into four categories inflammatory (15.6%), malignant (56.8%), suspicious for malignancy (11.7%) and inconclusive (15.6%). The commonest malignant biliary lesion was adenocarcinoma gall bladder (19/29) followed by cholangiocarcinoma (5/29) and poorly differentiated carcinoma (5/29). **Conclusion:** FNAC is a reliable, rapid and minimally invasive technique in the diagnosis of patients presenting with hepatobiliary masses.

KEYWORDS

Computed topography, ultrasound, hepatic, biliary

INTRODUCTION

Hepatobiliary masses provide a gamut of findings ranging from non-neoplastic inflammatory lesions to neoplastic lesions which can span from benign tumors to malignant ones, which again can be primary or metastatic. Globally, liver cancer has become the fourth most common cause of death accounting for 800000 deaths annually. 90% of primary liver cancers are hepatocellular carcinoma followed by intrahepatic cholangiocarcinoma and other primary liver malignancies.[1] Comparatively gall bladder cancer is rare and is 24th in number among the most frequent types of cancers worldwide. [2] However India adds to 10% of the global burden of gall bladder carcinoma, with high incidence of the disease noted in Eastern, Central, North Eastern and Northern India.[3] Fine needle aspiration cytology (FNAC) has time and again proved to be an effective technique for the diagnosis of hepatobiliary lesions. Image guided FNAC is a rapid, minimally invasive, cost-effective and safe diagnostic procedure that can be used in various neoplastic and non-neoplastic diseases.[4,5,6,7,8] Diagnosing hepatic lesions on cytology can be challenging at times due to similar morphological appearances of various lesions. In such cases, correlating with history, clinical and radiological findings and also supplementing with ancillary techniques like cell block and immunohistochemistry may be helpful thus reducing the turn around time and also the need for biopsy which comes with it's own set of complications.[7] This study aims to study the cytomorphological features of various hepatobiliary lesions presenting in the department and further categorising them as neoplastic and non-neoplastic lesions and also to establish the efficacy of FNAC as first line investigation in hepatobiliary lesions.

MATERIALS AND METHOD

This retrospective cross sectional study was done in the Department of Pathology, ESIPGIMSR ESIC Medical College, Joka, Kolkata. Retrospective data of six years, from January 2017 to December 2022, comprising of 153 cases of Computed topography (CT) and ultrasound (USG) guided FNAC of liver and gall bladder masses were included in the study. All the slides were retrieved from the archives and re-evaluated and cross checked with patient's history, clinical and radiological findings. Hematoxylin and eosin (H&E) and May Grunwald Giemsa (MGG) stained slides were examined for various cytological findings and the lesions were then classified accordingly.

OBSERVATIONS AND RESULTS

Out of the 153 cases, there were 102 cases of hepatic lesions and 51 cases of biliary lesion. Among the 102 patients with hepatic mass lesions there were 55 (54%) females and 47 (46%) males. In case of biliary masses also there was a female preponderance with 32 (63%) female and 19 (37%) male patients [Figure 1].

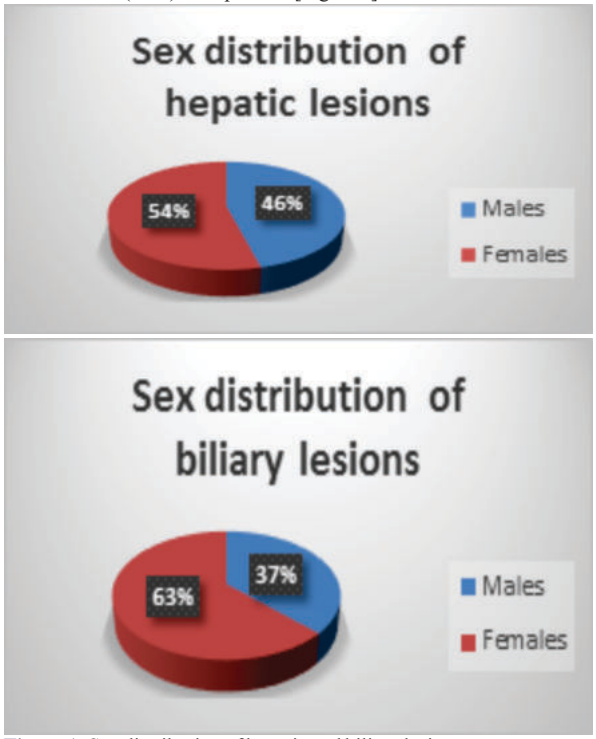

Figure 1: Sex distribution of hepatic and biliary lesions

The age range for hepatic lesions was from 22 to 84 years and the age range for biliary lesions was from 33 to 87 years. Majority of both hepatic (35/102) and biliary (17/51) lesions were found in the age group of 51 to 60 years [Figure 2]

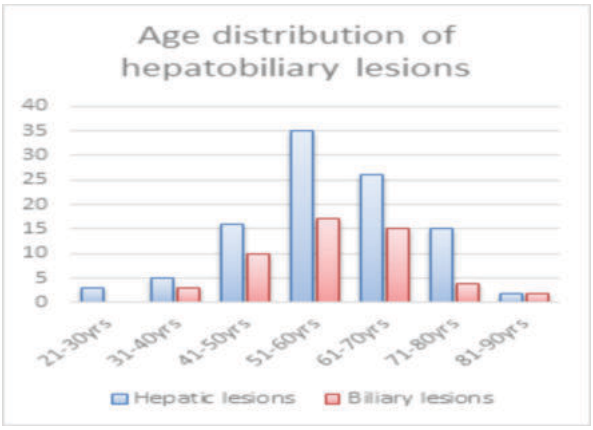

Figure 2: Age Ditribution Of Hepatobiliary Lesions

The cytologic findings of hepatic lesions were classified into five categories – infective/inflammatory, benign, malignant, suspicious for malignancy and inadequate for opinion. The category with most number of cases was malignant lesions. The cytological findings have been summarized in Table 1.

Table 1: Distribution Of Hepatic Lesions

Cytological category	FNAC Diagnosis	Number
Infective/inflammatory	Abscess	11
	Cholestasis	1
	Hydatid cyst	1
Benign	Regenerative nodule	7
Malignant	Metastatic adenocarcinoma	40
	Hepatocellular carcinoma	11
	Poorly differentiated malignancy	5
	Metastatic melanoma	1
	Cholangiocarcinoma	1
	Metastatic squamous cell carcinoma	1
Suspicious for malignancy		5
Inadequate for opinion		18

The biliary lesions were categorized into four groups – inflammatory, malignant, suspicious for malignancy and inadequate for opinion. The most common diagnosis was that of adenocarcinoma gall bladder (19/51). The cytological findings have been put in Table 2.

Table 2: Distribution Of Biliary Lesions

Cytological category	FNAC diagnosis	Number
Inflammatory	Cholecystitis	8
Malignant	Adenocarcinoma gall bladder	19
	Cholangiocarcinoma	5
	Poorly differentiated malignancy	5
Suspicious for malignancy		6
Inadequate for diagnosis		8

DISCUSSION

Hepatobiliary mass lesions presenting as intra abdominal space occupying lesions are encountered commonly in tertiary care centers. These mass lesions come with varied etiologies ranging from non neoplastic processes like focal nodular hyperplasia, regenerative nodules, and inflammatory / infectious lesions to neoplastic lesions like benign hepatocellular nodules, malignant primary epithelial and non epithelial neoplasms and metastatic tumors[9]. Appropriate and early diagnosis remains the cornerstone in management of such lesions. Image guided FNAC, with its rapid turn around time, minimally invasive and cost effective nature, can be a helpful and first line diagnostic tool in the management of hepatobiliary mass lesions.

In our study, majority of the patients with hepatic lesions belonged to the age group of 51-60 years. Similar findings were seen in the studies conducted by Parveen et el[5], Sanjuktha et al[6] Devi et al[10], Acharya et al[11] and Gupta et al[12]. However all these studies showed a male predominance, while our study showed a female preponderance. The biliary lesions in our study showed a female predominance with majority of the cases being seen in the age group of 51-60 years, which was in concordance with the findings of Devi et al[10]and Dutta et al[3].

The most common hepatic lesion in our study were found to be malignant lesions, of which metastatic malignancies were the commonest followed by hepatocellular carcinoma [Table 1]. This was also seen in the studies of Devi et al[10], Gupta et al[12], Jha et al[13] and Rasania et al[14]. Among the metastatic malignancies in our study, the commonest were metastatic adenocarcinoma [Figure 3a] with known primaries in gall bladder, lungs, breast and colon, similar to the findings of Devi et al[10]and Gupta et al[12]. There was one case of metastatic malignant melanoma [Figure 3b] in our study. The patient had primary cutaneous melanoma with secondaries in the liver. Hepatic metastatic deposits are common in cutaneous and ocular melanoma. In a study conducted by Patel et al[15] on 216 cases of cutaneous melanoma, there were 58.3% cases with hepatic metastases. In another case there was metastatic deposits of squamous cell carcinoma in liver [Figure 3c] in a known case of oral squamous cell carcinoma. In head & neck squamous cell carcinoma, liver is the third most common site for distant metastases and the metastases are usually detected within two years of treatment[16]. Five cases were labeled as poorly differentiated malignancy [Figure 3d]. Among the primary hepatic malignancies, the commonest in our study was hepatocellular carcinoma [Figure 3e] with 11 cases followed by one case of cholangiocarcinoma. The cytological findings favoring a primary liver malignancy over a metastatic or poorly differentiated malignancy included presence of transgressing vessels, macronucleoli, intranuclear inclusions, endothelial cell wrapping and bile pigments. Hepatic abscess was the most common infective lesion followed by one case each of cholestasis and hydatid cyst. In the benign category there were seven cases of regenerative hepatic nodule [Figure 3f]. Five cases were labeled as suspicious for malignancy and 18 cases were labeled as inadequate for evaluation due to lack of material.

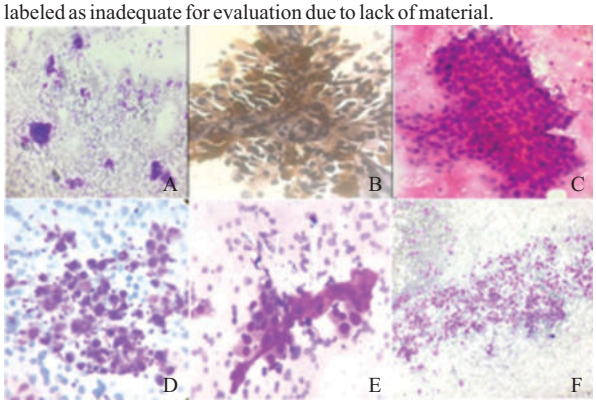

Figure 3: a. Metastatic adenocarcinoma liver; b. Metastatic malignant melanoma liver; c. Metastatic squamous cell carcinoma liver; d. Poorly differentiated carcinoma liver; e. Hepatocellular carcinoma; f. Hepatic regenerative nodule.

The commonest biliary lesion was gall bladder malignancy with 29 cases, out of which there were 19 cases of adenocarcinoma [Figure 4a] and five cases each of cholangiocarcinoma and poorly differentiated malignancy [Figure 4b]. This finding was in accordance with studies of Devi et al[10] and Gupta et al[12]. There were six cases that were suspicious of malignancy, eight cases of chronic cholecystitis and eight cases were labeled as inadequate due to lack of material.

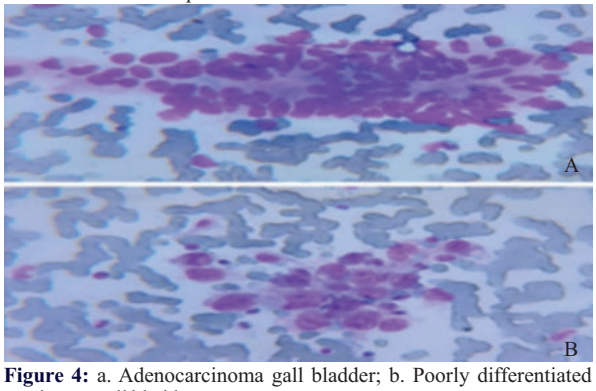

Figure 4: a. Adenocarcinoma gall bladder; b. Poorly differentiated carcinoma gall bladder

CONCLUSION

A multidisciplinary approach is mandatory for the diagnosis of hepatobiliary mass lesions. FNAC being a rapid procedure has proven time and again to be quite effective in early and accurate diagnosis of various mass lesions. Coupled with imaging techniques the efficacy and yield of FNAC improves remarkably. Diagnosing hepatobiliary lesions on cytology alone can be challenging at times due to similar morphology shared by various lesions. A clinicoradiological correlation is a must in such cases. Moreover guided FNAC can also be coupled with cell blocking which further helps in sub classifying the lesions with the help of ancillary techniques like immunohistochemistry.

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