Original Research Article

Evaluation of ovarian mass in reproductive age group: a 2 years prospective study in a tertiary care hospital in Haryana

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ABSTRACT

Background: In pre-eclampsia, there is increased uteroplacental resistance and reduced fetal perfusion due to inadequate invasion of spiral arterioles by trophoblast cells. This causes impaired fetal growth and fetal hypoxia. The objective was to assess the usefulness of fetal Doppler in predicting adverse perinatal outcome in preeclampsia.
Methods: It was a prospective study conducted in Adesh medical college and hospital, Mohri, KKR, Haryana, India during the period of 2 years (2021-2022) on 92 women of reproductive age group from menarche to menopause, attending the hospital with complaints of lower abdomen pain, flatulence, lump in abdomen, changes in urinary and bowel habits and ovarian mass detected on clinical examination, or on ultrasound done for another reason. All details were filled in predesigned Performa.
Results: There was a great deal of variation in the occurrence, behaviour, and clinical presentation of ovarian tumors. In addition to physical examination, laboratory investigations such as immunological testing and serum biomarkers and imaging procedures pelvic ultrasonography), can assist to determine the kind of pathology. The diagnosis of non-neoplastic and neoplastic ovarian lesions can be confused due to similar clinical presentations. Ovarian cancers have one of the worst prognoses of any cancer since there is insufficient screening to identify the disease early.
Conclusions: It is imperative to raise awareness of this malignancy among Indian women. Because of the diversity of the Indian population, it is necessary to raise awareness of this issue across all linguistic and cultural divides. Not only should early detection be emphasized, but also "how to live well" with the illness should be discussed. All of these sophisticated, more recent diagnostic methods, along with the clinical and histo-morphological factors, can aid in early diagnosis, treatment planning, and prognostic importance.

Keywords: Malignancy, Ovarian Mass, Prospective study, Reproductive age

INTRODUCTION

Ovarian masses are more common gynecological problems encountered in women in general gynecology and most of them are cystic. They are divided into two types physiological and pathological. Physiological cysts are follicular and corpus luteum cysts and these types of cysts do not require any treatment. Pathological cyst can be benign or malignant. They can occur at any age group in women. Benign cysts predominantly manifest in late reproductive age. Dermoid, mucinous and cystadenoma are common in reproductive age group. 80% of ovarian masses are benign having cystic, solid or mixed characteristic and 20% are of malignant in nature and have fatal prognosis.[1] More than 70% of women with ovarian mass are diagnosed with advanced stage disease, where the 5-year survival rate 16-29% as compared to 70-80% in early stages.[2] Symptoms are often present months prior to diagnosis, however they are vague and unspecific of character leading to delay in diagnosis. Most masses are asymptomatic, but some may present with lump, heaviness or dull ache in abdomen. Ultrasound and color Doppler along with CA 125. RMI calculation method was done to differentiate benign from malignant masses. The ovarian

masses will also present with some acute complications like torsion, hemorrhage.

Ovarian cancer is the 5th most common deadly cancer in women.[3] It can be clinically challenged to distinguish benign ovarian cyst from malignant ovarian cyst because malignant tumor should be treated immediately. With the use of TVS detection rate of ovarian cysts has been increased. Most women with noncancerous ovarian mass can simply be monitored overtime, instead of having invasive surgery.

Aims and objective

Analysis of types of ovarian masses in the reproductive age group of women. To find the most common type of ovarian masses in reproductive age group.

METHODS

This was a prospective study was conducted in Adesh medical college and hospital, Mohri, KKR, Shahbad, Haryana, India during the period of 2 years (2021-2022). The study included women of reproductive age from menarche to menopause, attending the hospital with complaints of lower abdomen pain, flatulence, lump in abdomen, changes in urinary and bowel habits and ovarian mass detected on clinical examination, or on ultrasound done for another reason.

Methodology

The subjects were informed about the study and a written consent was taken. The ethical committee clearance was obtained from the institutional ethical committee board. From all patients basic data (age, occupation, education and address), gynecological data (menarche age, last menstrual period, history of infertility and contraception, family history, personal history) were obtained. Complete general physical (weight/BP/BMI) and gynecological examination (P/A, P/S, P/V) was done. Furthermore, the blood analysis, and ultrasonography, tumor marker was done and RMI was calculated. After that, other investigations like CT/MRI pelvis, mammography were

done if required. Histopathology reports were collected if patient underwent surgery. All information (history, examination, investigations) were thoroughly recorded in predesigned Performa including informed consent.

Inclusion criteria

Symptomatic women of reproductive age group presenting with symptoms. Asymptomatic women with ovarian mass either detected on clinical examination or on ultrasound.

Exclusion criteria

Women on ovulation induction drugs, Uterine masses

$RMI = U \times M \times CA125$

U= Ultrasonographic index, M= menopausal status

The ultrasound result is scored 1 point for each of the following characteristics: multilocular cysts, solid areas, metastasis, ascites and bilateral lesion. U=0 (for an ultrasound score of 0), U=1 (for an ultrasound score of 2-5), U=3 (for an ultrasound score of 2-5).

The menopausal status is scored as 1= for premenopausal and 3= for post-menopausal

CA125 is measured in IU/ml.

The patients were divided into three groups: 1) <50- low risk, 2) 50-200- intermediate risk, 3) >200 high risk (referred to gyne-oncology department).

RESULTS

Functional cyst more common in younger age group (20-30 years) and rare after 40 years of age. Benign mass common between 30-40 years of age. Malignant was common after 40 years of age group. Total malignant cases were 14, out of which 10 diagnosed radiologically, 3 cases of benign were turnout to malignant on histology. One was secondary.

Table 1: Age wise distribution of patients.

Age group	Functional cyst	Benign cyst	Malignant cyst	Total	Percentage
15-20	08	01	00	09	9.78
21-30	25	08	01	34	36.95
31-40	11	15	03	29	31.52
41-50	01	07	04	12	13.04
>50	00	02	06	08	08.69
Total	45 (48.91%)	33 (35.86%)	14* (15.21%)	92	99.98

History of smoking found in only 17.39% women and 79.3% women who never smoked. There was significant difference amongst smokers and non-smokers. Family

history of breast cancer in benign group was 3.03% and in malignant group was 14%. Family history of ovarian cancer (6.06%) in benign and (21.42%) in malignant

group. Functional cyst was more common in primiparous and multiparous women. Benign as well as malignant ovarian masses were equally found in women who had single pregnancy and multiparous women.

Table 2: Characteristics of the study subjects.

Variable		Functional (45)	Benign (33)	Malignant (14)	Total
Smoking	Yes	08 (17.77%)	09 (27.27%)	02 (14.28%)	19 (17.3%)
	No	37 (82.22%)	24 (72.72%)	12 (85.71%)	73 (79.3%)
Family history of breast or ovarian cancer	Breast Ca				
	Yes	02 (4.44.%)	01 (03.03%)	02 (14.28%)	05 (5.43%)
	No	43 (95.55%)	32 (96.96%)	12 (85.71%)	87 (94.4%)
	Ovarian Ca				
	Yes	01 (02.22%)	02 (06.06%)	03 (21.42%)	06 (6.52%)
	No	44 (97.77%)	31 (93.93%)	11 (78.57%)	86 (93.4%)
Number of pregnancies	Nulliparous	07 (15.55 %)	06 (18.18 %)	03 (21.42%)	16 (17.3%)
	Primipara	19 (42.22 %)	12 (36. 36%)	06 (42.85%)	37 (40.2%)
	Multiparous	19 (42.2 2%)	14 (42.42 %)	05 (35.71%)	39 (42.3%)
Marital status	Married	39 (86.66 %)	30 (90.90%)	13 (92.85%)	82 (89.1%)
	Unmarried	06 (13.33 %)	03 (9.09%)	01 (7.14%)	10 (10.8%)
Symptoms	Symptomatic	42 (93.33 %)	25 (75.75%)	02 (14.28%)	69 (75%)
	Asymptomatic	03 (06.66%)	08 (24.24%)	12 (85.71%)	23 (25%)

Table 3: Clinical presentation of ovarian masses.

Symptoms	Functional	Benign	Malignant	Total	Percentage
Pain abdomen	19	09	06	31	33.69
Severe pain	07	04	00	11	11.98
Mass abdomen	00	06	02	08	8.69
Heaviness	00	02	02	05	5.43
AUB	10	04	02	16	17.39
Infertility	06	00	00	06	6.52
Incidental finding	03	08	02	15	16.30
Weight loss	00	00	01	01	1.08
Total	45	33	14*	92	100

Commonest presentation functional group was pain abdomen followed by abnormal uterine bleeding. Seven women presented with severe pain abdomen due to torsion. Benign group was either presented with pain abdomen or incidental finding on USG.

Table 4: Non-neoplastic ovarian mass.

Type	No. of cases (N=45)	Total percentage (92)
Simple ovarian cyst	11	11.95
Theca luteal cyst	07	07.60
Follicular cyst	13	14.13
Hemmorhagic cyst	09	09.78
Endometriotic cyst	05`	05.43

Out of 45 non-neoplastic masses 13 (14.13%) follicular cyst, 11 (11.9%) simple cyst, 9 (9.7%) theca luteal cyst, 9 hemorrhagic cyst and 5 were endometriotic cyst.

Table 5: Radiological diagnosis of ovarian masses.

USG	Number (N=92)	%
Simple Functional cyst	17	18.47
Dermoid cyst	09	09.78
Endometriotic cyst	05	07.60
Haemorrhagic	09	09.78
Subserosal fibroid	01	1.08
Benign ovarian cyst	24	26.08
Complex ovarian cyst	15	16.30
Malignant ovarian tumors	10	10.86

Out of 92 cases 9 dermoid cyst, 24 benign ovarian cyst, 15 complex ovarian cyst, 1 subserosal fibroid and 10 were malignant tumour on ultrasonography.

Out of 92 cases of ovarian masses, USG showed benign features in 36 case and Malignant features in 09 cases. 3 cases of benign tumour turned out to be malignant tumor after surgery. In one case malignant ovarian tumour diagnosed as subserosal fibroid uterus. During surgery it

was diagnosed as a malignant tumor. One was secondary to spleen cancer (Table 6).

Table 6: Radiological diagnosis of benign and malignant ovarian tumors.

USG features	Benign (36)	%	Malignant (08)	%
Simple cystic	13	54.16	00	0
Solid cystic	06	25.00	02	18.18
Complex cystic	03	12.5	03	27.27
Predominant solid	02	08.33	05	45.45
Ascitis	00	00	03	27.27
Increased vascularities	00	00	07	63.63
Omental caking/Deposits	0	00	03	27.27

Table 7: RMI.

RMI	Functional (45)	Benign (36)	Malignant (11)	Total (92)
<100	45	31	03	79
100-200	00	02	04	07
>200	00	00	04	06

Table 8: Treatment.

	Functional (45)	Benign (36)	Malignant (11)	Total
Medical	17	00	00	17
Expectant	20	00	00	20
Surgical	O8	36	03	48
Refer for Chemo/ Gastro	00	00	11	14

In 3 patients of malignant tumor RMI was below 100, and in 5 patients RMI was 100-200, and in 6 patients RMI was >200. These patients showed RMI <100, and on USG showed features of benign ovarian mass but diagnosed as malignant during surgery and confirm by histopathology. One patient presented with bilateral ovarian mass on USG, RMI 100-200, but on MRI it was diagnosed as Krukenberg tumor (ca spleen).

Out of 92 patients 47 patients were managed by surgical management. Out of 45 patients of functional cyst 8 patients managed surgically in view of torsion and hemorrhage. All 36 of benign ovarian masses and 4 patients of malignant ovarian mass with RMI between 100-200, underwent surgical management. Out of 36 Benign ovarian masses, benign lesions were present in 33 patients and malignant lesion in 3 patients. In one patient preoperative diagnosis was subserous fibroid on USG and MRI. Her Ca125 was 27 U/ml and RMI was <200 which was done post-surgery, because it turned out to be malignant ovarian mass intra-operatively, hence staging laparotomy and TAH with BSO was done.

Out of 11 patients diagnosed as malignant tumour on USG, 4 patients underwent staging laparotomy and proceed in patient of RMI<200. One patient diagnosed as Krukenberg tumor on MRI, CA125 was 200 U/ml hence referred to gastro department for further management. 6 patients of

malignant masses were referred to gyne-onco department for further management.

Table 9: Frequency of occurrence of different ovarian masses based on HPE.

Histopathology report	N	Percent (92)	Percent (47)
Endometriotic cyst	03	(3.26)	--
Haemorrhagic cyst	05	(5.43)	--
Mature cystic teratoma (germ cell)	14	(15.21)	29.78
Serous cystadenoma (epithelial)	17	(18.47)	36.17
Mucinous cystadenoma (epithelial)	07	(7.60)	14.89
Fibroma (sexcord stromal tumour)	01	(1.08)	2.1
Serous cystadeno carcinoma (epithelial)	03	(3.25)	6.38
Mucinous cystadeno carcinoma (epithelial)	04	(4.34)	8.51
Secondary carcinoma	01		
No histopathology available	06		

Histopathology showed endometriotic cyst in 3 (3.2%) haemorrhagic cyst in 5 (5.4%) cases. 25 cases were with

epithelial benign tumour and 4 cases with epithelial ovarian cancer. Most of the benign cases were serous cystadenoma (18.4%) and 7.6% were mucinous cystadenoma. Mature cystic teratoma were present in 14 (15.21%) cases. Epithelial ovarian carcinoma was 7.6%. serous cystadenocarcinoma 3.2% and mucinous cystadenocarcinoma (4.3%).

DISCUSSION

Stem cells, which normally give rise to the surface epithelium, fallopian tube epithelium, germ cells, or sex cord-stromal cells, can cause ovarian/tubal neoplasms. There is a great deal of variation in the occurrence, behavior, and clinical presentation of ovarian tumors. It has been observed that, in addition to physical examination, laboratory investigations such as immunological testing and serum biomarkers, as well as imaging procedures such as pelvic ultrasonography, can assist determine the kind of pathology. The diagnosis of non-neoplastic and neoplastic ovarian lesions can be confused due to similar clinical presentations. However, in normal oophorectomies and hysterectomies, the lesion is excised prophylactically on ultrasonography as a mass or cystic lesion.

Most common age group affected with ovarian masses is 21 years to 40 years which is comparable with the study conducted by Ameena et al.[4] Among the ovarian neoplasm, 48.91% were functional cyst, 35.86% benign masses and 15.21% were malignant. These findings are comparable with Mondal et al.[5] Serous cyst adenocarcinoma was the most common epithelial ovarian tumor followed by mucinous cyst adenocarcinoma. These figures show a rising incidence of epithelial tumors in our study which is similar as compared to the study done by Jha et al.[6] In present study abdominal pain was the most common presentation in 33.69% cases. This finding is similar to study conducted by Wasim et al and Mankar et al.[7,8]

Ovarian cancers have one of the worst prognoses of any cancer since there is insufficient screening to identify the disease early. An accurate assessment of ovarian tumors is crucial since prompt surgical intervention can reduce patient mortality and morbidity, if at all possible. The risk of ovarian tumors was higher in multiparous women which is similar to study done by Titus Ernstaff et al.[9]

Due to a dearth of screening resources and awareness among the general public in our nation, patients typically present with advanced disease. The prognosis and ultimate result of the illness are greatly influenced by all of this.

CONCLUSION

It is imperative to raise awareness of this malignancy among Indian women. Because of the diversity of the Indian population, it is necessary to raise awareness of this issue across all linguistic and cultural divides. Not only should early detection be emphasized, but also "how to live well" with the illness should be discussed. There is a relationship between a multitude of different clinical characteristics, including the patient's age, presenting complaints, the location and size of the lump, and the histological type of ovarian tumor. All of these sophisticated, more recent diagnostic methods, along with the clinical and histo-morphological factors, can aid in early diagnosis, treatment planning, and prognostic importance.

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