

# Correlative study of fine needle aspiration cytology and histopathology in intraabdominal lumps

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## Abstract

**Introduction:** Intra-abdominal masses always remain an enigma in surgical practice. Fine needle aspiration cytology (FNAC) preferably ultrasonographically guided (USG) of 50 cases of intraabdominal lump was performed and correlated with histopathology. **Aims:** To co-rrrelate the study of cytology with histopathology in cases of intraabdominal lumps. **Material and Methods:** This study included 50 intraabdominal lesions which were detected clinically.USG guided FNAC was done in 40 cases. Under light microscopy the lesions were reported, cytohistopathological correlation was done in 36 cases. Hematoxylin, eosin and papanicolau's stains were used. **Results:** Cases from all age group were included. Maximum number of cases 14 (28%) were in age group of 51-60 yrs, with Male: Female ratio of 1.63:1.The diagnostic yield was higher in USG guided FNAC. There were 24(48%) malignant, 09 (18%) inflammatory, 09 (18%) suggestive of malignancy,02(4%) nonneoplastic and06(12%) unsatisfactory smear. Hepatic lesions were most common. Hepatocellular carcinoma and Adenocarcinoma were the most common malignant lesions. Accuracy rate for cytohistopathological correlation was90% as out of 40 cases 36 cases were showing same diagnosis histologically. We found various lesions of liver, gastrointestinal tract, kidney and few cases of pancreas, gall bladder, spleen , mesenteric lymph nodes. We have come across a rare lesion of Gaucher disease (2 cases) diagnosed successfully both by cytology and histopathology. **Conclusion:** Intra abdominal FNAC is a simple, economical and safe procedure with high sensitivity, specificity and diagnostic accuracy. It can be utilized as pre- operative procedure for the management of intra-abdominal lump.

**Key words:** Intra-abdominal lump, Hepatic lesions, USG guided FNAC.

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## INTRODUCTION

Fine needle aspiration (FNAC) is a valuable investigatory tool for the diagnosis of neoplastic and nonneoplastic lesions. The present study included FNAC techniques with use of ultrasonography for exact location in majority of cases .Ultrasound imaging of abdomen which is a milestone in history of imaging techniques is used extensively all over the world for guided FNAC. The

study was conducted to co-rrrelate the cytology with histopathology and to determine the diagnostic accuracy of FNAC.

## MATERIAL AND METHODS

This 3 year prospective study was done in our department of pathology in a tertiary care centre. A consent was taken from ethical committee of institute prior to commencement of study. Detailed clinical history, physical examination ,investigations were recorded. This study included 50 intraabdominal lesions which were detected clinically.USG guided FNAC was done in 40 cases and in 10 cases FNAC was done as a blind procedure as lump was easily palpable. The sample was expelled onto slides, fixed in 95% methanol and stained with papanicolau's or hematoxylin and eosin stain. Special stains were used wherever required. Under light microscopy the lesions were reported and categorized as inflammatory, benign, suspicious for malignancy and malignant. Final diagnosis was confirmed by histopathology.

## RESULTS

**Table 1:** Organ wise distribution of cytological diagnosis

Sr. No	Organ	No of cases	Inflammatory	Other nonneoplastic lesions	Suggestive of malignancy	Positive for malignancy	Unsatisfactory
1	Liver	20 (100%)	02 (10%)	-	03 (15%)	13 (65%)	02 (10%)
2	GIT	13 (100%)	05 (38.46%)	-	02 (15.38%)	04 (30.76%)	02 (15.38%)
3	Kidney	11 (100%)	01 (9.09%)	-	04 (36.36%)	05 (45.45%)	01 (9.09%)
4	Spleen	02 (100%)	-	02 (100%)	-	-	-
5	Pancreas	02 (100%)	-	-	-	01 (50%)	01 (50%)
6	Gall bladder	01 (100%)	-	-	-	01 (100%)	-
7	Mesenteric LN	01 (100%)	01 (100%)	-	-	-	-
	<b>Total</b>	<b>50 (100%)</b>	<b>09 (18.%)</b>	<b>02 (41%)</b>	<b>09 (18.%)</b>	<b>24 (48%)</b>	<b>06 (12%)</b>

**Table 2:** Lesion wise correlation between cytology, histology and histopathological diagnosis

Site of lesion	No of cases	Cytologically Diagnosed cases	Histopathologically Correlated cases	Histopathological diagnosis	Histopathologically not Correlated cases	Histopathologically not done cases
Liver	20	18	16	Hepatocellular carcinoma(16) Ileocecal TB(5)	02	02
GIT	13	11	09	Stomach lymphoma(1) Stomach adenocarcinoma(1) Colon adenocarcinoma(2)	00	04
Kidney	11	10	07	Wilms tumor(4) Renal cell carcinoma(3)	01	03
Spleen	02	02	02	Gaucher disease(2)	00	00
Pancreas	02	01	01	Pancreatic adenocarcinoma(1)	00	01
Gall bladder	01	01	01	Gall bladder adenocarcinoma (1)	00	00
Mesenteric LN	01	01	00	Tuberculous lymphadenitis(1)	01	00
<b>Total</b>	<b>50</b>	<b>44</b>	<b>36</b>		<b>04</b>	<b>10</b>

**Table 3:** Comparative distribution of lesions according to anatomic sites in various studies

Site	Singhaling Reddy <i>et al</i> <sup>11</sup> (%)	Sanjay Nigam <i>et al</i> <sup>6</sup> (%)	Present study (%)
Liver	38	30.4	45
GIT	2.1	21.7	22.5
Gall bladder	2.6	17.4	2.5
Pancreas	3	-	2.5
Spleen	1.3	-	5
Kidney and Adrenal	6.5	4.2	20
Lymph node	7.9	10.8	2.5
Ovary	21.5	13.2	-
Unclassified	17.4	2.1	-
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

[In unclassified, lesions from retroperitoneum, soft tissue, mesentery and omentum were included.]

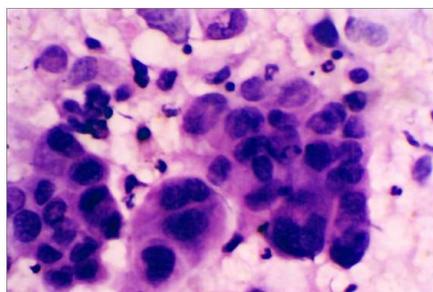


Figure 1

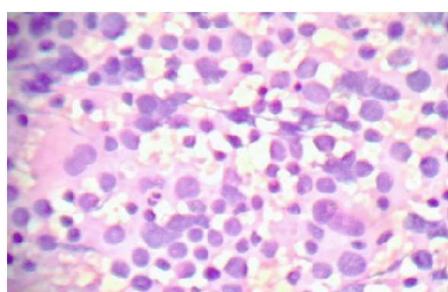


Figure 2

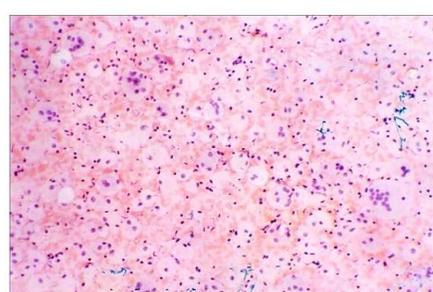


Figure 3

**Figure 1:** Liver aspirate of hepatocellular carcinoma showing clusters of malignant cells with pleomorphic nuclei. [H&EX400]

**Figure 2:** Lymph node aspirate showing diffuse large B cell lymphoma showing predominantly large lymphoid cells with large round nuclei. [H &EX400]

**Figure 3:** Splenic aspirate showing large Gaucher cells with abundant fibrillary cytoplasm. [H&EX400.]

The present study included 50 cases of intraabdominal lesions. Cases from all age groups were included. Maximum cases were in the in the age group of 51-60 yrs, 14 cases (28%) with M: F ratio of 1.63:1. Maximum number of cases were found in liver 20 cases (40%) followed by gastrointestinal tract 13 cases (26%). [Table no 1] Out of 50 cases, 44 cases were diagnosed cytologically and six cases were having inadequate material. Therefore cytological accuracy was 88%. Out of 50 cases histopathological study was done in 40 cases (80%) as five took discharge against medical advice, two died and three were inoperable as lesions were extensive. [Table no 2] A majority of the lesions 20 cases (40%) were located in the liver and 16 (80%) of them were malignant diagnosed cytologically and histopathologically as hepatocellular carcinoma (HCC) and two (10%) were inflammatory. Accuracy rate for cytohistopathological correlation was 90%. Cytohistopathologic sensitivity for hepatic malignancy was 100% with cytohistopathological accuracy rate 88.24%. Out of 13 cases of gastrointestinal tract, five cases were cytologically diagnosed as ileocaecal tuberculosis, one case was reported as stomach lymphoma, one case of stomach adenocarcinoma, two cases of adenocarcinoma of ascending colon. Nine cases were correlated cytohistopathologically. In four cases histopathology was not performed due to extensive and inoperable lesions. Here cytohistopathological relative accuracy rate is 100%. Two cases clinically presented as hepatosplenomegaly and anemia. Cytological diagnosis was suggestive of storage disorder (Gaucher disease). In both cases confirmation was done by liver biopsy, bone marrow study and histopathological study of spleen. So cytohistopathological correlation was 100%. One case of pancreatic lesion was diagnosed as adenocarcinoma which was cytohistopathologically correlated. One smear was unsatisfactory. One case was of lump arising from gall bladder. It was diagnosed cytohistopathologically as

adenocarcinoma. A single case of generalised lymphadenopathy was studied and FNAC of mesenteric lymph node reported as reactive lymphadenopathy. But histopathology showed tuberculous lymphadenitis. FNAC and histopathology from renal lesions was reported as Wilms tumor (4 cases), two patients died before nephrectomy and two patients took discharge against medical advice.

## DISCUSSION

In our study out of 50 cases 40 cases were available for histopathological study. Four cases were not correlated. In 36 cases cytohistopathological correlation was done. Accuracy rate for cytohistopathological correlation was 90%. Aftab A. Khan *et al*<sup>1</sup>, Nautiyal S *et al*<sup>2</sup> reported cytohistopathological relative accuracy rate 94% and 87.5% respectively. The age incidence in the present study showed that majority of the cases belonged to the age group of 40-60 (32%). The incidence of malignancy increased after the age of 40 years; which was comparable to the results which were obtained by Shamshad *et al*.<sup>3</sup> The male to female ratio was 1.63:1, the same male predominance is observed in study done by Shobha Rani G *et al*.<sup>4</sup> The most common organ which was involved in the present study was liver (45%) and majority were neoplastic lesions. Similar observation was made by RC Adhikari *et al*<sup>5</sup> (39%) and Sanjay Nigam *et al*<sup>6</sup> (30.4%) [Table no 3] In our study, all the five cases were diagnosed cytologically and histologically as ileocaecal tuberculosis. Cytohistopathological accuracy rate was 100%. Shrinivasan Radhika *et al*<sup>7</sup> reported 105 cases of abdominal tuberculosis and in their study the commonest site was ileocecal junction which was similar to our study. In present study two cases were diagnosed as Gaucher disease, both cytologically and histopathologically. Similar to this Domanski N.K. *et al*<sup>8</sup> also reported a case of Gaucher disease by means of FNAC of liver and spleen. One case of pancreatic lesion

was diagnosed as adenocarcinoma and it was cytohistopathologically correlated. Nadir Paksoy and Rune Lillery<sup>9</sup> concluded that FNAC is efficient way of obtaining cytomorphologic confirmation of malignancy in the pancreases and reported 100% specificity. The accuracy rate for cytopathological correlation in renal lesion was 87.5% with respect to this Zardawi I.M *et al*<sup>10</sup> observed 92.55%.

## CONCLUSION

FNAC being a safe and OPD procedure can be used as an 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. It not only helps in differentiating between inflammatory, Benign and malignant lesions, but also in categorizing different malignant lesions. The cytohistopathological accuracy rate is also increased by USG guided FNAC. It is reliable, sensitive and specific method with a high diagnostic accuracy. It can be utilized as a pre-operative procedure for the management of all intraabdominal lesions.

## REFERENCES

1. Aftab Khan A, Jan GM, Wani NA. Fine needle aspiration of Intraabdominal masses for cytodiagnosis. J. Indian Med Assoc 1996;94(5):167-69.

2. Nautiyal S, Mishra RK, Sharma SP. Routine and ultrasound guided FNAC of Intraabdominal lumps-A comparative study. J. of cytology 2004;21(3):129-132.
3. S. Shamshad Ahmed, Kafil Akhtar, S. Shakeel Akhtar *et al*. Ultrasound Guided Fine Needle Aspiration Biopsy of Abdominal masses. JK Science 2006;8(4):200-204.
4. Sobha Rani G, Md K Faheem N, Sai Prasad B.V, Sudhakar Reddy E. Efficacy of ultrasound guided aspiration cytology in deep seated lesions-a diagnostic evaluation. Int J Med Health Sci 2012;1(1):1-12.
5. R.C Adhikari, A Tuladhar, S Shrestha, SK Sharma: Deep seated Thracic and Abdominal lesions: Usefulness of ultrasound Guided FNAC a 3 year experience. Nepal Med coll. J 2010;12(1):20-25.
6. Sanjay Kumar Nigam, Umesh Paliwal, Nitu Nigam. Role of Fine Needle Aspiration Cytology in the Diagnosis of Intra abdominal lumps. J of evaluation of Med and Dent Sci 2014; vol-3(09):2095-2402.
7. Shrinivasan Radhika *et al*. Abdominal Tuberculosis Diagnosis by Fine Needle Aspiration cytology. Acta cytologica 1993;37(5),673-677.
8. Henry k Domaski, Annika Dejmek *et al*. Gauchers Disease In An Infant Diagnosed by Fine Needle Aspiration of the and spleen. Acta cytologica, 1992;36(3),40-412.
9. Nadir Paksoy, Rune Willeng *et al*. Diagnostic Accuracy of Fine Needle Aspiration cytology in pancreatic lesions. Acta cytologica, 1993;37(6),889-893.
10. Ibrahim M Zardawi. Renal Fine Needle Aspiration cytology. Acta cytologica, 1999;43(2),184-190.
11. Sidhaling Reddy, Sainath K Andold: Fine Needle Aspiration Cytology of Intraabdominal lesions. Journal clinical and Diagnostic Research 2011

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