Biomedical & Pharmacology Journal Vol. **2**(2), 455-458 (2009)

Role of FNAC in diagnosis of intra-abdominal lump and its histological correlation

K.S. LIKHAR[1], S. SAKHUJA[2], N. SAWKE[3], S.K. LIKHAR[4], PUJA[5] and M.K. MISHRA[6]

[1,3,5]Department of Pathology, [4,6]Department of Community Medicine,
Peoplces College of Medical Sciences and Research Centre, Bhanpur, Bhopal - 462 010 (India).
[2]Department of Pathology, G.S.V.M. Medical College, Kanpur (India).

(Received: September 06, 2009; Accepted: October 13, 2009)

ABSTRACT

FNAC is used in the present study as a clinching investigation of palpable & non-palpable, intra-abdominal mass which may prove to be neoplastic or non-neoplastic. FNAC was done on patients attending OPD as well as admitted in the Medicine, Surgery, Obs/Gynae department, LLR & associated hospitals, Kanpur presenting with intra-abdominal lumps Patients clinically diagnosed as cases of intra-abdominal lumps were studied thoroughly & subjected to detailed clinical history with regards to age, sex, occupation chief complaints. patients are subjected to routine investigations like Hb%,TLC,DLC,ESR,GBP,BT,CT,PT,whenever needed followed by FNA either directly or USG guided. The smear was stained with H & E and Pap smear was categorized into inflammatory, benign, malignant lesions on the basis of individual cell and nuclear morphology.The entire study was statistically analyzed for its sensitivity, specificity and overall accuracy. Total 46 cases were included in our study of which most cases was USG guided. Most commonly involved organ in our study was liver 30.4% followed by intestine 21.7% and gall bladder 17.4%. Maximum no. of cases in our study were of malignant lesion 63.06%wheras benign & inflammatory lesions constituted 6.51% and 23.92% of the cases respectively 6.5 % aspirates were inconclusive / inadequate for diagnosis. 100 % accuracy was obtained in cases of liver, intestine, ovary and kidney cases.The overall sensitivity of FNAC on our study was 91.3%. FNAC provides a very convenient, simple, inexpensive and accurate method for preoperative diagnosis; at the same time it enables the surgeon to plan the modality of treatment accordingly.

Key words: FNAC, Intra-abdominal lump.

INTRODUCTION

FNAC is the valuable diagnostic technique & gaining popularity because it is safe, simple and less expensive and carried on the patient with minimum discomfort. Initially it was limited to the superficial organs but modern imaging techniques like USG & CT have made it possible for the deeper organs also. So FNAC is being used in the present study as a clinching investigation of palpable & non-palpable, intra-abdominal mass which may prove to be neoplastic or non-neoplastic.

MATERIAL AND METHODS

FNAC was done on patients attending OPD as well as admitted in the Medicine, Surgery, Obs/Gynae department, LLR & associated hospitals, Kanpur presenting with intra-abdominal lumps.

Selection of patients

Patients clinically diagnosed as cases of intra-abdominal lumps were studied thoroughly & subjected to detailed clinical history with regards to age, sex, occupation& chief complaints. History of present illness was taken with mode of onset, site, size, shape, origin and progress of swelling, duration of illness, presence of any associated illness. History of past illness was also taken with regards to similar illness in the past. All these patients are subjected to routine investigations like Hb%,TLC, DLC, ESR, GBP, BT, CT, PT,whenever needed in patients of jaundice followed by FNA either directly or USG guided.

Processing of material

Smear prepared from aspirated material was fixed in absolute alcohol. In case of cystic lesions like ovarian cyst 5-10 cc of fluid was aspirated & smear was made from deposits after centrifugation. Usually H/E stain was used & other stains like MGG and PAP were also used when required.

Interpretation of FNAC

Each smear was examined after staining under 10X to get idea of overall cellularity, then under 40X get morphological details of individual cells. The smear viewed was categorized into inflammatory, benign, malignant lesions on the basis of individual cell and nuclear morphology.

Statistical analysis

The entire study was statistically analyzed for its sensitivity, specificity and overall accuracy.

Observations

Total 46 cases were included in our study of which most cases was USG guided. Most commonly involved organ in our study was liver 30.4% followed by intestine 21.7% and gall bladder 17.4%.Maximum number of cases in our study was in sixth decade followed by fifth & fourth decade. Majority of cases in our study were malignant lesion, the reason behind this fact is inclusion of patients of higher age group.

Maximum number of cases in our study were of malignant lesion 63.06%wheras benign & inflammatory lesions constituted 6.51% and 23.92% of the cases respectively. 6.5 % aspirates were inconclusive / inadequate for diagnosis. 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 obtained in cases of liver, intestine, ovary and kidney masses.

Table 1: Distribution of lesion according to anatomical site

Site	No. of cases	Percentage
Liver	14	30.4
Gall bladder	08	17.4
GIT	10	21.7
Lymph node	05	10.8
Retroperitoneum	01	2.1
Kidneys & adrenals	02	4.3
Ovaries	06	13.2
Total	46	100

Table 2: Age distribution of cases

Site	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

Table 3: Distribution of cases according to FNAC findings

Organ involved	Inflammation		Benign	Total	Malignant		Inadequate		Total
	Total	%		%	Total	%	Total	%	
Liver	2	4.34	1	2.17	10	21.73	1	2.17	14
Gall bladder	1	2.17	-	-	6	13.04	1	2.17	8
GIT	6	13.04	-	-	3	6.52	1	2.17	10
Lymph node	2	4.34	-	-	3	6.52	-	-	5
Retroperitoneum	-	-	-	-	1	2.17	-	-	1
Kidneys & adrenals	-	-	-	-	2	4.34	-	-	2
Ovaries	-	-	2	4.35	4	8.69	-	-	6
Total	11	23.92	3	6.51	29	63.06	3	6.51	46

Table 4: Correlation between Histological diagnosis & FNAC

Histological diagnosis	No. of cases	FNAC Findings		Accuracy (%)
		Correct	Incorrect	
Gall bladder				
Chronic cholecystitis	02	02	-	83.3
Adnocarcinoma	04	03	01	
Liver				
Hepatocellular CA	02	02	-	
Metastatic Adeno CA	02	02	-	100
Martin and Ellis (1968) Intestine				
Tuberculosis	01	01	-	
Adenocarcinoma colon	02	02	-	100
Lymph Nodes				
Tuberculosis	01	01	-	
NHL	01	01	-	75
Metastatic CA	02	01	01	
Kidney				
Wilm's tumor	01	01	-	
Renal call carcinoma	01	01	-	100
Ovary				
Simple serous cyst	01	01	-	
Papillary cystadeno CA	02	02	-	100
Mutinous cystadeno CA	01	01	-	

DISCUSSION

In our study 46 cases of intra-abdominal lump were subjected to USG guided FNAC. USG revealed that mass lesions were localized in the liver 30.4% followed by intestine 21.7% and gall bladder 17.4%,lymph node 10.9 %,Kidneys / adrenal4.3%,retroperitoneal 2.1% and ovary 13.2%. The youngest patient in the study was 2 yrs old child & oldest was 65 yr old female. Benign lesion were seen more commonly in <40 yrs of age, while malignant lesions were more common in patients >40 yrs age. Only one case of malignancy was in child <7 yrs age, cytodiagnosis was Wilm's tumour.

Incidence of intra-abdominal lump was slightly higher in females than males with male to female ratio of 1:1.18.Incidence of malignancy in our study was 67 %, benign lesion 8.7%, inflammatory lesion constituted 17 % of cases.Material was inadequate in 6.5% of cases giving overall accuracy of 93.5%. Martin and Ellis (1968) when introduced this method were able to obtain representative tissue in 80% of cases. Obers et al (1991) in their study of intra-abdominal lumps by FNA obtained tissue successfully in 88.7 % of cases.

Enrique et al (1996) reported overall accuracy of 90.7% our findings are congruent with studies conducted by above workers.

Results obtained in organwise study of FNAC in intra-abdominal lumps are as follows: In our study Liver was most commonly involved organ.Out of 14 cases, diagnostic aspirate were obtained in 13 cases with adequacy of 97.8%.

Most of the lesions in liver were malignant 10 cases (out of which 3 were HCC,6 metastatic adenocarcinoma & 1 case as lymphoma) 3 benign cases (2 were liver abscess,1 as liver cell adenoma).The accurate diagnosis was obtained in 92.8 % cases which corresponds well with Cochand et al (1987) who reported accuracy of 86% in hepatic lesions by FNAC.

Herszenye et al (1995) in his study on hepatic masses found malignant lesions in 73 % cases & benign lesion in 27 % cases. In our study

total malignant cases were 85.7% while benign lesion were 21.4 %.One reason for large no. of malignant cases could be the more no. of elderly patients in study group.

In our study 3 cases were diagnosed as HCC, subsequent histological diagnosis confirmed 2 cases. We achieved 100 % accuracy of FNAC in diagnosis of HCC. Bolling et al (1990) achieved diagnostic accuracy of 82.9% in diagnosis of HCC.

8 cases of Gall bladder were subjected to FNAC with adequacy of diagnostic aspirates obtained was 87.5 %. Cytodiagnosis of chronic cholecystitis (1), adenoCA (6) & inadequate (1).Two cases of adenoCA were confirmed on subsequent histological examination. Overall accuracy of GB mass in our study was 83.35% .Pachori et al (1989) obtained correct diagnosis in 5 out of 6 GB aspirates with accuracy of 83.4%.

The overall sensitivity of FNAC in our study was 91.3% & 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 a very convenient, simple, inexpensive and accurate method for preoperative diagnosis, at the same time it enables the surgeon to plan the modality of treatment accordingly.

CONCLUSIONS

FNAC being a safe OPD procedure can be used as an important diagnostic tool for any abdominal mass. Out of 46 cases of intra-abdominal lump, frequency of organ involvement was maximum with liver 30.4% followed by intestine 21.7% and gall bladder 17.4%,lymph node 10.9 %,Kidneys /adrenal 4.3%,retroperitoneal 2.1% and ovary 13.2%.

Incidence of malignancy in our study was 67 %, benign lesion 8.7%, inflammatory lesion constituted 17 % of cases, material was inadequate in 6.5% of cases. Which gives a overall accuracy of 93.5%.

Out of 46 cases only 23 cases were subjected for histopathological correlation amongst all such cases there were more no. of malignant lesions.100 % accuracy was obtained in cases of liver, intestine, ovary and kidney cases. The overall sensitivity of FNAC on our study was 91.3%.

REFERENCES

1. Bancroft's J D, Stevens A. Theory and practice of Histopahologiacal techniques 3 rd Ed 429 (1982).
2. Cochand Prilliot B,Changnuous S,Ferrand J, Lery B., Hoang M, Calian A. Comparison of cytological examination of smears and histological examination of tissue cores obtained by FNAB of liver. *Acta Cytol* **31**(4): 476-480 (1987).
3. Das DK, Pant CS: FNAC in diagnosis of GIT lesions. *Acta Cytol*, 38: 723-729 (1994).
4. Enrique Lerma, Eva Musullen Miriam onatice Cass, Antonia Martinez Enrique montserrate and Jaime part. *FNAC in pancreatic pathology*. **40**: 683-686 (1996).
5. Gupta R.K. Abdul Cr Al Ansari Robert Frank, Aspiration cytology of clear cell hepatocellular carcinoma. A case report. *Acta Cytol*., **38**: 467-469 (1994 .
6. Hazarika D. FNAC of Wilm's tumors. *Acta Cytol* **38**: 355-360 (1994).
7. Kjellgren O, Angstrom T and Berman. FNA in diagnosis and classification of ovarian carcinoma. *Cancer* **28**: 967- 976 (1971).
8. Mulvany J. Nicholas. Aspiration Cytology of Ovarian and cystic neoplasm. *Acta Cytol.,* 911-920 (1996).
9. Orell SR. Gregeory F, Sterret, Max NI Watters, Darrel Whitaber lymph nodes : Mannual and atlas of FNAC . 2nd edn Churchill Livingston Edinburgh, London, 78-106 (1999).
10. Pachori RM, Sharma BD, Real time ultrasound guided aspiration of abdominal mases. An experience in developing country. *IJRI*, **43**: 222-225 (1989).
11. Rensahaw AA, Kenneth R. Lee, Rebecca Madge, Scott R. A study of different types of renal cell carcinoma. *Acta Cytol.,* **41**(4) : 987-991 (1997).
12. Wee A. Nilsson B. Cahn Widdle C. FNAB of hepatocellular carcinoma. Some unusual features. *Acta Cytol*., **35**: 661-670 (1991).