

ASPIRATION CYTOLOGY OF OVARIAN CYSTS AND CYSTIC NEOPLASM: A STUDY OF 39 ASPIRATES

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Abstract:

Background: Fine needle aspiration cytology has been widely applied in the diagnosis of ovarian cysts and cystic neoplasms, it offers the advantages of rapid diagnosis, minimal trauma to the patient and low cost, yielding relatively acceptable diagnostic sensitivity and specificity.

Objective: To evaluate the sensitivity and specificity of aspiration cytology in the diagnosis of ovarian cystic lesions.

Methods: 39 female patients with clinico-radiological diagnosis of ovarian cysts and cystic neoplasm underwent ultrasonic guided aspiration cytology in the period from January 2000 to June 2003 at Al-Kadhimiya Teaching Hospital.

Results: Thirty-nine female patients with an age range of 21-48 years underwent ultrasonic guided aspiration cytology of an ovarian cystic lesion. There

were thirteen female patients with non neoplastic cysts while twenty six female patients had neoplastic cystic lesion with various histogenesis including (surface epithelial and germ cell type) predominantly benign tumors, while three cases revealed malignant serous cystadenocarcinoma. The over all sensitivity around 37.5% considering the inadequate cytological smears as a false negative result and specificity of 100%.

Conclusion: Fine needle aspiration cytology in the evaluation of ovarian cysts and cystic neoplastic lesions is safe, reliable and rapid diagnostic procedure yielding relatively acceptable sensitivity and specificity.

Key word: FNAC, ovarian cystic lesions

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Introduction

Fine needle cytology has been widely applied in the diagnosis of tumors and tumor like lesions of the abdomen including ovarian lesions^[1-7]. It offers the advantages of rapid diagnosis, minimal trauma to the patient, low cost when compared with the standard surgical biopsy. The objective of this study is to evaluate the sensitivity and specificity of fine needle aspiration cytology in the diagnosis of ovarian cystic lesions.

Material & methods

From January 2000 to June 2003, 39 female patients with clinico-radiological diagnosis of ovarian cysts and cystic neoplasm underwent fine needle aspiration cytology under ultrasonic guidance using different

approaches and different needle lengths and gauges, all patients were seen at Al-Kadhimiya Teaching Hospital at radiology unit.

The aspirates were done using 20-23 gauge spinal disposable needles with different lengths depending on the depth of the lesion and ideal approach for the aspiration with the patient in supine position. Four smears were made from the precipitate after cytopsin, the obtained fluidy sample for each patient was fixed immediately in 25% ethyl alcohol for at least 30 minutes. Smears were stained by hematoxylin and eosin H&E. If fragments of tissues were obtained from the solid part of the cystic neoplasm lesions, they were processed as cellblock preparation. An immediate post aspiration sonography was done to assess and monitor complications. It was possible to compare the cytological result with the histopathological result in 29 cases.

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Results

Thirty nine female patients with clinico-radiological diagnosis of ovarian cysts and cystic neoplasm underwent fine needle

aspiration cytology under ultrasonic guidance using different approaches depending on the site of the lesion (Tables 1 and 2) with an age range of (21-48) years.

Table 1: Site of ovarian cystic lesions in 39 patients

Site	No. of patients	%
Rt. Ovary	21	53.8
Lt. Ovary	14	35.8
Both	4	10.4
Total	39	100

Table 2: Approaches of FNAC for different ovarian cystic lesions

Approach	No. of patients	%
Transvaginal	3	7.7
Transrectal	0	0
Percutaneous	31	79.5
Intraoperative and /or immediately after surgical removal	5	12.8
Total	39	100

There were thirteen female patients with a non-neoplastic functional cystic lesions underwent cytological diagnosis, while twenty-six female patients had neoplastic ovarian cystic lesions, twenty-three were

benign and three were malignant in cytological diagnosis. Inadequate material was obtained in five patients (Tables 3 and 4).

Table 3: Cytological diagnosis in 39 cases with ovarian cystic lesions

Cytological Diagnosis	No. of patients	%
Non-neoplastic cyst	13	33.3
follicular cyst	9	23.0
corpus luteum cyst	4	10.3
endometrioid cyst	0	0
Neoplastic cyst	26	66.7
Benign		
serous cystadenoma	17	43.5
mucinous cystadenoma	4	10.3
mature cystic teratoma	2	5.2
Malignant		
Serous cystadenocarcinoma	3	7.7
Total	39	100

Table 4: Correlation between cytological and histological and/or clinico-radiological diagnosis

Cytological diagnosis	No. of patients	Histological and/or radiological diagnosis	
		Benign	Malignant
Benign	31	27	0
Malignant	3	0	3
Inadequate	5	5	0
Total	39	32	3

Considering non-neoplastic cystic lesions as benign lesion and inadequate cases as false negative results, Sensitivity: 37.5%, Specificity: 100%

The elaboration of the numbers reported in table 4 on the correlation between fine needle aspiration results and histopathological and/or clinico-pathological follow up. Final diagnosis especially in non-neoplastic cystic lesion yielded the following:

A sensitivity of (37.5%) considering the inadequate cytological smears as false

negative results and a specificity of (100%), complication was encountered in one case in the form of vasovagal attack (7.6%).

Cytological diagnoses were classified into:

1. Non-neoplastic cysts; thirteen patients were presented with non-neoplastic functional cystic lesions, nine follicular cysts; four corpus luteal cysts (Figure 1).



Figure 1: Corpus luteal cyst: smear reveals scattered luteinized granulosa and theca cells on a clean background (RBCs were lysed using glacial acetic acid)(X400).

Three confirmed by biopsy others by close clinico-radiological follow up.

2. Neoplastic cysts: Twenty-six female patients were presented with neoplastic cystic lesions. Twenty three were benign in the form of benign serous cystadenoma in seventeen cases, four mucinous

cystadenoma and two cases of mature cystic teratoma, while three cases revealed malignant cytological diagnosis of malignant serous cystadenocarcinoma, all cases confirmed by histopathological final report (Tables 3 and 4; figure 2).

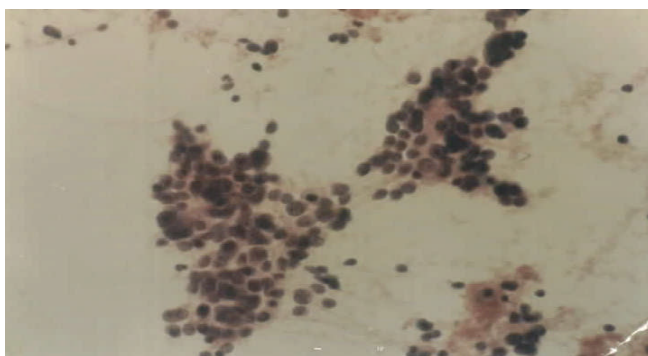


Figure 2: Serous cystadenocarcinoma : smear reveals cellular cohesive clusters of malignant epithelial cells with pleomorphic nuclei. (X400).

Discussion

The use of fine needle aspiration cytology in gynecology was relatively unknown until experiences with ovarian cystic lesions were published in 1970^[8]. Ultrasound experiences was led by the work of Ramzy et al detailing the cytopathologic characteristics of ovarian epithelial neoplasms in 1978^[2,10], then the use of fine needle aspiration cytological diagnosis in other aspect of gynecology was reported by Sevin et al^[11], Moriarity and others^[12,13]. Since then a proliferation of highly accurate radiographic imaging and guidance technique has made possible accurate cytological sampling of deep pelvic ovarian cystic lesions with low morbidity. The target organ can be reached by percutaneous, transvaginal, or during laparoscopy route.

Transvaginal aspiration is used in three cases only with deeply seated pelvic ovarian cystic lesions especially when solid portions of the cystic neoplasm gravitated deep in the pelvic cavity in which cannot be reached through percutaneous rout.

Regarding the non-neoplastic functional ovarian cystic lesions, there is controversy whether to aspirate or not. In the present study, the policy to do the aspirate was the following^[4,14]:

1. Persistent ovarian cystic lesion though the size of the cyst was less than 5 cm in volume using ultrasound.
2. When the size of the cyst was more than 5 cm in volume.
3. When ultrasonic features of thick irregular wall, multiloculation, or presence of solid portion within the cystic lesions were encountered.

Recently ultrasonic guided ovarian cyst puncture with our without instillation of sclerotherapeutic agents would appear to be a valid alternative to surgery for carefully selected benign ovarian-whether neoplastic or non neoplastic- cysts, especially when the (size is more than 10 cm, the presence of multiloculation, or the suspicion of malignancy) was encountered as a therapeutics management^[14,15].

The sensitivity of the test in the present study is relatively lower in comparison to others because of (the limited number of cases, we had no previous experience in that field before, and the fact that nearly all samples were fluidy which usually yielded scattered epithelial cells for cytological study)^[2,4,5,7,8,14].

No significant complications were encountered in this study apart from a vasovagal attack encountered in one case (7.6%).

Conclusion

Fine needle aspiration cytology in the evaluation of ovarian cysts and cystic neoplastic lesions is safe, reliable, and rapid diagnostic procedure yielding relatively acceptable sensitivity and specificity.

Recommendation

Further study are advisable regarding the increasing of number of patients, and the use of this technique not only for diagnosis but also for therapeutic management.

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