

# Blind/Ultrasound Guided FNAC in Management of Intra Abdominal Lump

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## ABSTRACT

**Introduction-** Fine needle aspiration cytology (FNAC) as practiced today is an interpretative art with histopathology as its scientific base. It is an outdoor procedure necessitating neither patient's preparation, nor specialized anesthesia. It eliminates lengthy periods of watchful waiting, is safe and almost painless.

**Aims -** To assess the role of fine needle aspiration cytology in the diagnosis and management of palpable abdominal lumps prior to exploratory laparotomy.

**Materials And Methods-** The present study was carried out to evaluate the accuracy of FNAC in the patients having palpable lumps or tumors in the abdomen. 52 cases were collected from the outpatient and inpatient department of surgery, GSVM Medical College Kanpur with a period ranging from Jan 2012 to Dec 2013.

**Observation-** Majority of lumps was found to arise from Gall Bladder and Retroperitoneal Lumps each constitute 21.64% of cases. The next organ involvement was found to be ovarian lump constitute 19.23%.

**Conclusion-** FNAC is a very safe and O.P.D procedure. It is a rapid cytodagnostic process with no major complication. FNAC should be done preoperatively in every abdominal lump with suspected diagnosis to formulate correct management plan & avoidance of more invasive surgical procedure.

**Key words:** FNAC, Intra-abdominal lump, Lymph node.

## INTRODUCTION

Since time immemorial surgical exploration has been a traditional and well established procedure used in the diagnosis of disease processes. In an attempt to provide an alternative to the premature biopsy, the researchers, all over the world, are trying to find out ways and means which can avoid the above tedious procedure and pitfalls of the surgical biopsy. The invasiveness of FNAC lies between wide bore needle biopsy and explorative cytology.

Fine needle aspiration cytology (FNAC) as practiced today is an interpretative art with histopathology as its scientific base. Its practice is quite different from that of either exfoliative cytology or surgical pathology unlike histopathology where in tissue pattern, cell morphology, intracellular products and intercellular matrix are preserved, in cytology it is mainly cell morphology which is preserved. (Hajdu and Melaned, 1984)

Aspiration cytology demands the combined skills required for the practice of

both these disciplines. Although the technique of aspiration biopsy has been in existence for half a century, its general use in this country is being enhanced by the increasing experience and sophistication of cytopathologists.

Intra-abdominal mass is an enigma in surgical practice. In some cases of wide spread malignancy undoubtedly evident on clinical examination, the diagnosis obtained by the thin needle aspiration may substitute for a surgical procedure like exploratory laparotomy and facilitate immediate commencement of anticancer therapy.

There have been recent advances in the diagnostic technique like percutaneous transhepatic cholangiography, endoscopic retrograde cholangiopancreatography (ERCP), ultrasound (US), computerized axial tomography (CAT) etc. the correct diagnosis of abdominal lumps is difficult and calls for a histopathological confirmation.

All these investigatory procedures are expensive and may require a long hospital stay. So there are many advantages of FNAC of palpable intra-abdominal lumps over above mentioned diagnostic techniques, like it is an outdoor procedure necessitating neither patients' preparation, nor specialized anesthesia. It eliminates lengthy periods of watchful waiting, is safe and almost painless. The sensitivity and specificity are high which make it a very reliable diagnostic modality and its cost effectiveness is well established.

#### AIMS

1. To assess the role of fine needle aspiration cytology in the diagnosis of palpable abdominal lumps prior to exploratory laparotomy.
2. To categorize the lesions of various abdominal lumps on the basis of aspiration cytology.
3. Role of FNAC to formulate management plan in intra-abdominal lumps.

#### MATERIALS AND METHODS

The present study was carried out to evaluate the accuracy of FNAC in the

patients having palpable lumps or tumors in the abdomen. The cases were collected from the outpatient and inpatient department of surgery, GSVM Medical College Kanpur with a period ranging from Jan 2012 to Dec 2013.

All these patients were clinically examined and their routine investigations were carried out and organ localization was done by ultrasound in every case to know the site of lesion, a provisional diagnosis was made, before aspiration, in every case. The patients, who were planned to be subjected to FNAC later its findings were compared with histopathology paraffin section examination if possible.

For all hepato-biliary swellings initially bleeding time and clotting time, were recorded for each and every patient.

#### Technique of FNAC

The mass was palpated first to determine its location in relation to surrounding structures, its size, depth, mobility, consistency and to assess the optimal direction for approach to aspiration. Deep seated lesions were approached directly or perpendicularly to the skin surface.

#### OBSERVATION

The present study has been conducted on 52 patients having palpable abdominal lumps who attended GSVM Medical College Kanpur with a period ranging from Jan 2012 to Dec 2013.

FNAC was carried out in all cases. This cytological procedure was adopted as pre-operative method to confirm the diagnosis and to evaluate the nature of disease & formulate a correct plan of management.

Some cases treated conservatively on basis of cytology and remaining treated surgically confirm by histopathological examination.

#### 1. Age and sex distribution-

Table 1: SEX DISTRIBUTION OF CASES

SEX	NO. OF CASES	PERCENT
MALE	24	46%
FEMALE	28	54%
TOTAL	52	100%

Table 1 shows that no. of female patient in the study group were more than males.

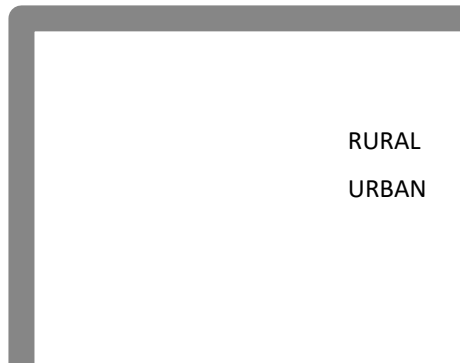


Figure 1: REGION DISTRIBUTION OF CASES

Figure 1 shows that the most of the cases in the study group were belongs to rural area.

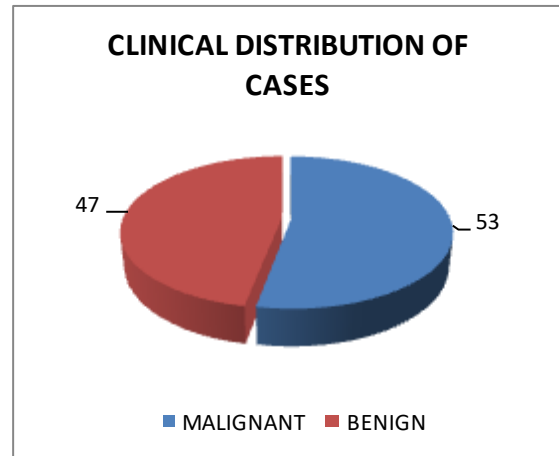


Figure 2 CLINICAL DISTRIBUTION OF CASES

Figure 2 shows that malignant lesions are more common than benign lesion in this study group.

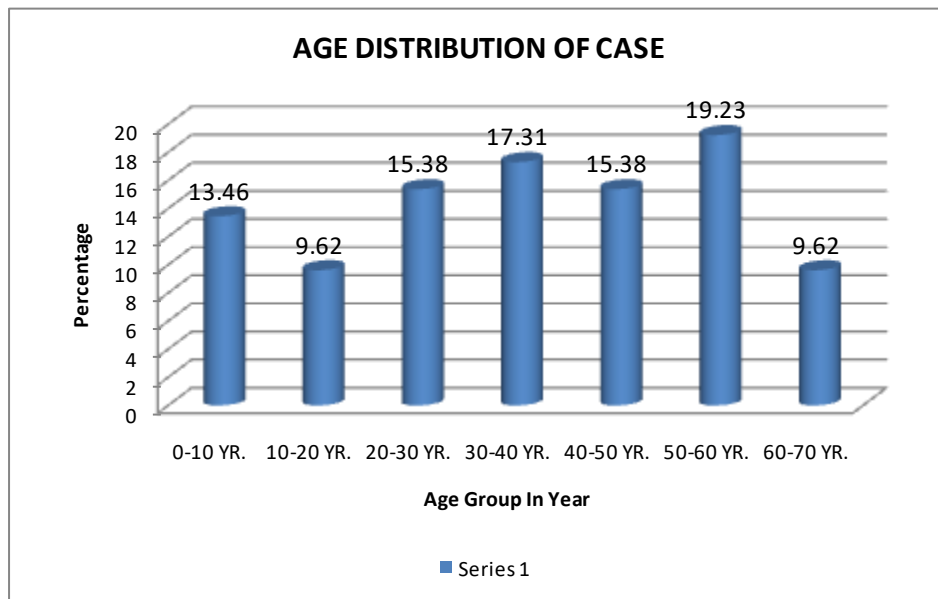


Figure 3: AGE DISTRIBUTION OF CASE

Figure 3 shows that maximum number of cases in study group between 50-60 yr. least number of cases were seen in 10-20 yrs. & 60-70 yrs. Age group.

Table II: DISTRIBUTION OF CASES

SL. NO.	SITE OF FNAC	NO. OF FNAC	PERCENTAGE
1	GALL BLADER	11	21.64
2	NON-RENALRETROPERITONEAL SITE	11	21.64
3	OVARY	10	19.23
4	GIT	8	15.38
5	INTRAPERITONEAL LN/NODULE	6	11.56
6	KIDNEY/ADRENAL	4	7.69
7	UTERUS	10	1.93
8	SPLEEN	10	1.93
9	TOTAL	52	100

Table II shows distribution of cases. Out of 52 cases 11 are gall bladder lumps & non renal retroperitoneal lumps each. Ovarian lumps being the next largest group accounting for 10 cases, smallest group was uterine & splenic lumps (1 each)

**INTER PRETATION OF FNAC-ORGAN WISE**

**1. DISTRIBUTION OF CASES IN GALL BLADDER LUMPS**

In 11 cases of gall bladder lumps FNAC was done, 3 cases were diagnosed as benign 8 cases were diagnosed as malignant lesion.

Out of 11 cases 6 were subjected to biopsy. 3 cases which were diagnosed as inflammatory on FNAC were compared with histology in which one false negative result was obtained and diagnosis was found as adeno carcinoma of gall bladder.

Out of 8 cases of malignancy 3 are subjected to operative treatment, histopathological confirmation done; all are reported as adeno carcinoma gall bladder.

5 cases are so advance that they are treated with chemotherapy only for

palliation showing some palliation & avoid 5 unnecessary explorations.

**2. DISTRIBUTION OF CASES IN NON-RENAL RETROPERITONEAL LUMPS.**

Out of 11 cases of non-renal retroperitoneal lumps. All FNAC done under ultrasound guidance. 3 lesions are soft tissue sarcomas, 2 are lymphoma & 6 are Tubercular lymphadenopathy.

All the lymphoma responded well on chemotherapy & showing regression. 6 tubercular lymph nodes are treated by anti-tubercular treatment one responded well but one did not on biopsy showing lymphoma. The only false negative result in non-renal retroperitoneal lumps.

**3. DISTRIBUTION OF CASES IN OVARIAN LUMP**

Benign lesion are more common (60%) than malignant lesion (40%) all the cases presented as lumps in lower abdomen some time as large as occupying whole of the abdomen.

Among the benign lesion majority are serous cyst adenoma (4) are rest two are dermoid cyst. All are proven by histopathological examination.

**4. DISTRIBUTION OF CASES IN GIT LUMPS**

**TABLE III**

S.NO.	NATURE OF LESION	FNAC TOTAL CASES	FNAC POSITIVE	FNAC FALSE -ve	FNAC FALSE +ve	H.P/CLINICAL THERAPEUTIC CORRELATION
1	TUBERCULOSIS	3	3	--	--	3
2	NON-SPECIFIC INF. LESION	4	4	2	--	4
3	ADENO CARCINOMA COLON	1	1	--	--	1
	TOTAL	8	8	2	--	8

Table III shows distribution of cases in GIT lumps 3 lumps arise due to Ileo-cecal tuberculosis 4 lumps arise due to non-specific inflammatory reaction & 1 lump due to adeno carcinoma colon.

All lumps goes under histopathological examination, tubercular lumps & adeno carcinoma were identical with FNAC report but among 4 non-specific inflammatory 2 are false negative on was Ileo cecal TB & one was adeno carcinoma.

## 5. DISTRIBUTION OF CASES IN INTRAPERITONEAL LN & UNDEFINED LUMPS

TABLE IV

S.NO.	NATURE OF DIS.	TOTAL NO. OF CASES	FNAC POSITIVE	FNAC FALSE +ve	FNAC FALSE -ve	H.P/CLINICAL THERAPEUTIC CORRELATION
1	TUBERCULAR LN	3	3	--	--	3
2	S <sup>0</sup> METASTATIC LN	2	2	--	--	2
3	UNDEFINED LUMPS	1	1	--	1	1
	TOTAL	6	6	--	1	6

Above table shows 3 intra-peritoneal lymph nodes are tubercular in origin & responded well on ATT trial.

Two cases are s<sup>0</sup> metastatic nodule due to their advance state chemotherapy given showing some regression in size.

## 6. DISTRIBUTION OF CASES IN RENAL/ADRENAL LUMPS

Table - V

S.NO.	NATURE OF DS.	TOTAL CASES	FNAC POSITIVE	FNAC FALSE +ve	FNAC FALSE -ve	H.P/CLINICAL THERAPEUTIC CORRELATION
1	WILM'S TM	2	2	--	--	2
2	HYPER NEPHROMA	1	1	--	--	1
3	NEUROBLASTAMA	1	1	--	--	1
	TOTAL	4	4	--	--	4

Distribution of cases in renal/ adrenal lumps, All are malignant 2 are Wilms TM, 1 renal cell carcinoma & 1 neuroblastoma. All lesion confirmed by histopathological examination no false -ve results obtained.

## 7. DISTRIBUTION OF CASES IN MISCELLANEOUS LUMPS

FNAC done in only one case of a cyst arises from Spleen was inflammatory in origin.

On biopsy it was confirm as infected hydatid cyst. There was peritonitis occur due to spillage of hydatid cyst contents.

Only 1 uterine lump FNAC done showing fibroid uterus which confirm on histopathological examination.

## DISCUSSION

The present study has been undertaken to evaluate the clinical applicability of FNAC as an adjacent in and formulate correct management plan diagnosis of infra abdominal man lesion.

In this series of 52 cases we obtained material in all cases & diagnosis correlated with clinical, therapeutic trial or

histopathological examination whenever possible. Out of 52 case which were subjected to histopathology 4 cases were found to be false Negative i.e. which was diagnosed on FNAC as being but were categorized as malignant on histopathology examination. So FNAC could diagnose 48 out of 52 Pt. Tuladhar AS FNAC was diagnostic in 168 (86.7%) cases, in 15 (7.7%) cases it was not conclusive.

## COMPARISON OF RESULTS OF FNAC BY VARIOUS WORKERS & PRESENT STUDY

Honke choose 25 pt. Of pancreatic lesions demonstrating man an ultrasound scanning, 21 had sufficient material could obtained in 88% cases with over all diagnostic accuracy of 68%. A. Singh choose 50 patients for their study who presented as palpable lump in the abdomen with a direct puncture approach was made through abdominal wall with complete aseptic measures sufficient material was obtained in 98% with diagnostic accuracy of 96%. Patric M. Briel done 112 FNAC in his study over all accuracy was 79% with 17%

false -ve. He also evaluates that 11 exploratory laparotomy and 6 conventional liver biopsy can be avoided by this simple and cheap procedure. In present study the overall accuracy of FNAC was 92.30% false -ve was 7.70% comparable to previously done studies. G. M. Jan took 50 patients for their study presented with palpable intra-abdominal masses and found over all accuracy of 94.00% the overall false -ve rate was 6%.

### **Gall Bladder Lumps**

In present study 11 cases of gall bladder lumps was subjected to FNAC and adequate material in all cases. Cyto diagnosis revealed 3 cases as inflammatory lesions & 8 cases as malignancy gall bladder (all adeno CA). Pachori obtained correct diagnosis in 5 out of 6 gall bladder and C.B.D aspirate with an overall accuracy of 83.40%. V.K. Shukla performed U.S. guided FNAC of gall bladder lesions to determine the accuracy & reliability of U.S guided FNAC over blind aspiration in gall bladder masses & they found the diagnostic accuracy of 95% by U.S guided FNAC as compared to 60% in blind aspiration. Singh performed FNAC in 11 cases with 3 false negative results over all diagnostic accuracy was 67.3%. So after prior localization by us we get result slightly less & accurate then U.S. guided aspiration in case of palpable gall bladder lumps. Retroperitoneal non-renal lump

In our study 11 cases of non-renal retroperitoneal lumps are taken in which 3 are sarcomas, 2 lymphoma and 6 are tubercular masses. On histopathology one tubercular lesion found to be malignant as only false negative case. Study done by Singh in which he took FNAC in 3 cases with diagnostic accuracy of 100%. The inferiority of results may be done due to difference in sample size.

### **Ovarian lumps**

Total 10 cases were chosen for FNAC, smear were positive in all cases with no false-ye results. 6 lesions are benign 4 are serous cyst adenoma & 2 are dermoid while 4 lesions are malignant deg. As

adenocarcinoma. Overall diagnostic accuracy was 100%. Malvanty reported 83% accuracy of FNAC in the diagnosis of malignant lesions. Singh reported diagnostic accuracy of 75% in cases of ovarian lump. Our results are superior to other due to better localization and technique.

### **GIT Lumps**

8 cases of GIT lumps were subjected to FNAC after prior localization of organ by ultrasonography. There were 4 cases of intestinal tuberculosis. 3 are non specific inflammatory lesions and one is adeno carcinoma coecum but a histopathology 2 non specific inflammatory lesion were false -ve. There are only rare reports on FNAC diagnosis on GIT lesions. In a study conducted by Dilip. K. Das on cytological diagnosis of GITs lesion, he found inadequate rate in case of ultrasound guided FNAC in GIT lumps was 15.4% as compared to non-guided FNAC of similar lesions 38.50%. In our study accuracy falls in between two parameters probably due to prior better tissue localization by ultrasonographically.

### **INTRA PERITONEAL LYMPHNODES & UNDETERMINED NODULES**

FNAC done in 6 case ,in all material obtained 3cases were due to tubercular L.N. 2 are due to M<sup>o</sup> secondary and one was lipoma @ was false -ve on exploration it was adeno carcinoma caecum. Nagano et al (1989) showed over all accuracy of 87.5% U.S guided FNAC of intra-abdominal lumps. Holt Kamp achieved an accuracy of 88% in similar study. In our study the results were congruent with above studies but slightly lesser accuracy may be due to smaller sample size &poor localization of lesions.

### **RENAL AND ADRENAL LUMPS**

In our study 4 cases of kidney and adrenal lumps were chosen out of which 1 was diagnosed as neuroblastoma (adrenal) are renal cell carcinoma & two were Wilms tumour. There was no false-ye results or unsatisfactory material. Histological features in neuroblastoma found to be identical to their findings by Orell.

Histological features of Wilms Tumor obtained in our study were identical to their findings obtained by Hazarika. Diagnostic accuracy was 83.33% in a study done Orell in FNAC in renal lumps. Our excellently higher results were due to better tissue localization & placement of needle through ultrasound guided technique & small sample size.

#### MISCELLANEOUS GROUP

In this group one lump from spleen and one lump from uterus included both are positive without any false-ye results so their diagnostic accuracy collectively 100%. Due to less number of cases a final conclusion cannot be drawn so in more cases FNAC should be done to obtain a final and reliable conclusion.

#### CONCLUSION

The present study has been conducted to evaluate role of blind/ultrasound guided FNAC in management of intra-abdominal lumps. The diagnostic efficiency & accuracy were compared with histopathology whenever possible and following conclusion were drawn.

- FNAC is a very safe and O.P.D procedure which can be as an important diagnostic tool for any abdominal mass.
- There was no major complication of FNAC in any cases except diffuse peritonitis in infected hydrated cyst
- Procedure is easily accepted by the patients because --- no need of general anesthesia or sedation as usually required in biopsy especially in children. --- avoid scar formation of excisional / incisional biopsy. --- it reduced hospital stay time.
- The procedure can be repeated several times without any complication and same simplicity where primary smears give in conclusive results.
- FNAC of palpable abdominal lumps carried out in all age group in this study group youngest patient was a 3 yrs. Old child & oldest was a 70 yrs. Old male. Malignant lesions are more common in

older age groups (more than 40) & belling lesions in younger age group.

- Frequency of organ involvement in this study group is highest in gall bladder & non-renal retro peritoneum.
- The present study shows excellent accuracy in retroperitoneal lumps (for both renal & non-renal). Then previous studies probably due to all FNAC done through ultrasound guided technique.
- Accuracy of FNAC was minimal in GIT lump probably due to poor tissue localization in GIT system by ultrasonography & not using guided technique.
- So we can say that FNAC should be done preoperatively in every abdominal lumps with suspected diagnosis to formulate correct management plan & avoidance of more invasive surgical procedure. Diagnostic accuracy can be father improved by ultrasound guided technique in GIT & gall bladder & intra-peritoneal lymph nodes.

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