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ORIGINAL ARTICLE

ROLE OF FINE NEEDLE ASPIRATION CYTOLOGY IN THE DIAGNOSIS OF INTRA ABDOMINAL LUMPS

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ABSTRACT: Fine needle aspiration cytology has gained recognition in the last decade as valuable diagnostic technique. Its benefits have been demonstrated in large series of patients and in almost all tumor types. Aim of this study was to establish role of fine needle aspiration cytology in the diagnosis of intra-abdominal lumps. Most commonly involved organ in our study was liver (30.4%) followed by G.I.T (21.7%) and Gall Bladder (17.4%). Maximum numbers of cases were in sixth decade followed by fifth and fourth decade (19.56% and 17.4% respectively). Malignant lesions were more common in this study compared to benign lesions. Reason behind this was inclusion of patients of higher age group in the study. Out of 46 cases only 23 cases were subjected for histopathological correlation. Amongst all such cases there were more number of malignant lesions. 100% accuracy was observed in cases of liver, intestine, ovary and kidney lesions. In other organs less accuracy obtained and probably it was due to less number of cases subjected to histological correlation. FNAC being a safe and OPD procedure can be used as important diagnostic tool for any abdominal lump. Present study had adequacy of material in 93.4% of cases and this study carries an overall accuracy ranging from 75-100% with sensitivity of 91.3%. The aspirated material can be subjected to other modalities of study like immunological, cytogenetic and microbiological depending as per need of cases, which adds to diagnostic accuracy of FNAC. Overall role of FNAC in intra-abdominal lumps is of great value and its use should be encouraged in the diagnosis of intra-abdominal lumps.
KEYWORDS: Intrabdominal lumps, role of US-guided FNAC, Cytohistological correlation.

INTRODUCTION: Fine needle aspiration cytology has gained recognition in the last decade as valuable diagnostic technique. Its benefits have been demonstrated in large series of patients and in almost all tumor types. The reason for its gaining popularity are many i.e. safe, simple and quick, rapid report, minimal patient discomfort, lack of complication, less expensive and done as an outdoor procedure.

Initially it was limited to superficial organs like lymph nodes, breast etc. Modern imaging techniques mainly USG and CT have made it possible for deeper organs and tissues of abdominal cavity (like liver, gallbladder, lymph nodes etc.) and the retro peritoneum readily accessible to fine needle aspiration.

FNAC is used as a clinching investigation of any palpable mass either small or huge size, superficial or deep which may prove to be non – neoplastic or neoplastic or may give classified diagnosis.

AIMS & OBJECTIVES: To establish role of fine needle aspiration cytology in the diagnosis of intra-abdominal lumps.

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MATERIAL & METHODS: FNAC was done on patients attending out – patient department as well as admitted in surgery, medicine and Gynecology department of Rama Medical College Hospital and Research Centre Kanpur. Patients clinically diagnosed as cases of intra-abdominal lumps were studied thoroughly. Detailed history, examination, history of past illness and previous investigation were obtained. Prothombin time was done in patients with jaundice. Radiological investigations like USG and CT were done to know exact site of the lesion. All the patients were subjected to FNAC.

PROCEDURE OF FNAC: patient was placed in most comfortable and suitable position for aspiration. After antiseptic preparation aspiration was done without any kind of anesthesia. Disposable plastic syringe was connected to disposable needle 21 or 23 gauge diameter or a L.P. needle if the target lesion was situated deeper. Needle was moved to and fro to cut tissue fragments and dislodge cells with a fully pulled syringe piston position to create negative pressure in the syringe for the tissue fragment to be aspirated in the syringe. Routes used for aspiration were blind on palpable mass or ultrasound guided. Stains used for FNAC smears were H.E stain, M.G.G stain and papanicolaou's stain.

OBSERVATIONS: This study was conducted in pathology department of Rama Medical College Hospital and Research Centre Kanpur. Total of 46 cases were included in the study.

Site	No. Of cases	Percentage
Liver	14	30.4
Gall Bladder	08	17.4
G.I.T.	10	21.7
Lymph Nodes	05	10.8
Retroperitoneum	01	2.1
Kidney & Adrenal	02	4.2
Ovary	06	13.2
Total	**46**	**100.0**

TABLE I: DISTRIBUTION OF LESION ACCORDING TO ANATOMICAL SITE

Most commonly involved organ in our study was liver (30.4%) followed by G.I.T (21.7%) and Gall Bladder (17.4%).

Age groups (in years)	No. Of cases	Percentage.
0-10	02	4.34
11-20	04	8.69
21-30	06	13.04
31-40	08	17.39
41-50	09	19.56
51-60	12	26.09
>60	05	10.91
Total	**46**	**100.0**

TABLE II: AGE DISTRIBUTION OF CASES

Maximum numbers of cases were in sixth decade followed by fifth and fourth decade (19.56% and 17.4% respectively).

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Age groups (in years)	Benign No. %		Malignant No. %	
0-11	0	00.00	0	00.00
11-20	4	23.5	0	00.00
21-30	3	17.7	2	08.7
31-40	4	23.5	3	13.0
41-50	3	17.7	6	26.1
51-60	3	17.7	8	34.8
>60	0	00.00	4	17.4
Total	17	100.0	23	100.0

TABLE III: DISTRIBUTION OF LESION WITH REGARDS TO BENIGN AND MALIGNANT LESIONS

Malignant lesions were more common in this study compared to benign lesions. Reason behind this was inclusion of patients of higher age group in the study.

Sex	No. Of cases	Percentage
Male	21	45.7
Female	25	54.3
Total	**46**	**100**

TABLE IV: SEX DISTRIBUTION OF CASES

The numbers of female patients in the study group were more than the males.

Organ Involved	Inflammation		Benign		Malignant		Inadequate		Total
	Total	%	Total	%	Total	%	Total	%	
Liver	2	4.34	1	2.17	10	21.73	1	2.17	14
Gall Bladder	2	4.34	-	-	5	10.85	1	2.17	8
GIT	6	13.04	1	-	2	4.34	1	2.17	10
Lymph Node	2	4.34	-	-	3	6.51	-	-	5
Retroperitoneum	-	-	1	2.17	-	-	-	-	1
Kidney/Adrenal	-	-	-	-	2	4.34	-	-	2
Ovary	-	-	2	4.34	3	6.51	1	2.17	6
Total	**12**	**26.06**	**5**	**10.85**	**25**	**54.28**	**4**	**8.68**	**46**

TABLE V: DISTRIBUTION OF CASES ACCORDING TO FNAC FINDINGS

Maximum number of cases in this study were of malignant lesions (54.28%) whereas benign and inflammatory lesions constituted10.85% and 26.06% respectively.

inflammatory lesions in this study also included among the benign lesions. Two lesions one from GIT and one from retroperitoneum were suspicious for malignant cells and because of lack of definitive opinion was grouped under benign lesions. benign and inflammatory conditions together constitutes 17 cases.

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Organ	Benign lesion	Malignant lesion	Total
Liver	02	02	04
Gall Bladder	02	04	06
GIT	01	02	03
Lymph Nodes	01	03	04
Kidney	-	02	02
Ovary	01	03	04
Total	**07**	**16**	**23**

TABLE VI: TOTAL NUMBER OF CASES DIAGNOSED HISTOPATHOLOGICALLY

Out of 46 cases only 23 cases were subjected for histopathological correlation. Amongst all such cases there were more number of malignant lesions.

Histological diagnosis	No. of cases	FNAC findings Correct	Incorrect	Accuracy
Gall Bladder				
Chr. Cholecystitis	02	02	-	83.3
Adenocarcinoma	04	03	1	
Liver				
Hepatocellular CA	02	02	-	100
Metastatic adenoCA	02	02	-	
Intestine				
Tuberculosis	01	01	-	100
Adenocarcinoma colon	02	02	-	
Lymph node				
Tuberculosis	01	01	-	75
NHL	01	01	-	
Metastatic carcinoma	02	01	01	
Kidney				
Wilm's tumor	01	01	-	100
Renal cell carcinoma	01	01	-	
Ovary				
Simple serous cyst	01	01	-	100
Papillary cystadenocarcinoma	02	02	00	
Mucinous cystadenocarcinoma	01	01	-	

TABLE VII: CORRELATION BETWEEN HISTOLOGICAL AND CYTOLOGICAL DIAGNOSIS

100% accuracy was observed in cases of liver, intestine, ovary and kidney lesions. In other organs less accuracy obtained and probably it was due to less number of cases subjected to histological correlation.

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DISCUSSION: In the practice of FNA there are clear advantages to patients and to doctors. Although FNA can be applied to practically every organ and tissue of the body, in some areas experience is still rudimentary and diagnostic cytologic criteria are formulated to assess the value of FNAC in the diagnosis of intra-abdominal lumps and to study cytomorphology on FNAC and to correlate them on histopathology.

Youngest patient in this study was 2 years old child and oldest patient was 65 years female. Benign lesions were more common in patients less than 40 years age. Only one case of malignancy was found in 7 years old child diagnosed as Wilm's tumor. Incidence of intra-abdominal lumps in present study was slightly higher in females with male to female ration 1: 1.18. Incidence of malignancy in this study was around 54.28% and that of benign lesion was 37%. Material was inadequate in 8.68% of cases giving overall accuracy of 93.5%. Martin and Ellis (1968)[1] when introduced this method were able to obtain representative tissue in 80% of cases. Obesers et al (1991)[2] in their study of intra-abdominal lumps by FNA obtained tissue successfully in 88.7% cases. Enrique et al (1996)[3] reported overall accuracy of 90.7%. Our findings are congruent with studies conducted by above workers.

In this study liver was most commonly involved intra-abdominal organ. With a total of 14 cases diagnostic aspirates were obtained in 13 of these cases with adequacy of 97.8%. Most of the cases were malignant lesions. The accurate diagnosis was obtained in 92.8%, which corresponds well with Cochand et al (1987)[4] who reported accuracy of 86% in hepatic lesions by FNAC. Four cases could be histopathologically, 2 with metastatic adenocarcinoma and two with hepatocellular carcinoma thus giving an accuracy of 100%.

Herszenye et al (1995)[5] in a study on 244 cases of hepatic masses, reported malignant lesions in 73% cases and benign lesions in 27% lesions. In this study the total malignant cases were 85.7%.Findings in this study are in accordance with the study conducted by Wee et al (1995)[6]. 100% accuracy was achieved in the diagnosis of HCC while Swamy MC et al[7]. Achieved diagnostic accuracy of 97.82% in the diagnosis of HCC.

Cytodiagnosis of adenocarcinoma was given in 6 cases. Two cases were confirmed on histological examination. Thus giving an accuracy of 100%. In a study of liver lesions by Raja Tariq et al[8], 97.5% accuracy in various cases of secondaries liver was obtained.

Eight cases of gall bladder were subjected to FNAC. Diagnostic aspirates were obtained in seven cases with adequacy of 87.5%. Overall accuracy of gall bladder lesions in this study was 83.3%. Pachori et al (1989)[9] obtained correct diagnosis in 83.4% cases.

The overall sensitivity of FNAC in our study was 91.3% and we found accuracy of FNAC in diagnosing various intra-abdominal lumps varied from 75-100% considering the only alternative way of diagnosis by laparotomy, it provides convenient, simple, inexpensive and accurate method for preoperative diagnosis, at the same time it enables surgeon to plan the modality of treatment accordingly.

CONCLUSION: FNAC being a safe and OPD procedure can be used as important diagnostic tool for any abdominal lump. USG guidance of FNAC helps in localization of lesions and also improves adequacy of sample especially of deeper organs. Present study had adequacy of material in 93.4% of cases and this study carries an overall accuracy ranging from 75-100% with sensitivity of 91.3%. In inoperable cases with contraindication for surgery with malignancy, FNAC can help guiding

radiotherapy. It can also be used to detect local recurrence and metastasis in post-operative and post radiation follow up. The aspirated material can be subjected to other modalities of study like immunological, cytogenetic and microbiological depending as per need of cases, which adds to diagnostic accuracy of FNAC.

Few drawbacks were faced when inadequate sample was obtained in some cases. Diagnosis in such cases had to be relied completely on histopathological examination of biopsy specimen. Overall role of FNAC in intra-abdominal lumps is of great value and its use should be encouraged in the diagnosis of intra-abdominal lumps.

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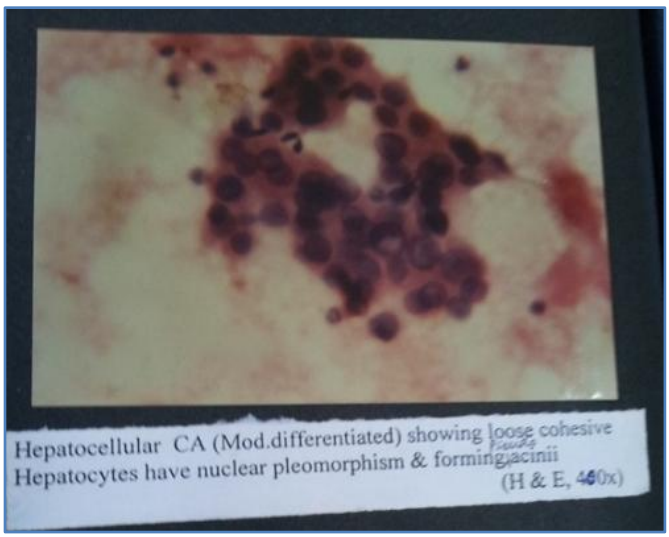

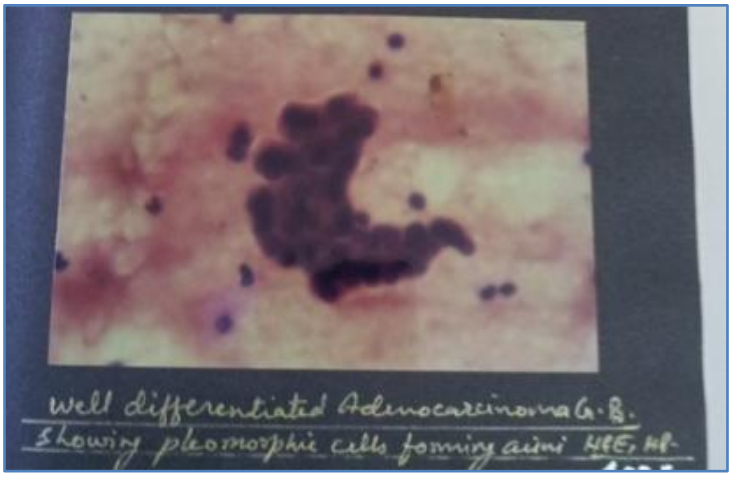

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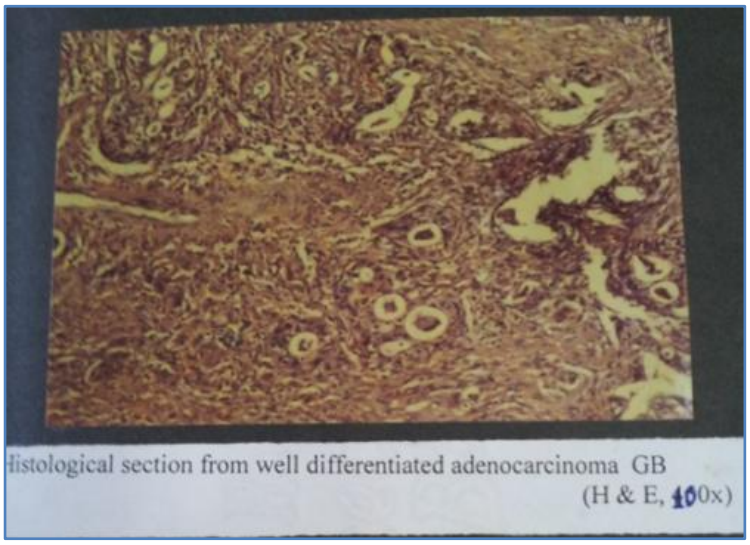

Histological section from well differentiated adenocarcinoma GB (H & E, 100x)

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