



## A PROSPECTIVE STUDY OF VARIOUS TYPES OF INTRA-ABDOMINAL LESIONS WITH THE HELP OF USG GUIDED FNAC AND ITS EFFICACY IN PATIENTS OF J.A. GROUP OF HOSPITALS.

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### ABSTRACT

**INTRODUCTION:** - FNAC is an important, non invasive diagnostic modality, and if performed in conjunction with Ultrasound could be very useful in making diagnosis of intra abdominal lesions.

**AIMS AND OBJECTIVES:** - The purpose of this study was to find out the importance of Ultrasound guided FNAC in diagnosis of intra-abdominal lesions.

**MATERIAL & METHODS:** - This is a prospective study on 108 patients, aged 11-70 years arrived at JA hospital of GR Medical College with various complaints related to abdomen

**CONCLUSION:-** The role of ultrasound guided FNAC was significantly observed in diagnosing the intra abdominal lesions.

**KEYWORDS :** Assess, Quality of Life, Elderly, Old Age Homes.

### INTRODUCTION

The technique of FNA had its pioneering start (during 1930s) at Sloan – Kettering Memorial Hospital in New York, where its creators, Martin, a surgeon and Stewart, an astute surgical pathologist, foresaw the advantages of establishing morphologic diagnosis in a small sample.

Intra-abdominal masses always remain an enigma in surgical practice. Since time immemorial, surgical exploration has been a traditional well established gold standard procedure used in the diagnosis. Fine needle aspiration is a proven technique for diagnostic evaluation of patients with intra-abdominal masses (Khan AA, Jan GM 1996).

The localization of organ pathology, which is readily facilitated through the use of the newer imaging modalities can now be augmented by use of percutaneous fine needle aspiration. It is a simple, safe and inexpensive way to obtain diagnosis in most anatomic areas. It may obviate need for diagnostic laparotomy (Ennis MG, Mac Erlean Dp1980).

Advent of real time sonography is a major advantage as the exact localization of needle tip during the procedure is possible and manipulations can be made. FNA has now largely replaced conventional large needle core biopsy (vim silverman, trucut needles) in the diagnosis of focal lesions. The 22-25 G fine needle has the advantage of causing significantly less discomfort and a very low risk of complications. Small focal abnormalities can be missed by either method. Morphologic features must therefore always be correlated with clinical presentation and imaging techniques (Leiman G.2005).

Fine Needle Aspiration Cytology has taken a path of ascent after the entry of newer imaging modalities which has given birth to guided techniques of aspiration for deep seated lesions. The use of imaging techniques combined with the use of thin needles has revolutionized the approach of percutaneous aspiration diagnosis of space occupying lesions of the abdomen. It provides precise anatomic imaging and targeting of lesions and permits the planning of safe access route there by reducing the risk of complications. Various modalities of imaging like X-ray, Ultrasound, CT and MRI are being routinely used now days. But ultrasound is the most commonly used imaging technique because of its greater scanning flexibility, speed and absence of radiation exposure.

### MATERIAL AND METHOD

The present study was conducted in department of pathology G.R. Medical College and J.A. Group of Hospitals, Gwalior from August 2012 to October 2013.

Patients having intra-abdominal masses and who were found to be cooperative were included in this study. Patients who were found to be non-cooperative, with bleeding diathesis, and with platelet count less than  $50 \times 10^3 / \text{cu mm}$  were excluded from this study.

Intra abdominal organs including the liver, spleen, pancreas, stomach, gall bladder, small and large intestines, omentum, mesentery, retroperitoneum kidney, adrenals, lymph nodes, soft tissue and ovary were included in the study. Parietal swellings arising from skin and the abdominal wall, uterus, cervix, prostate were excluded from the study.

Detailed clinical data which included the patients history, physical examination findings and reports of relevant investigations which were conducted (routine and special). After a thorough clinical examination, consent was obtained from the patients after explaining the procedure to them.

### PROCEDURE

Ultrasonographic examination was performed and those found to have a mass were subjected to FNA cytology with the help of Radiologist using a 22-23 G needle attached to a 20 ml syringe for superficial masses and lumbar puncture needle of same thickness for deep seated masses.

Aspirations were done with patient either in supine position or lateral decubitus position. Under strict aseptic precautions, after asking patient to hold breath in expiration, in cases of masses moving with respiration, the needle is inserted into the lesion and material aspirated with negative pressure. The negative pressure is released before the needle is withdrawn. The patient was then kept under medical surveillance for 2-3 hours and observed for any complications.

The sample was expelled onto the slides, air dried and stained with Lishman-Giemsa. Whenever fluid was obtained, macroscopic examination of fluid was done and centrifuged. Smears were made from sediment and stained with Lishman-Giemsa.

Surgical biopsy of the lesion was done at the discretion of the surgeons. Whenever the biopsy specimen was received in the department, it was routinely processed (Automatic tissue processor-Thermo Scientific CITADEL 2000) to obtain paraffin sections which were stained by H and E. (Automatic stainer-thermo scientific HM325 - GEMINI 325) Histopathological study was done independently. Results of cytological and histopathological studies were later correlated to evaluate the efficacy of FNA.

The results of this study were calculated by using the methodology

of Gallen and Gambino for substantiating the correlation.

2012 to October 2013, and total 108 cases of fine needle aspirations under USG guidance were performed. Histopathological correlation and confirmation was done in 20 cases (19.80%) out of 101 satisfactory cases.

**OBSERVATIONS**

The present study was conducted in department of pathology G.R. Medical College and J.A. Group of Hospitals, Gwalior from August

**TABLE NO. 1 CYTOLOGICAL DIAGNOSIS OF LESIONS ACCORDING TO ORGAN**

S.No	Organ	Inflammatory	Benign	Malignant	Suspicious	Unsatisfactory	Total
1	Liver	06 (26.08%)	03 (33.33%)	38 (55.88%)	-	01 (14.28%)	48 (44.44%)
2	Gallbladder	01 (4.34%)	00	08 (11.76%)	-	02 (28.57%)	11 (10.18%)
3	Stomach	00	00	01 (1.47%)	-	-	01 (00.92%)
4	Bowel	01 (4.34%)	00	05 (7.35%)	-	-	06 (05.55%)
5	Pancreas	01 (4.34%)	01 (11.11%)	00	-	01 (14.28%)	03 (02.77%)
6	Spleen	02	00	00	-	-	02 (01.85%)
7	Kidney	00	00	02 (2.94%)	-	01 (14.28%)	03 (02.77%)
8	Adrenal	00	01 (11.11%)	02 (2.94%)	-	-	03 (02.77%)
9	Ovary	00	03 (33.33%)	01 (1.47%)	-	01 (14.28%)	05 (04.62%)
10	Appendix	02 (8.68%)	00	00	-	-	02 (01.85%)
11	Lymph node	06 (26.08%)	00	07 (10.29%)	01 (100%)	01 (14.28%)	15 (13.88%)
12	Unclassified	04 (17.39%)	01 (11.11%)	04 (5.88%)	-	-	09 (08.33%)
	Total	23	09	68	01	07	108

**TABLE NO.2 MALIGNANT LESIONS IN LIVER ON FNAC**

S.NO	Lesions	Number of patients	%
1	Hepatocellular carcinoma	19	50.00
2	Metastatic adenocarcinoma	14	36.84
3	Poorly differentiated carcinoma	03	07.89
4	Metastatic of squamous cell carcinoma	01	02.63
5	Metastatic malignant melanoma	01	02.63
	Total	38	100

Table no. 2 depicts, the most common malignant lesion in the liver was hepatocellular carcinoma 19 cases (50.00%), followed by metastatic adenocarcinoma 14 cases (36.84%), followed by poorly differentiated carcinoma 03 cases (07.89%), followed by metastatic

deposits of squamous cell carcinoma in 01 case (2.63%) and metastatic deposits of malignant melanoma in 01 case (2.63%) in a seventy year old female.

**TABLE NO. 3 HISTOPATHOLOGICAL CORRELATION WITH FNA DIAGNOSIS**

S.No	Organ	Number of cases where histopathology was done	FNA diagnosis	Histopathologic diagnosis	Corre-lation
1.	Gallbladder	04	04 cases Adenocarcinoma	04 cases Adenocarcinoma	100%
2	Bowel	05	04 cases Adenocarcinoma 1 case lymphoma	04 cases Adenocarcinoma 1 case lymphoma	100%
3	Kidney	02	01 case Renal cell carcinoma 01 case Wilms Tumor	01 case Renal cell carcinoma 01 case Wilms Tumor	100%
4	Ovary	04	02 case Serous Cystadenoma 01 case Serous Cystadenocarcinoma 01 case Mucinous Cystadenoma	02 case Serous Cystadenoma 01 case Serous Cystadenocarcinoma 01 case Mucinous Cystadenoma	100%
5	Lymph node	05	02 cases Tubercular Lymphadenitis 02 cases lymphoma 01 case Metastatic deposits of seminoma	02 cases Tubercular Lymphadenitis 02 cases lymphoma 01 case Metastatic deposits of seminoma	100%
	TOTAL	20			

Table no.3 depicts histopathological correlation and confirmation was available in 20 cases (19.80%) cases out of 101 satisfactory cases. Out of the 09 benign cases, 03 (22.22%) were diagnosed by histopathological examination. One mucinous and two serous cystadenoma of ovary which were diagnosed cytologically were confirmed histopathologically.

Two cases of tubercular lymphadenitis were also confirmed histopathologically.

15 (22.05%) cases were confirmed histologically out of the 68 malignant cases. 04 cases of gallbladder and 04 cases of bowel adenocarcinoma which were diagnosed cytologically were

confirmed histopathologically. One case each of renal cell carcinoma and Wilms tumor of the kidney and one case of serous cystadenocarcinoma of ovary were confirmed histopathologically. Three cases of lymphoma one in bowel loops & two in lymph nodes were also confirmed histologically. One case of metastatic seminoma of the lymph nodes which was diagnosed cytologically was also confirmed by subsequent histopathological examination of the orchidectomy specimen.

#### DISCUSSION AND CONCLUSION

The salient findings in present study are as follows:

1. Total 108 cases of USG guided FNAC were conducted in intra abdominal masses.
2. Diagnostic yield on USG guided FNAC was 93.51% with 6.48% were unsatisfactory smears.
3. Out of total 101 satisfactory cases, 68 cases (67.32%) were malignant lesions, 9 cases (8.91%) were benign, 23 cases (22.77%) were inflammatory lesions and 01 case (0.09%) was suspicious for malignancy.
4. Out of total 68 malignant lesions 38 cases (55.88%) were found in males and 30 cases (44.12%) were seen in females, whereas benign and inflammatory lesions were seen marginally more in females 55.55% and 56.52% respectively.
5. In present study maximum number of malignant cases 47 (69.11%) were seen in the age group 41 to 70 years while maximum number of inflammatory lesions 18 (78.26%) were seen in age group 11 to 50 years.
6. Largest number of malignant lesions 38(55.88%) were detected in liver followed by 8 cases (11.76%) in gall bladder and 7 cases (10.29%) in lymph nodes. Amongst the inflammatory again 6 cases (26.0%) were found in liver as abscess.
7. Seven cases (30.43%) cases were reported as tubercular infection, 6 (85.71%) in lymph node and 1 (14.28%) in bowel.
8. Most common type in malignant lesions was adenocarcinoma in 28 cases (41.17%) followed by hepatocellular carcinoma in 19 cases (27.94%) and lymphoma in 6 cases (8.82%).
9. Amongst malignant lesions of liver out of total 38 cases, 19(50%) were hepatocellular carcinoma and rest 19(50%) were metastatic lesions. Amongst metastatic lesions largest 14 cases (73.68%) were adenocarcinoma, 3(15.78%) were poorly differentiated carcinoma and 1 case (0.05%) each was squamous cell carcinoma and malignant melanoma.
10. On further breakup of total 28 cases of adenocarcinoma, largest 14 cases (50%) were metastatic deposits in liver, followed by 8 cases (28.57%) adenocarcinoma of gall bladder, 4 cases (14.28%) adenocarcinoma of bowel and 1 case (3.57%) was each of adenocarcinoma of stomach and ovary.
11. Histopathological correlation of USG guided FNAC done in total 20 cases (19.80%) out of 101 satisfactory cases, out of which 15 cases (75%) were malignant, 3 cases (15%) were benign and 2 cases (10%) were inflammatory lesions. There was 100% histopathological correlation with FNA diagnosis in all cases.
12. Diagnostic accuracy of present study (2013) was 100% with 100% sensitivity and 100% specificity with no false positive and no false negative cases in all 20 cases where histopathological correlation was done.

Ultrasound imaging can easily and precisely visualize intra abdominal mass lesions especially deep seated lesions. FNAC is a relatively simple, swift, cost effective, efficient and safe procedure for acquiring a provisional pre operative diagnosis of intra abdominal lesions. It not only helps in differentiating between inflammatory, benign and malignant lesions but also in categorizing different malignant lesions.

Intra abdominal FNA is a reliable sensitive and specific method with a high diagnostic accuracy for the diagnosis of malignant lesions.

It allows morphological evaluation of all doubtful lesions without time consuming and costly surgery, without impairing the diagnostic reliability. Keeping in view, its high values of sensitivity, specificity and positive predictive value and diagnostic accuracy it

can be considered as a standard technique of preoperative procedure for better management of all intra abdominal lesions.

Advancement in medical sciences is very fast and recently many highly precise diagnostic modalities are available in hospital practice. USG guided FNAC is one of such modern procedure whose real potential has not been fully explored yet. To popularise this method, further hospital based or large cohort studies are required and recommended in order to accumulate the useful data, and to provide early and fast diagnostic facility to patient, so early definitive treatment can be initiated. These further studies will also contribute to improvement in clinical practice and in general improve prognosis of surgical patients in long run.

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