Fine Needle Aspiration Cytology for Detection of Ovarian Malignancy

Mridul Gehlot, Nupur Hooja, Suresh Chand

Department of Obst. & Gynaecology, S.M.S. Medical College and Zenana Hospital, Jaipur.

Summary

This study was conducted to assess the reliability of F.N.A.C. in ovarian malignancy. Both transabdominal and transvaginal routes were used with ease and safety. Adequate material for cytology could be obtained in all cases. Of the 43 cases diagnosed as benign on F.N.A.C., 42 were confirmed on histopathology and one was reported as adenocarcinoma ovary. All seven cases diagnosed as malignant on F.N.A.C. were confirmed on histopathology.

Introduction

Ovary is the seventh most common site of cancer in women. It is responsible for the greatest number of deaths from gynaecological cancers in Europe and North America (Parkin et al 1980). Ovarian cancer is largely asymptomatic in early stages. Seventy percent of patients present with advanced intraabdominal disease. For early stage disease (FIGO I-IIa) the 5-year survival rates are 50-70%. The low survival rate in FIGO III and IV (5-10%) could be potentially improved by early detection. (Stewart and Guthrie 1994).

The diagnosis of ovarian tumour entails pelvic examination, ultrasonography, CT scan, MRI, lumphangiography, laparoscopy, laparotomy and tumour markers. None of these however, are satisfactory to make an early and definitive diagnosis as they are costly, exhaustive, traumatic or invasive.

Fine Needle Aspiration Cytology (F.N.A.C.) is a diagnostic OPD procedure that is simple, safe, speedy and cost effective. Its greatest advantage is the time saved in arriving at a definitive diagnosis so that further management of the patient can be planned.

Hence, this study was undertaken to assess the reliability of F.N.A.C. in ovarian malignancy.

Material & Method

The study was conducted in the Dept. Of Obst. & Gynae., S.M.S. Medical College, Jaipur. It included 50 patients admitted as cases of ovarian tumour on the basis of pelvic examination and ultrasonography. After routine investigations, F.N.A.C. was done in all patients either by transabdominal or by transvaginal route by needles ranging from 20-25 guage. The needle attached to a syringe on a syringe holder was introduced into the mass through the abdominal wall or transvaginally. Aspiration biopsy was performed by moving the needle back and forth or altering its angle and exerting suction on syringe. The contents were expressed on the side and spread to form a thin film. If aspirate contained

fluid, it was centrifuged at 2000 r.p.m. for 15 minutes and sediments smeared. The smears were air dried and stained by May-Grunwald Geimsa method and examined under the microscope. The risk of dissemination of cells through the tiny break in the capsule caused by the needle is negligible. The procedure was done successfully in all cases without complications.

Observations

The study was done on 50 patients with ovarian tumour. Age of patients ranged between 17-60 years. 28% cases were in age group 21-25 yrs. There are 12% and 10% cases in the higher age groups of 51-55 yrs. and 46-50 yrs. Rrerspectively. There were only 4% cases in age group 15-20 yrs. (Table I).

The most common complaint was pain in abdomen alone (36%), followed by pain in abdomen with lump (20%) and lump in abdomen alone (16%). There were 12%

patients with menstrual irregularities like irregular vaginal bleeding, postmenopausal bleeding oligomenorrhoea and amenorrhoea. (Table II).

Transvaginal route was used in only 10 Cases while transabdominal route was used in the rest of the 40 cases. (Table III).

The sample obtained by F.N.A.C was adequate for microscopic examination in all 50 cases. The cytology showed malignant cells in 7 cases which were confirmed as malignancy on histopathology. Of the 43 cases diagnosed as benign by F.N.A.C., 42 cases were confirmed as being benign on histopathology. One case labelled as benign on F.N.A.C. turned out to be adenocarcinoma of ovary on histopathology (Table IV).

Histopathology revealed malignancy in 8 cases – teratocarcinoma (1), papillary serous cyst adenocacinoma (3), mucinous cyst adenocarcinoma (1), dysgerminoma (1) and leiomyosarcoma (2). Of the

Table I:
Age wise incidence of Cases

Age Group (Years)	Number of Cases	Percentage
15-20	2	04.0
21-25	14	28.0
26-30	7	14.0
31-35	7	14.0
36-40	5	10.0
41-45	4	08.0
46-50	5	10.0
51-55	6	12.0

Table II:
Common Presenting Complaints

Symptoms	Number of Cases	Percentage
Pain in abdomen	18	36.0
Lump in abdomen	08	16.0
Menstrual irregularities	06	12.0
Pain in abdomen with lump in abdomen	10	20.0
Pain in abdomen with menstrual irregularities	04	08.0
Lump in abdomen with menstrual irregularities	04	08.0

Table III
Approach of fine needle aspiration

Approach	Number of Cases	Percentage
Transabdominal	40	80.0
Trans-vaginal	10	20.0

Table IV
Correlation of FNAC and Histopathological Findings

Cytology	Postoperative Histopathology		
	Number of cases	Benign	Malignant
Benign	43	42	1
Malignant	07	-	7

Table V
Histopathology of Ovarian Tumours

Name of Tumours -	Number of Cases	Percentage
Teratocarcinoma	01	02.0
Papillary serrous cyst adenocarcinoma	03	06.0
Mucinous cyst adenocarcinoma	01	02.0
Dysgerminoma	01	02.0
Leiomyosarcoma	02	04.0
Simple Serous Cysts	18	36.0
Mucinous cyst adenoma	08	16.0
Dermoid cyst	05	10.0
Fibroma	01	02.0
Inflammatory salpingo-oophoritis	02	04.0
Hemorrhagic luteal cyst	03	06.0
Tubercular lesion	02	04.0
Follicualr cyst	03	06.0

benign cases, 18 were simple serous cysts 8 were mucinous cystadenomas and 5 were dermoid cysts (Table V).

Discussion

The commonest age group in our study was 21-25 yrs. (28%)) and 22% cases were in age group 46-55 years. Most patients presented with pain in the abdomen and/or lump in the abdomen.

Both transvaginal and transabdominal routes could be used with ease and safety. We could gather adequate material for microscopy in all the cases by F.N.A.C..

The malignant cases on F.N.A.C were confirmed on histopathology . Of the 43 benign cases, 42 cases were confirmed as benign on histopathology. Thus, the diagnostic accuracy in the differentiation of benign and malignant tumours by F.N.A.C was 97.6%. This compares well with the study done by Sevin et al (1979) who found reliability of F.N.A.C. for diffenentiation between malignant and benign as 96.4%.

In our study, diagnostic accuracy in cases of ovarian cancer was 88%, since of the 8 cases of ovarian malignancy (confirmed by histopathology), we could diagnose 7 by F.N.A.C. The reason for the false negative report could be that the aspiration may have been done from an area devoid of malignant cells.

The diagnostic accuracy in determining malignancy of ovarian tumour by F.N.A.C. was reported as 93.95% in the study done by Angstrom et al (1972), 94.5% by Sevin et al (1979), 96.4% by Moriarty et al (1986).

Conclusion

F.N.A.C . is a simple, safe and quick cost effective OPD procedure in diagnosing ovarian malignancy. It may be used as a diagnostic tool for mass screening of ovarian malignancy in a developing country like India. F.N.A.C. may help to obtain histopathology specimen and avoid exploratory laparotomy in many deep seated lesions prior to chemotherapy. F.N.A.C. may be particularly helpful in the follow-up of ovarian malignancies in patients on multi drug chemotherapy.

However, the reliability of F.N.A.C. depends on the experience and expertise of the gynaecologist and cytologist.

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