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## A study on Ultra sound guided FNAC in Liver lesions in a tertiary government hospital

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### Abstract

**Introduction:** Lesions of liver are generally evaluated by Ultrasound guided FNAC. It is useful for differentiate from Non-neoplastic to neoplastic lesions of liver.

**AIM:** To analyse the various types of liver lesions according to age and sex of the patients. 2. To study the Cytomorphological features of liver aspirate.

**Methods:** Present study done over a period of two years, ie 2016-2018. A total number of 86 cases were studied in the Department of Pathology, Govt. Medical College, Kadapa, AP. All these cases were categorised based on Cytomorphological features, obtained by Fine needle aspiration.

**Materials required for FNAC:** 10 ml sterile disposable syringe with 25-22G needles. Suitable fixative is Isopropyl Alcohol. Alcohol fixed slides taken up for H&E staining.

**Results:** FNAC of liver were performed on 86 cases. Out of 86 cases primary malignant lesions are 32 (37.20%), Metastatic lesions are 53 (61.62%), One case of Hepatoblastoma (1.16%).

**Keywords:** Aspiration cytology, diagnosis of various types of lesions, Kadapa, FNAC

### Introduction

Ultrasound guided fine needle aspiration cytology (FNAC) is a valuable technique for diagnosing benign and malignant space occupying masses of liver. It is a cost effective and safe method that can differentiate benign and malignant lesions accurately [1]. FNAC is the first choice of investigation in both symptomatic cases and in screening of liver lesions. The present study was done to describe and categorise various types of liver lesions. The major indication of FNAC in liver is to evaluate the Hepatic masses, to differentiate non-neoplastic and neoplastic lesions of liver and to diagnose primary malignancy and secondaries of liver. The liver is involved by many non-neoplastic and neoplastic diseases. Evaluation and management of hepatic lesions is a common clinical problem and their appropriate clinical management depends on accurate diagnosis [2,3].

### Materials and Methods

Present study was done over a period of two years from 2016-2018. A total number of 86 cases were studied in the Department of Pathology, Govt. Medical College, Kadapa, AP. All these cases were categorised based on Cytomorphological features, obtained by Fine needle aspiration. Materials required for FNAC–10 ml sterile disposable syringe with 25-22G needles. Suitable fixative is Isopropyl Alcohol. Alcohol fixed slides taken up for H&E staining.

### Results

FNAC of liver were performed on 86 cases. Out of 86 cases primary malignant lesions are 32 (37.20%), Metastatic lesions are 53 (61.62%), One case of Hepatoblastoma (1.16%).

The predominant age group is 41 -50 years, followed by 51-60 years.

Male to Female ratio is 15:1

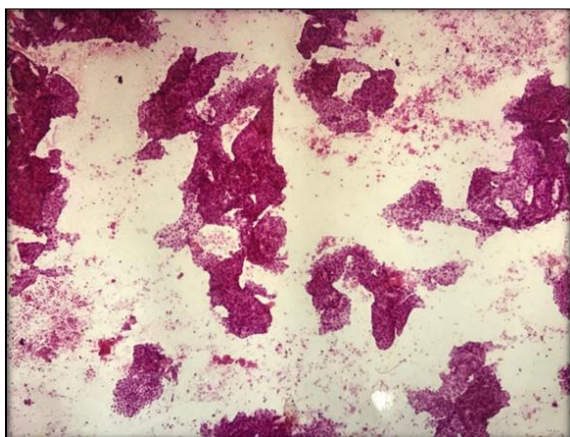
**Table 1:** Type of lesions and age group

Type of lesions	0-10 Yrs		11-20 Yrs		21-30 yrs		31-40yrs		41-50 yrs		51-60 yrs		>61 yrs		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Hepato cellular carcinoma	-	-	-	-	-	-	-	-	30	2	-	-	-	-	30	2
Secondaries	-	-	-	-	-	-	-	-	-	-	50	3	-	-	50	3
Hepatoblastoma	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-

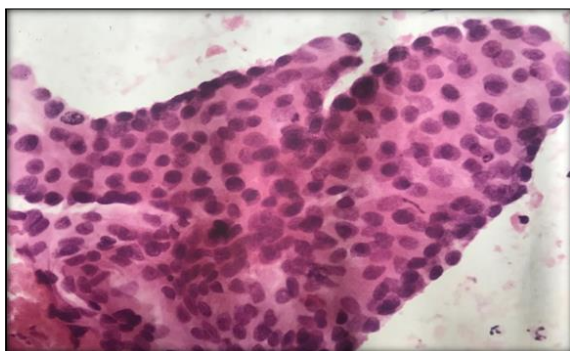
Hepato cellular carcinoma is the predominant Primary lesion of liver in the present study, the cytological features studied.

**Table 2:** Cytological findings and number of cases

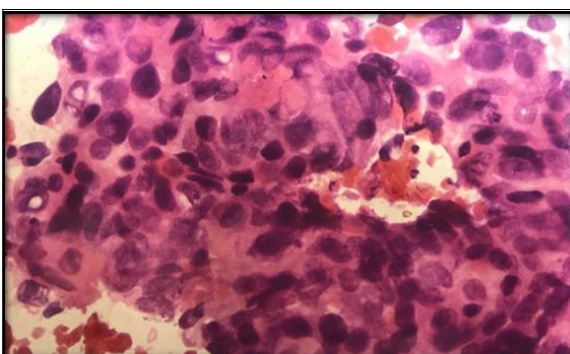
Cytological Findings	Number of cases
Trabecular Pattern	2
Endothelial covering	3
Intra nuclear Inclusions	1
Acinar Pattern	1
Bile plugs	1



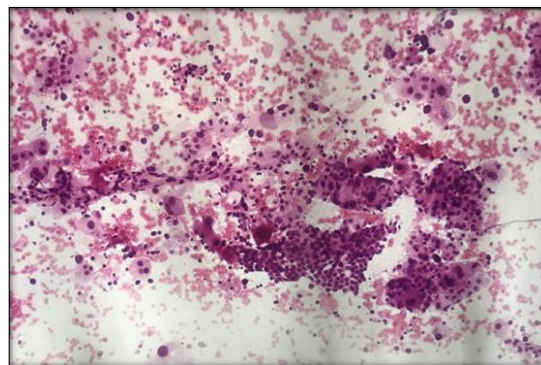
**Fig 1:** Low power view showing highly cellular smear of Hepatocellular carcinoma- Tumor cells arranged in trabecular



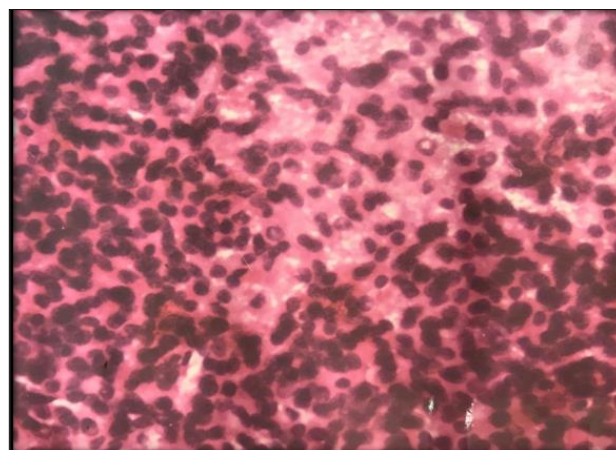
**Fig 2:** High power view of Hepato cellular carcinoma showing Endothelial cells of sinusoidal capillaries enclosing the tumor fragments.



**Fig 3:** High power view of Hepatocellular carcinoma showing Intra nuclear inclusions in Tumor cells



**Fig 4:** Low power view showing sheets of normal hepatocytes admixed with round to oval cells with hyper chromatic Pleomorphic nucleus- Secondaries in Liver



**Fig 5:** Smear showing uniform small round cells with hyper chromatic nuclei is sheets and clumps - Hepatoblastoma

**Discussion**

USG-guided FNAC offers accuracy without major complications and minimal intervention at less cost [4]. Although imaging techniques have helped greatly with the early and accurate diagnosis of liver abscess, the appearances are often non-specific. There is some overlap between the radiologic features of liver abscesses, HCC and metastases [3]. Tumors, primary or secondary, may undergo extensive necrosis, with the resultant radiologic image of the cavitory neoplasms mimicking abscesses; abscesses are accompanied by proliferative reactive changes, making radiologic differentiation from a neoplastic process almost impossible. In these situations FNAC plays an essential complementary role [5].

Iverson and Rohalm, in 1939 pioneered percutaneous liver puncture with a 2.0mm 9 (Outside diameter) needle. Soderstrom established fine needle biopsy of liver in 1966, with examination of 500 cases.

The era of FNAC developed in 1930's Ferguson described a technique for diagnosing prostatic tumours (1933) [8]. Forster used CNS tumours (1931), Sharp *et al.* in carcinoma

lung (1931) and Klinger and Burch for endometrial tumours (1932). In 1950, there were papers on thyroid, salivary gland aspirates by Sodenstorm (1952). Since then, FNAC has been accepted as a diagnostic procedure in Scandinavian and American countries [6, 9].

The diagnostic value of cytological findings indicating granulomatous disease of the liver may be of variable clinical value and significance since granulomas are found in a wide variety of conditions. Indian studies have shown that 68% of granulomas in liver biopsies are of tuberculous etiology [10, 11].

Hepatocellular carcinoma in the FNAC, there are many tissue fragments and cohesive cell clusters. The neoplastic hepatocytes are often arranged in trabecular fashion, as thick cords, or in cell balls. The neoplastic cells are relatively small, with round, regular uniform and centrally located nuclei [12]. Some cohesive cell clusters are lined by sinusoidal endothelial cells. The neoplastic cells may contain coarsely granular, intracytoplasmic bile, which appears greenish-yellow with papanicolaou stain. Occasionally bile thrombi within canaliculi between neoplastic cells are present. Mitotic figures and multinucleated neoplastic and multinucleated neoplastic cells are unusual [13, 14].

### Conclusions

The present study shows primary malignant lesions 32 (37.20%), Metastatic lesions are 53 (61.62%). Secondaries in liver were diagnosed most accurately when compared with non-neoplastic lesions by Ultra sound guided by FNAC. FNAC is simple, economical, accurate and repeatable technique in diagnosing liver lesions, can avoid open biopsy in many cases reducing patient's morbidity.

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