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Study to assess the diagnostic utility of percutaneous aspiration in intraabdominal and pelvic masses among the patients attending a private teaching hospital, Telangana state

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Abstract
Introduction: Most of the intra-abdominal masses are not palpable and even if palpable, the exact size, shape and extent of lesion is not markable. Therefore, various imaging modalities like USG, CT and fluoroscopy are used for guiding fine needle aspiration. This emphasizes the need to analyze the value of percutaneous aspiration biopsy cytology of intra-abdominal masses as a diagnostic modality, in avoiding operative intervention and facilitating treatment planning. Aim and objective of this study is to assess the diagnostic utility of percutaneous aspiration in intra-abdominal and pelvic masses.
Methodology: Prospective study conducted in RVM Institute of Medical Sciences, Siddipet Telangana state. The study participants are 30cases. All the 30 cases were subjected for ultrasound guided FNAC in the departments of Pathology with the aid from Radiology department. Study period was one year from January 2019 to December 2019.
Results: Out of the 30 cases the most observed lesions are hepatic with 9 cases, followed by ovarian lesions 7 and retroperitoneal 6 cases. Most of the lesions are malignant (77%) in nature, among the ovarian lesions 43% are benign, followed by 50% malignant type in retroperitoneal lesions according to the histo-pathology findings.
Conclusion: FNAC showed 100% accuracy in diagnosing hepatic, ovarian and retroperitoneal lesions. All the patients tolerated the procedures and no complications were noted.

Keywords: Histo-pathology, FNAC, cytology, intraabdominal masses, pelvic masses

Introduction
In the field of medical sciences among the various diagnostic modalities like ultrasound, fluoroscopy, computerized tomography, Ultrasound is used as a guide for fine needle aspiration of intra-abdominal and pelvic masses. Ultrasonography is advantageous over others because it is rapid, less expensive, no radiation exposure and is easily reproducible [1]. Studies done to evaluate the contribution of percutaneous fine needle aspiration biopsy for diagnostic workup, have revealed significant success rates with no false positive reports [2]. Aim and objective of this study is to assess the diagnostic utility of percutaneous aspiration in intra-abdominal and pelvic masses.

Methodology
Hospital based prospective study conducted in RVM Institute of Medical Sciences, Siddipet district, Telangana state. The study participants are 30 cases. Before the study was conducted informed consent was taken from the study participants. Complete history of the patient is taken using standard case Performa. Ethical clearance was obtained prior to the study from the RVM institute ethics committee. All the 30 cases were subjected for ultrasound guided FNAC in the departments of Pathology with the aid from Radiology department. Study was conducted for a one year period from January 2019 to December 2019.

Result
In this study, FNA was performed on intra-abdominal masses arising from different organs. Commonest was hepatic masses seen in 9 patients (30%), 7 patients from ovary (23%) followed by 6 Retroperitoneal masses (20%). Spleen, and renal masses were encountered in 2 patients each (7%).

Table 1: Gender distribution in various lesions among the study participants

Organs	Male	Female	Total
Liver	6	3	9(30%)
Retroperitoneal	3	3	6(20%)
Ovary	-	7	7(23%)
Lymph node	1	1	2(7%)
Spleen	1		1(3%)
Kidney	1	1	2(7%)
GIT	1	-	1(3%)
Gall bladder	1	-	1(3%)
Pancreas	-	1	1(3%)
Total	14	16	30(100%)

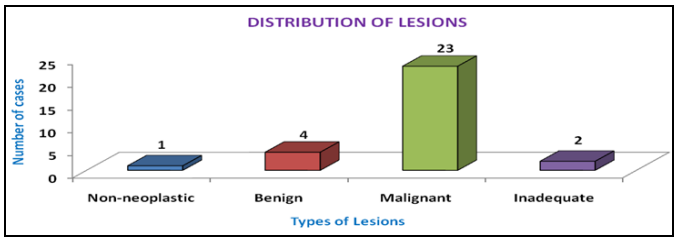

Fig 1: Distribution of lesions among the study participants

The Commonest lesion observed in the study was malignant type in 23 cases among the 28 cases ad in 2 cases the sample was inadequate to perform the test.

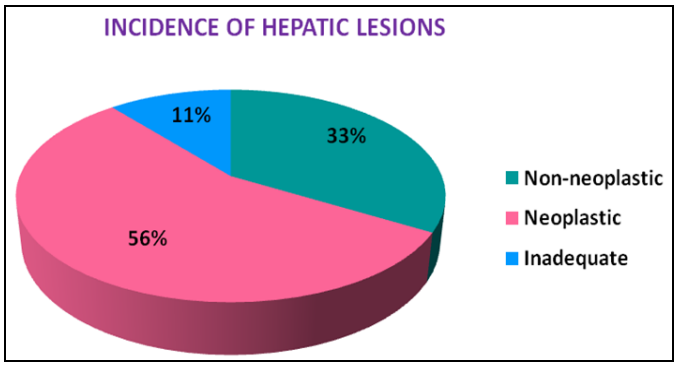

Fig 2: Showing the incidence of type of hepatic lesions

Among the hepatic lesions the most FNA samples reported as neoplastic cases (56%) followed by non-neoplastic (33%).

Table 2: Showing cyto-histopathological correlation in hepatic lesions

Sl. no.	Cytology	Number	Histopathology	Number
1	Malignant epithelial deposits	3	Adeno carcinomatous deposits	3
2	HCC	1	HCC	1
3	Small cell carcinoma	2	Small cell neuron endocrine carcinoma	2
4	Simple cyst	2	Hydatid cyst	2
	Total	8	Total	8

The results turned out to be same in line with cytology study and histopathology, where 3 cases each in cytology and histopathology as Malignant epithelial deposits (3) and Adeno carcinomatous deposits (3) cases, followed by SCC, Simple Cyst, HCC.

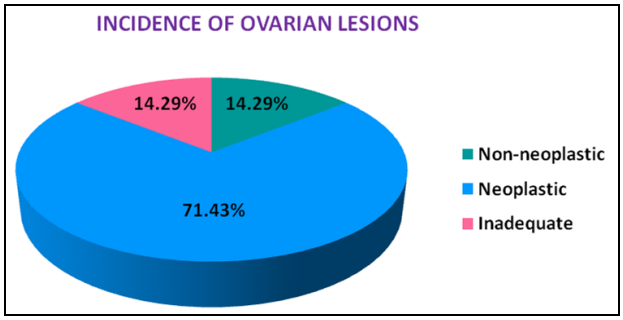

Fig 3: Showing incidence of ovarian lesions

The most incident type of lesion in ovaries is turned out to be neoplastic type of lesions in (71.43%), Followed by equally distributed non-neoplastic and inadequate sample was observed.

Table 2: Cyto- histopathological correlation of ovarian lesions

Sl. No	Cytology	Number	Histopathology	Number
1	Malignant surface epithelial lesion	2	Papillary serous cystadenocarcinoma	2
2	Dysgerminoma	1	Dysgerminoma	1
3	Benign mucinous cystadenoma	2	Mucinous cystadenoma	2
4	Dermoid cyst	1	Mature cystic teratoma	1
	Total	6	Total	6

The observations made from cytology and histopathology is same in case of ovarian lesions, as 2 cases of malignant surface epithelial lesion and papillary serous cyst adenocarcinoma.

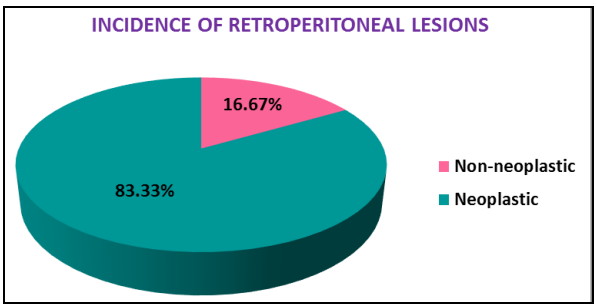

Fig 4: Showing incidence of retroperitoneal lesions

The most incident type of retroperitoneal lesion observed in present study is neoplastic type of lesions

Table 3: Cyto-histopathological correlation of retroperitoneal lesions

S. No.	Cytology	Number	Histopathology	Number
1	Spindle cell lesion	1	Schwannoma	1
2	Poorly differentiated carcinoma/ Lymphoma	2	Poorly differentiated neuroendocrine carcinoma	2
3	Poorly differentiated neuroendocrine carcinoma/ GIST	1	Poorly differentiated neuroendocrine carcinoma/ GIST	1
4	GIST	2	Malignant GIST	2
	Total	6	Total	6

The observations from cytology and histo-pathology are same as per the study as 1 case of spindle cell lesion and 1 as schwannoma.

Discussion

In the present study, percutaneous aspiration biopsy of intra-abdominal and pelvic lesions was done in 30 cases to assess the diagnostic utility. Correlation with histopathology obtained in 28 cases (93%) which is Similar by the study conducted by Saroj A Bolde *et al*., study [3]. In the present study, no complications were observed following aspirations and core needle biopsies. All the patients tolerated the procedure well. Out of 30 cases adequate material was aspirated in 28 cases (93.3%) In 3 cases, the yield was scant, these findings are similar with Dipak Kumar *et al*., [4]. In which sample adequacy was 93.6%.The maximum number of patients belonged to the age group of 45 to 60 years. The mean age was 46.8 ±10. A similar age range was observed in Zawar *et al*., [5]. Male to female ratio was (1:1.2) in the present study, comparable with Siddhalingareddy *et al*., (1:1.3). [6]. showing similar female predominance. Most of the lesions were malignant accounting for 23 (77%), 4 (13%) cases were benign and 1 case (3%) was non-neoplastic. The predominance of malignant lesions was observed in other studies also. In the present study, most of the intra-abdominal masses were arising from liver (30%), ovaries (23%) and retroperitoneal (20%). Other studies conducted on FNAs showed a similar incidence among the intra-abdominal lesions. The incidence of benign lesions is 13% and malignant were 77% which is similar with the studies conducted by Sidhalingareddy *et al*. [6]. In the present study, FNA of lymph nodes was done in two patients, one abdominal and one pelvic, FNA of renal masses was done in two cases. In the present study, ultrasound guided FNA was done for I case of splenic masses. The histopathologic diagnosis was Non-Hodgkin Lymphoma [7]. Which showed cyto-histopathological correlation. The majority of neoplastic lesions were surface epithelial tumors [8]. Thus, the sensitivity of cytological diagnosis was 100%, specificity was 100%.USG-guided FNAC seems to be a relatively safe, simple, fast, minimally invasive and cost-effective procedure for early diagnosis, cyto-radiological correlation through this procedure will be useful in formulating guidelines on management of this lesions prior to any other interventions [9].

In retroperitoneal masses, all the 6 cases showed histopathologic correlation, the findings are Similar to the study by Indranil *et al*., [10]. The present study showed sensitivity of 94.4% and specificity of 100% by guided FNAC in diagnosing retroperitoneal mass lesions which is comparable with the similar studies conducted by Aparna *et al*., and Sumana B S *et al*. The sensitivity and specificity in the present study are similar with the study conducted by Sidhalingareddy *et al*. [6].

Conclusion

FNAC and core biopsy have high sensitivity in differentiating benign lesions from malignant intra-abdominal and pelvic lesions. Correlation with clinical history, radiology and histopathology findings further increases the accuracy. These findings can be used for planning the treatment protocols in various lesions identified by these minimal invasive histo - cyto -pathological results.

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