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CROSS SECTIONAL OBSERVATION STUDY TO ANALYSED UTILITY OF USG GUIDED FNAC FOR DIFFERENTIATION BETWEEN BENIGN AND MALIGNANT INTRAABDOMINAL LUMPS

Pathology

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ABSTRACT

Introduction- Ultrasound guided fine needle aspiration is an effective, safe, and reliable method of diagnosing intra-abdominal masses. **Material and Method -**All patients with abdominal masses were included in the prospective investigation, which was carried out in a tertiary care facility. Mass lesions were FNAC treated between December 2020 and December 2022 with ultrasound guidance. Under the direction of ultrasonography, FNAC was carried out in 2352 instances for intra-abdominal mass lesions. On wet smears, Leishman and PAP stains were applied, whereas May Grunwald Giemsa stains were applied on air dried smears. The lesions were then divided into three categories: benign, malignant, and inconclusive. **Result-:** A total of 2352 cases were included in the present study which FNA was done for intra-abdominal mass lesions under ultrasound guidance. In the present study, predominance was observed with a male to female ratio of 1:2.06. Majority of cases were present in the age group ranging from 40-61 years. 2352 cases were studied out of which gall bladder lesions constituted 812(34.52%) cases. There were total 1575 malignant (66.9%) cases, 564(23.9%) benign cases and 212(9.12%) cases were inconclusive and were excluded from the study. **Conclusion-** It was found that malignant lesions in the gall bladder are more common than hepatic lesions. Among benign lesions, reactive changes were the most common. In our study, metastatic adenocarcinoma of liver was the most common metastatic tumour. Gall bladder accounted for the majority of primary tumour. US guided FNAC was less time consuming, safe, useful, and accurate technique for making diagnoses of hepatic lesions.

KEYWORDS

Ultrasound, Intra-abdominal, mass, Lesions, FNAC.

INTRODUCTION

In many cases, it is difficult to evaluate abdomino-pelvic masses or focal lesions involving abdominal sites. The distinction between malignant and non-malignant lesions, and particularly inflammatory lesions, is crucial for the care of the patient. Although distinction between malignant and non- malignant lesions is often suspected from imaging techniques, the increasing use and sensitivity of radiological techniques has led to the identification of relatively small lesions, which require the use of image guidance for reliable targeting [1]. The diagnosis obtained by FNAC is frequently used as a substitute for surgical procedures such as diagnostic laparotomy [2].In the field of cytological diagnosis, FNAC guided by image guidance has brought about a revolution. Through this technique, non-palpable and deep-seated lesions in the body can be accurately located due to its high degree of accuracy and minimal discomfort to the patient. Multiple lesions located in inaccessible sites are routinely treated with image guided FNAC. It is very important to confirm the tissue diagnosis which is essential for both treatment as well as staging of cancer. [3]. The use of fine needle aspiration cytology, a well-established diagnostic method, to identify mass lesions in intra-abdominal organs is growing in popularity. Most investigations have demonstrated it to be a minimally complex, highly sensitive, highly specific, accurate, and cost-effective diagnostic method. [1,4-10]. The diagnosis of cancer with FNA cytology has been demonstrated to be 100% specific [5,8]. The USG-guided FNAC treatment is necessary for cancer management in developing nations like India due to the lack of CT, higher incidence of advanced malignancy due to public awareness, and overworked surgical units with inadequate resources. [6,11,12]. Our study's goal was to assess the efficacy of ultrasound-guided fine needle aspiration cytology in the diagnosis of intra-abdominal and mass in the pelvis. The goals of this study were to identify the cytomorphological characteristics, the age distribution, and the kind of malignancy of the abdomino-pelvic lesions.

MATERIALS & METHODS

Between December 1, 2020, and December 1, 2022, a total of 2352 cases with abdominal masses that had been clinically or ultrasonographically identified were included in this study at the Department of Pathology of the GSVM Medical College. These cases were referred for FNAC. liver, gallbladder, retroperitoneum, kidney, adrenals, mesenteric lymph nodes, and ovary are all included in the abdominal mass. The radiologist and a pathologist worked together to do the aspirations. To determine the mass's origin and how it related to the nearby organs, the patients had an ultrasonographic examination. The radiologist and a pathologist worked together to do the aspirations. Under the direction of the USG, at the Department of Radiology, and with the strictest aseptic measures, a percutaneous FNAC of the mass was performed by taking the quickest route to the location, as the sonologist advised. A 22-gauge needle and a 20ml disposable plastic syringe were employed. A spinal needle of 20–22 gauge measuring 9 cm in length was utilised for deep-seated lesions. The most direct trans-abdominal approach was used, and the normal FNAC technique was carried out. Four to five slides, on average, were covered with each aspirate. For the Giemsa, Papanicolaou, and H&E stains, respectively, the air dried and 95% alcohol fixed smears were prepared. Wherever necessary, special stains were applied. Clinical and radiological data were correlated with the FNAC diagnosis. It was determined whether the smears were benign, malignant, or inconclusive. The benign category comprised all inflammatory lesions, including abscesses and tuberculosis.

Inclusion Criteria

Intra-abdominal organs included liver, spleen, gallbladder, retroperitoneum, kidney, adrenals, lymph nodes. 2-Right hypochondrial masses without definite clinical diagnoses, suspected focal hepatic lesions and specific liver conditions like primary and secondary liver malignancies, hepatic abscesses and deep seated hepatic vascular and cystic tumours.

Exclusion Criteria

Parietal swellings arising from the skin, abdominal wall, uterus, cervix, prostate, and the bone. 2- Patients with haemorrhagic tendencies and prolonged PT, suspected extra-hepatic obstructive jaundice, hepatic surface haemangioma and echinococcosis and unco-operative patients. 3-Aspirates with inadequate material (e.g., scanty cellular material or presence of normal cellular material and haemorrhagic or those with atypical cells or where the possibility of malignancy could not be ruled out.

RESULTS AND DISCUSSION

Throughout the two-year research period, 17920 FNACs were performed, and out of them, 2352 (13.2%) were carried out using image guidance. In this study, abdominal masses were included, and of them, 1585 (67.40%) were female and 767 (32.60%) male, for a male to female ratio of 1: 2.06. The patients' ages ranged from 4 to 80 years old. (Table 1)

Table 1. Age And Sex Distribution Of Cases(n=2352)

Age in yrs	Male (n=767)	Female (n=1585)	Total	%age
<20	42(1.7%)	130(5.5%)	172	7.3%
21-40	63(2.6%)	200(8.4%)	263	11.2%
41-60	446(18.9%)	953 (40.5%)	1399	59.5%
61-80	216(9.18%)	302(12.8%)	518	22%
Total	767	1585	2352	100%

Out of a total of 2352 aspirates, 1575 (66.91%) were classified as malignant, 564 (23.97%) as benign, and 212 (9.12%) as inconclusive since the smears were either acellular or contained only normal cells and blood and radiological analysis was suggestive of malignancy

(Table 3)

Table 3. Cytological Category (n=2352)

Diagnosis	Number of cases	Percentage
Benign	564	23.9%
Malignant	1575	66.9%
Inconclusive	212	9.12%
Total	2352	100%

The majority of benign lesions 229(10.7%) tested negative for cancerous cells, followed by cases of liver abscesses (21.2%), TB (5.3%), ovarian cysts (2.04%), and renal cysts (1.1%). Adenocarcinomas of the gall bladder were the most common malignancy, accounting for 259 cases (16.4%), followed by liver metastases 225 cases (14.2%) and hepatocellular carcinomas 205 cases (13.01%). Gallbladder carcinomas have total 583 cases (24.7%) was the most frequent malignant lesions overall, and men were more likely to have liver, renal, and retroperitoneal lesions.

Table 4: Cytological Diagnosis Of Intra-abdomino-pelvic Lesions (Total Cases 2352)

Site	Benign	No of cases	%	Malignancy	No of cases	%
Gall Bladder	smear negative for malignant cells	229	10.7	Poorly-differentiated - adenocarcinoma Adenocarcinoma Smear positive for- malignant cells	182 259 142	11.5 16.4 9.01
Liver	Liver abscess Hyperplastic nodule Low grade-dysplastic-nodule	120 64 17	21.2 11.3 3.0	Metastatic adenocarcinoma Hepatocellular carcinoma	225 205	14.2 13.01
Retroperitoneal - Mesenteric lymph node	Reactive lymph node Tubercular lymph node	35 30	6.2 5.3	Metastatic	116	5.4
Ovary	Ovarian cyst	44	2.05	Ovarian neoplasm	318	14.8
renal	Renal cyst	25	1.1	Renal cell carcinoma	128	5.98
Total		564			1575	

Inconclusive results were seen in 212 cases (9.01%) out of these 123 cases (58.01%) were from gall bladder, 53 cases (25%) from liver ,case 36 (16.9%) each from retroperitoneum, ovary ,renal. No significant complications were observed except minimal discomfort at the time of needle puncture.

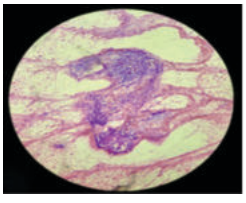
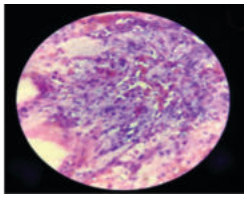


Fig1-Adenocarcinoma Gall Bladder 10x



Adenocarcinoma Gall Bladder 40x

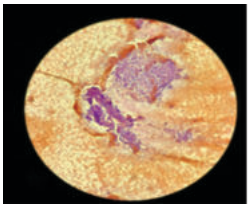
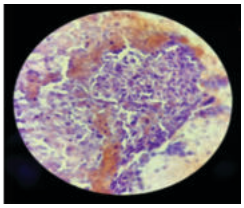


Fig2-Metastatic Adenocarcinoma Liver10x



Metastatic Adenocarcinoma Liver 40x

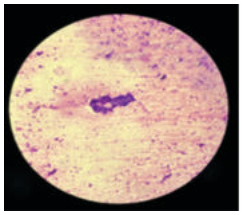
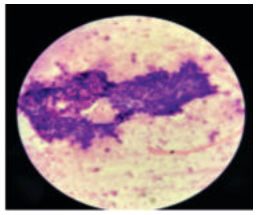


Fig3-Hepatic Cell Carcinoma 10x



Hepatic Cell Carcinoma 40x

DISCUSSION

Since they are clinical mysteries, abdominal tumours provide a challenge for surgeons. In order to prevent an exploratory laparotomy in situations of advanced, unresectable malignancies, it is crucial to distinguish between malignant and non-malignant lesions. Compared to needle core biopsy, FNA is thought to be more accurate. Aspiration of representative material for precise cytological diagnosis is made possible because to the function of USG guidance for needle placement. The confirmation of the diagnosis is crucial for prompt and effective case management planning. To prevent an exploratory laparotomy, particularly in situations of advanced, unresectable cancer, it is often crucial to distinguish between benign and malignant illness. A variety of neoplastic and non-neoplastic disorders may be diagnosed with ultrasound guided FNAC, which is a quick, accurate, affordable, and safe diagnostic method. When a diagnosis is made quickly with FNAC, the proper medicinal or surgical therapy can be begun early, preventing the need for pointless, costly, and frequently invasive diagnostic procedures. The most frequent form of malignancy in the current study are gall bladder. Females were more likely than men to have gall bladder mass, with a male-to-female ratio of 1:2.04; this conclusion is comparable to that of Akosa et al (24) who found a male-to-female ratio of 1: 3. 259 instances (16.4%) of gall bladder aspirate smears were discovered to contain adenocarcinoma, 142 cases (9.00%) were suspected for cancer, 182 cases (11.5%) were poorly differentiated, and 229 cases (10.7%) were confirmed to be free of cancerous cells. Similar to Shukla et al. (23)'s findings, studies by Shamshad et al. (16) and Aftab A. Khan et al. (23) found that adenocarcinoma of the liver is the most common malignant tumour, with 23.3% of cases involving ultrasound-guided aspiration of gall bladder asses being suspicious for malignancy and 16.6% being free of malignant cells but according to studies by Shamshad et al[16] and Aftab A. Khan et al[2] adenocarcinoma of the liver is the most prevalent malignant cell type , followed by hepatocellular carcinoma, The findings of the current study did not correlate with those of earlier studies in which malignancies more frequently occurred in the liver. Compared to Shamshad et al. [16] and Aftab A. Khan et al. [2] who observed (6.5%) and (6%) unsatisfactory smears, respectively, we observed (9.0%) inconclusive smears in the current study. These findings could be explained by a variety of factors and depend on the location, size, accessibility, vascularity, necrotic component, consistency, nature, and histologic type of the tumour. lesion. In contrast to the smears in our study, Biradar et al.'s [21] observations, more unsatisfactory smears (14%) were noted. Even though only a few studies have documented issues including minor local discomfort, haemorrhage, and tumour seeding of the needle tract, a substantial body of research supports the safety of FNAC. Apart from a little discomfort during the needle puncture, there were no complications in the current research. Of the 20 studies, including those of the current analysis, representing almost 20,000 patients, there was no mention of FNAC-related complications [22].

CONCLUSION

In our analysis, this convenient outpatient procedure with the lowest patient cost provided for the diagnosis of 74.6% of intraabdominal malignant lesions. Malignant lesions were more common than benign ones and gall bladder carcinoma is more common than hepatic carcinoma, according to our research. In the hands of an expert, USG guided FNAC plays a critical role in the proper identification of any deep-seated accessible mass lesions since it is a rapid, reliable, easily accessible OPD technique with few milder types of problems. For the diagnosis of intra-abdominal lesions, intra-abdominal FNA is a comparatively quick, affordable, and secure method.

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Conflict Of Interest: None

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