Research Article

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

Saroj A Bolde¹, Smita S Pudale², Smita S Shette³, Ashwini Raut^{4*}, Nitin Kole⁵

¹Associate Professor, ², ³Assistant Professor, ⁴Resident, Department of Pathology, DR. V.M. Government Medical College, Solapur, Maharashtra, INDIA.

⁵Associate Professor, Pandit Dinanath Dental College, Kegaon, Solapur, Maharashtra, INDIA.

Email: ashwiniraut0@gmail.com

<u>Abstract</u>

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-rrelate 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 cases14 (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 came 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 intraabdominal lump.

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

*Address for Correspondence:

Dr. Ashwini Raut, Resident, Department of Pathology, DR. V.M. Government Medical College, Solapur, Maharashtra, INDIA. **Email:** <u>ashwiniraut0@gmail.com</u>

Received Date: 03/10/2014 Accepted Date: 11/10/2014



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 ultrasonograhy 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-rrelate 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.

How to site this article: Saroj A Bolde, Smita S Pudale, Smita S Shette, Ashwini Raut, Nitin Kole. Correlative study of fine needle aspiration cytology and histopathology in intraabdominal lumps. *International Journal of Recent Trends in Science and Technology* November 2014; 13(1): 01-04 http://www.statperson.com (accessed 01 November 2014).

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	02	_	03	13	02
		(100%)	(10%)		(15%)	(65%)	(10%)
2	GIT	13	05	-	02	04	02
2		(100%)	(38.46%)		(15.38%)	(30.76%)	(15.38%)
2		11	01	-	04	05	01
3	Kidney	(100%)	(9.09%)		(36.36%)	(45.45%)	(9.09%)
	Spleen	02		02	-		
4		(100%)	-	(100%)		-	-
-	Pancreas	02		-	-	01	01
5		(100%)	-			(50%)	(50%)
6	Gall bladder	01		-	-	01	
6		(100%)	-			(100%)	-
7	Mesenteric LN	01	01	-	-		
/		(100%)	(100%)			-	-
	Total	50	09	02	09	24	06
	rotar	(100%)	(18.%)	(41%)	(18.%)	(48%)	(12%)

Table 2: Lesion wise correlation between cytology, histology and histopathological diagnosis						
Site of lesion	No of cases	Cytologically Diagnosed cases	Histopatho logically Correlated cases	Histopatho logical diagnosis	Histopatho logically not Correlated cases	Histopatho logically not done cases
Liver	20	18	16	Hepatocellular carcinoma(16)	02	02
GIT	13	11	09	lleocecal TB(5) 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
Mesentric LN	01	01	00	Tuberculous lymphadenitis(1)	01	00
Total	50	44	36		04	10

 Table 3: Comparitive distribution of lesions according to anatomic sites in verious studies

Site	Singhalsing Reddy et al ¹¹ (%)	Sanjay Nigam <i>et al</i> ⁶ (%)	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	-	
Total	100	100	100	

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



Figure 1: Liver aspirate of hepatocellular cacinoma 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 abundent 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 hepatocelullar carcinoma (HCC)and two (10%) were inflammatory. Accuracy rate cytohistopathological correlation for was 90%.Cytohistopathologic sensitivity hepatic for malignancy was 100% with cytohistolopathological accuracy rate88.24%. 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 asending colon. Nine cases were correlated cytohistopathologically.In four cases histopatholoy was not performed due to extensive and inoperable lesions. Here cytohistopathological correlative accuracy rate is 100%. Two cases clinically presented as hepatosplenomegaly and anemia.Cytologial diagnosis was suggestive of storage disorder (Gaucher disesease).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 adenoacinoma 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 al¹, Nautival S et al² reported cytopathological correlative 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.*³ The male to female ratio was1.63:1, the same male predominance is observed in study done by Shobha Rani G et al.⁴ The most common organ which was involved in the present study was liver(45%) and majoriy were neoplastic lesions. Similar observation was made by RC Adhikari *et al*⁵ (39%) and Sanjay Nigam *et al* ⁶(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 al⁷ 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 Gaucher disease, both cytologically as and histopathologically.Similar to this Domanski N.K.et al⁸ 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 ⁹ 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*¹⁰ 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,JanGM,Wani NA.Fine needle aspiration of Intraabdominal masses for cytodiagnosis. J. Indian Med Assoc 1996;94(5):167-69.

- 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 Science2006;8(4):200-204.
- Sobha Rani G,Md K Faheem N,Sai Prasad B.V,Sudhakar Reddy E. Efficincy of ultrasound guided aspiration cytology in deep seated lesions-a diagnostic evaluaton. Int J Med Health Sci2012;1(1):1-12.
- R.C Adhikari, A Tuladhar, S Shrestha, SK Sharma: Deep seated Thrasic and Abdominal lesions: Usefullnes of ultrasound Guided FNAC a 3 year experience. Nepal Med coll. J2010;12(1):20-25.
- Sanjay Kumar Nigam, Umesh Paliwal, Nitu Nigam. Role of Fine Needle Aspiration Cytology in the Diagnosis o Intra abdominal lumps. J of evalution 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 cytologica1993;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 cytogica,1992;36(3),40-412.
- Nadir Paksoy, Rune Willeng *et al.*Dianostic 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 cytological,1999;43(2),184-190.
- 11. Sidhaling Reddy,Sainath K Andold:Fine Needle Aspiration Cytology of Intraabdominal lesions.Journal clinical and Diagnostic Research 2011

Source of Support: None Declared Conflict of Interest: None Declared