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ROLE OF IMAGE GUIDED FINE NEEDLE ASPIRATION CYTOLOGY IN INTRA-ABDOMINAL LESIONS: A 1 YEAR RETROSPECTIVE STUDY

Pathology

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ABSTRACT

BACKGROUND: Intra-abdominal masses always remain as an enigma in surgical practice. A documentary evidence of the nature of the pathology before the institution of therapy and for the prognosis is mandatory. FNAC is a substitute for surgical procedures like diagnostic laparotomy or laproscopic biopsy. Fine needle aspiration cytology (FNAC) with assistance of radiological tools such as ultrasonography (USG) and computed tomography (CT) is an effective and safe technique for diagnosing intra-abdominal neoplastic and nonneoplastic lesions.

AIMS AND OBJECTIVES: (1) To assess the utility of image-guided cytology in the diagnosis of intra-abdominal lesions.

(2) To categorize various intra-abdominal lesions according to their site of occurrence and study their cytomorphological features.

MATERIALS AND METHODS: A Retrospective study was conducted in the Department of Pathology between January 2018 to December 2018. A total of 42 cases with intra-abdominal lesions were included in the study.

RESULTS: In our study, diagnostic yield was 85.8%. The mean age was found to be 51.1 years with M: F ratio 2.4:1. We found that 25 (59.5%) cases were in hepato-biliary region, 14 (33.3%) in lymph nodes, 3 (7.1%) in unknown abdominal lumps. Of total 42 cases, 23 (54.7%) cases were malignant, 5 (11.9%) benign, 8 (19.0%) inflammatory, 6 (14.2%) inadequate.

CONCLUSION: Guided FNAC was thus confirmed as a safe procedure that provides fairly accurate diagnosis with minimal complications in the diagnosis of intra-abdominal and retroperitoneal lesions.

KEYWORDS

Image guided, Fine needle aspiration, hepatobiliary, intra-abdominal,

INTRODUCTION -:

The diagnosis of intra-abdominal, deep lesions is a cumbersome procedure. These lesions present as palpable as well as deep nonpalpable masses. Their biological nature can be benign, malignant, or inflammatory. Most of the intra abdominal masses are non – palpable and even if they are palpable, the idea of their size and shape and the extent of the lesion is not possible. Therefore, various imaging modalities like CT scan and USG are used as a guide for fine needle aspiration [1]. Most studies have shown it as a highly sensitive, highly specific, accurate and a cost effective diagnostic procedure with a negligible complication rate. Uncorrectable severe coagulopathy is an absolute contraindication. Imaging techniques do not always distinguish between benign and malignant lesions morphologically. A confirmed diagnosis is essential for management of malignancy[2].

Radiologically assisted cytology in various forms such as USG-guided and computed tomography-guided fine needle aspiration (FNA) is an effective way to obtain diagnostic material.[3,4,5] Endoscopic ultrasound (EUS)-guided needling is increasingly used for those lesions accessible through a transgastric approach, mostly in the left lobe of the liver.[6,7,8] Duct brush cytology through endoscopic retrograde cholangiopancreatography (ERCP) is important in evaluation of extrahepatic biliary tract and large pancreatic duct lesions.[9]

The whole process should be a teamwork approach. The presence of pathologist at the time of procedure increases overall accuracy.[10,11,12] The whole exercise is waste if no material aspirated or aspirated material is not properly processed.

With modern day techniques, complication rate is very low. The most common complications are pain, hemorrhage, nausea, and vomiting. With the benefit of less time consumption and cost effectiveness, these procedures are increasing in trend.[13]

This study was planned with aim to assess the utility of cytological methods assisted by various radiological techniques in diagnosis of intra-abdominal lesions. Our objectives were to categorize various intra-abdominal lesions according to their site of involvement, study their cytomorphological features, and classify them as benign, malignant, suspicious, and inflammatory.

MATERIAL & METHODS -:

The present study was conducted in the Department of Pathology of Sunrise Diagnostic Lab between January 2018 and December 2018. It is a retrospective study of 1 year. A total of 42 cases were included. Clinical and radiological data were obtained from records. After thorough clinical and radiological examination, for deep-seated lesions, 20–22 gauge spinal needle was used. Air-dried smears were subjected to stain with MGG and wet-fixed smears with H&E and Papanicolaou stain.

RESULTS -:

A total of 42 cases were included. In our study, 6 cases were inadequate, so diagnostic yield was 85.8%. Male to female ratio was 2.4:1. The mean age of the sample was 56 years with a range of 14–78 years. A maximum number of patients were in the age group of 51–60 years (32.3%) followed by 61–70 years (28.2%).

Of 174 cases, most common 25 (59.5%) cases were from hepatobiliary region followed by 14(33.3%) Abdominal lymph nodes, 3 (7.1%) abdominal lumps of unknown origin.

Site wise distribution of cases :

Site	Number of cases with Percentages
Hepatobiliary region	25 (59.5%)
Abdominal lymph nodes	14 (33.3%)
Abdminal lumps of unknown origin	03 (7.1%)

According to cytomorphology, most of the lesions were malignant 23 (54.7%) followed by 8(19.0%) inflammatory, 5 (11.9%) benign, and 6 (14.2%) inadequate

Distribution of cases according to their nature of Pathology

Nature of Lesion	Number of cases (%)
Malignant	23 (54.7%)
Benign	5 (11.9%)
Inflammatory	8 (19.0%)
Inadequate	6 (14.2%)

Of total 23 malignant lesions, in hepatobiliary region, 11 (47.8%) cases were metastatic lesions followed by 06 (26.0%) primary hepatocellular carcinoma, 1 (4.34%) cholangiocarcinoma, and 3 (13.0%) adenocarcinoma of gallbladder. Of abdominal lymph nodes, 1 (4.34%) case were metastatic and Of cases of unknown abdominal lumps 1 (4.34%) were non-Hodgkins lymphoma.

Distribution of Malignant lesions :

Lesion	No. of cases (%)
Hepatic metastasis	11 (47.8%)

Primary Hepatocellular carcinoma	06 (26.0%)
Cholangiocarcinoma	01 (4.34%)
Adenocarcinoma of Gall bladder	03 (13.0%)
Lymph node metastasis	01 (4.34%)
Non Hodgkin's lymphoma	01 (4.34%)
Total	23

Of total 08 cases of inflammatory lesions, 4 were of reactive lymph nodes, 3 were showing granulomtous change & 1 were abscesses.

DISCUSSION -:

Image guided FNAC is a rapid, accurate, economical and a safe diagnostic procedure that can be used in various neoplastic and non-neoplastic diseases. As a diagnosis is rapidly available on FNAC, the appropriate medical or surgical therapies can be started earlier, thus avoiding unnecessary, expensive and often invasive diagnostic procedure. The aforesaid factors reduce or eliminate the surgical morbidity and mortality as well as the hospitalization, thereby benefitting the patients as well as the health care system.

In the present study, all 42 cases were aspirated with image guided. 06 (14.2%) cases out of total 42 were inadequate, so diagnostic yield was 85.8%. Nautiyal *et al*. in 2004 found a diagnostic yield was 93.06% with USG-guided FNAC.[15] Nyman *et al*. in 1995 found a diagnostic yield of 64% with USG-guided FNAC.[16]

The age range of our patients was 14–78 years with a mean age of 56 years. Most common age group was 51–60 years (32.3%) with male female ratio is 2.4:1. In the study by Tan *et al*., age range was 11–82 years.[17] The male to female ratio of 1.07:1 was in accordance with Krishna *et al*.[18] and Ennis *et al*.[19] showed a male preponderance.

In our study, the most common site was hepatobiliary region (59.5%), followed by abdominal lymph nodes (33.3%), and other lumps of unknown origin (7.1%). This was in accordance with the study of Khan *et al*.,[20] Stewart *et al*.,[21] and Nyman *et al*.[22]

Of total 42 cases, maximum 23 (54.7%) cases were malignant followed by 08(19.0%) inflammatory and 05 (11.9%) benign. Results were in accordance with the study of Khan *et al*.[20] and Ahmed *et al*.[22]

In all malignant lesions, most common 11 (47.8%) cases were from metastatic tumors of liver followed by 06 (26.0%) cases of primary hepatocellular carcinoma, 03 (13.0%) cases of Gall bladder Adenocarcinoma, 1 (4.34%) cases of cholangiocarcinoma. Adikari *et al*.[23] found metastatic tumor of liver as the most common malignancy encountered in the abdomen (38.4%) followed by hepatocellular carcinoma (29.8%). In contrast to our study, Zarger *et al*.[24] found the most common malignancy as carcinoma of gall bladder followed by hepatocellular carcinoma.

CONCLUSION

Present findings and those of others have indicated clearly that FNA is an excellent method of confirming diagnosis of hepatic lesions. A multidisciplinary team of cytopathologists, radiologists and clinicians are most beneficial. It is simple, economical, and less complicated and less time-consuming procedure to differentiate between malignant and non-malignant intra-abdominal lesions. FNA is the diagnostic procedure of choice for focal hepatic masses, when performed by experienced interventional radiologist and interpreted by experienced cytopathologist, the accuracy is quite high.

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