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Clinico-Pathological Correlation of Tubo-Ovarian Lesions:A Study of 75 Cases.

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ABSTRACT

Individual study of the ovarian lesions had been widely done but literature on combined with tubal lesions is less. Our aim was to correlate clinical features with pathological findings of large number of lesions of fallopian tubes and ovaries in gynecological patients. Incidence of these lesions was compared with other studies. The study was carried out in 75 cases of tubal and ovarian lesions during one year of period i.e. 2000-2001, by receiving salpingoopherectomy and oopherectomy material from the department of obstetrics and gynaecology. The necessary information was collected through performas of biopsy and from the record files of concerned cases. Out of 75 cases, 45 (60%) ovarian, 25 (33.33%) tubal, and 5 (6.66%) cases showed simultaneous involvement of both tube and ovary. Amongst 25 tubal lesions,17 were of ectopic gestation, 2 of salpingitis, 3 of hydrosalpinx, 2 of haematosalpinx and 1 case of leiomyoma of bizarre(benign).From 45 ovarian lesions,24 were(19 benign and 5 malignant) neoplastic,15 simple serous cysts,3 follicular cyst,2 theca leuteal cyst and one case of non-specific oophoritis. We found in this study that clinico-pathological correlation of tubo-ovarian masses can be enhanced to 100% with the help of USG, b-HCG, uterine curettage and laparoscopy.

INTRODUCTION

Tubo-ovarian lesions predominantly include tubal ectopic pregnancy and ovarian tumours.Most serious conditions in the fertile age group is tubal ectopic gestation leading to high mortality viz. 9% of all pregnancy related deaths in U.S. and in malignant ovarian tumours very poor prognosis of 5 years survival in 25-30% has been recorded in advanced age [1,2].

This study scrutinizes the clinical, hormonal and radiological aspects of the lesions involving tubes & ovaries, and future aspects in the direction of early diagnosis.

Pain, amenorrhoea and vaginal bleeding is the clinical trial of symptoms in ectopic pregnancy. Trans vaginal USG can visualize an intrauterine pregnancy by 24 days post ovulation, thus it is an important tool for the diagnosis of ectopic pregnancy. Recently b-HCG level in serum and urine has been developed for early detection of ectopic pregnancy [1]. Primary neoplasm of tube is rare, however, secondary involvement of tube from lesions arising in the adjacent organs, is common. From ovarian tumours 80% are cystic and most of these are benign, while 20% are basically solid and most of these are malignant [3]. Ovarian growth in 96% of cases of benign tumours are found in women who are less than 30 years of age, whereas 66% of those found in women more than 60 years of age, are malignant.

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Clinical presentation of ovarian lesions mainly starts with mass rather than pain and tenderness, as seen in tubal lesions. The commonest symptom with which the patients present, are progressively increasing intra-abdominal mass [4]. Other symptoms include acute abdominal pain due to torsion of dermoid cysts and mucinous cystadenoma. Irregular post menopausal bleeding, gastrointestinal symptoms and urinary symptoms are other symptoms. Presence of abdominal distension, ascites and loss of weight and appetite were significant individual symptoms for ovarian malignancy [5].

MATERIALS AND METHODS

The present study was carried out in 75 cases of various types of lesions of tubes and ovaries. These cases were recorded in the files of histpathological sections of pathology.

The required information was collected from the case records maintained by the pathology department and department of obst. and gyaenecology. Whenever necessary fresh sections were cut from the blocks and stained with H and E technique. If needed special stains like Masson's trichome, Periodic Acid Schiff' stain, Von-Giesion and reticulin stains were done.

The clinical data and final histological diagnosis was compiled in the proposed Performa being attached here with laying emphasis on age, side affected, chief complaints, duration of illness, ultrasound examination, gross examination, microscopic examination and hormone level(if any).Then the lesions were classified as follows:

Lesions of tube

Non-Neoplastic

- Inflammation-acute and chronic salpingitis, non-resolving chronic tubo-ovarian masses like hydrosalpinx, chronicpyosalpinx, chronic interstitial salpingitis, tubo-ovarian cyst and granulomatous salpingitis.
- Endometriosis
- Salpingitisisthmicanodosa
- Ectopic pregnancy
- Hematosalpinx

Neoplastic

- Epithelial tumours—Benign and malignant.
- Mesenchymal tumours—Benign and malignant.

Mixed (Epithelial-mesenchymal).

Metastatic.

Lesions of ovary

Non-Neoplastic

- Inflammation--acute or chronic oophritis.
- Endometriosis.
- Follicular cysts.
- Solitary cyst.
- Stein Leventhal Syndrom
- Follicular haematoma
- Lutein cysts
- Miscellaneous—pregnancyluteoma, hyperplasia of stroma, simple serous cyst and ectopic pregnancy.

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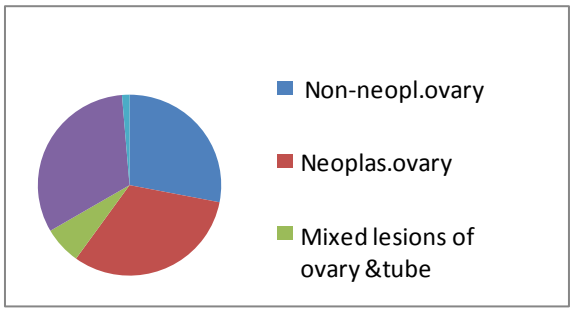
Neoplastic (WHO 1995 classification)

- Surface epithelial stromal tumours-serous, mucinous, endometroid, clear cell, transitional cell, squamous cell, mixed epithelial tumors and undifferentiated carcinoma.
- Sex-cord stromal tumours—granulosa cell tumour, the coma-fibroma group, sclerosing stromal tumour, sex cord tumour, gynandro blastoma and steroid cell tumours.
- Germcell– Like dysgerminoma, yolk sac tomour, embryonal carcinoma, polyembryoma, choriocarcinoma, teratoma, strumaovarii and carcinoid.
- Mixed
- Tumours of uncertain origin.
- Gestational trophoblastic
- Malignant lymphoma
- Metastatic.

RESULTS

From overall study of 75 cases, 25 cases (33.33%) were of tubal in origin (32% non-neoplastic and 1.33% neoplastic), 45 cases of ovaries (60 % i. e., 27.99 % non-neoplastic and 32.01% neoplastic) and 5 cases (6.66%) of mixed lesions of both tube and ovary (as shown in pie chart below).



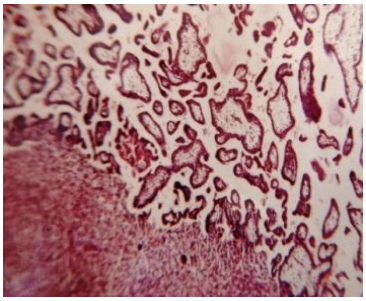


Figure 1: Ectopic pregnancy(H&E40X)

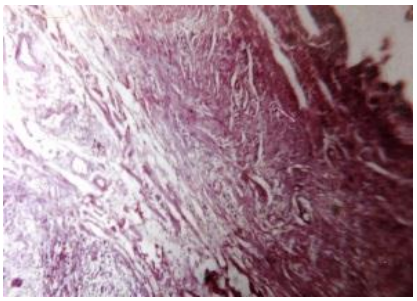


Figure 2: Tubercular salpingitis(H&E40X)

Figure 3: Gross of leiomyoma tube.

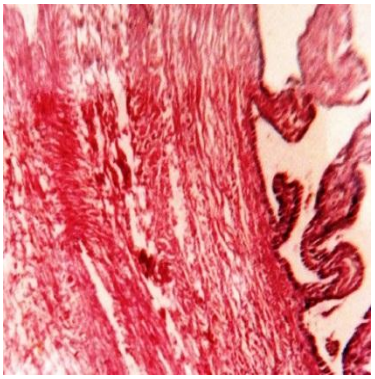


Figure4 Leiomyoma tube(H&E 40X)

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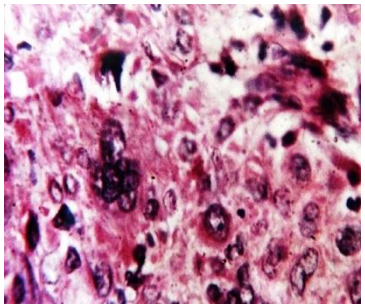


Figure 5: Leiomyoma tube bizzeretype (H&E 40X)

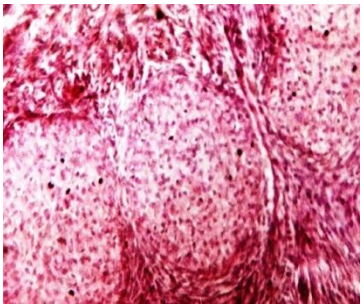


Figure 6: Brenner tumour(H&E10X)

Figure 7: Bilateral dermoid cysts ovary (Gross)

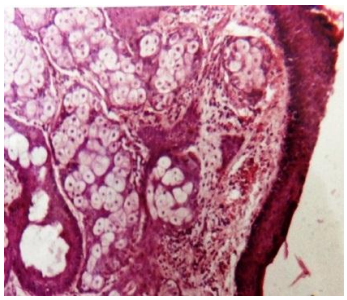


Figure 8: Dermoid cyst(H&E10X)

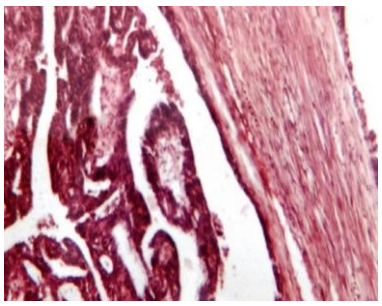


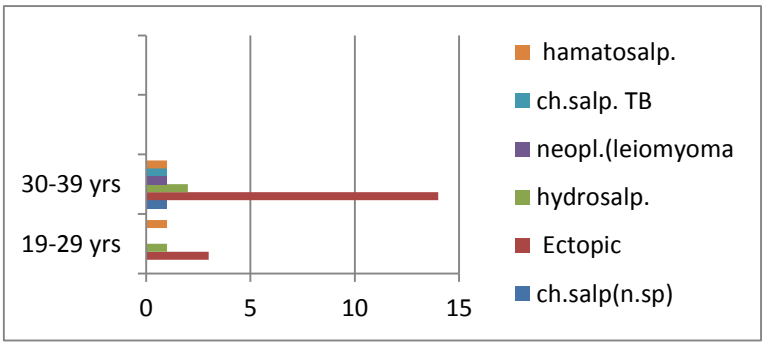
Figure 9: Serous cystadenocarcinomaovary(H&E 40X)

Tubal Lesions

Twenty five lesions involving fallopian tube include 17(68%) ectopic pregnancies,2(8%) inflammatory lesions,3(12%) hydrosalpinx,2(8%) hematosalpinx and 1(4%) case of atypical leiomyoma (Fig.3,4 and5).Two cases received as tubal pregnancy were proved of abdominal gestation on histological examination, so these are included in tubal lesions.T he inflammatory lesions include one tuberculoussal pingitis and one case of non-specific salpingitis.

Age Incidence (shown in Bar Chart no.1)

Bar chart no.1



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Ectopic pregnancy

There were a total of 17 ectopic pregnancies (Fig.1),out of which 15 cases(88.89%) of tubal gestation while in 2 cases, both fallopian tubes as well as ovaries were uninvolved, thus they were presumably diagnosed as abdominal pregnancies.

Out of these 15 cases of tubal gestation, three were showing rupture while 12 were having unruptured tubes. Amongst unruptured ectopic pregnancies,8 out 12 cases were in 4th decade of age, while 4 cases were in 3rd decade.

Amongst the ruptured 3 cases of ectopics, only one case who had 2nd trimester pregnancy of 20 weeks gestation, was 35 years old while both other cases were in 3rd decade, being 21 yeaes & 24 years old respectively.

Clinical Presentation: As shown in table no.3

In three cases who had ruptured ectopic there was acute catastrophe. The dull aching pain which they had, suddenly go acute exacerbation, two out of these 3, also had associated feeling of fainting and marked restlessness. Anemia and feeble pulse were the features in the three cases who had ruptured advanced ectopic. Two cases amongst unruptured had sudden exacerbation, were found to have torsion.In two cases of abdominal pregnancy, besides pain and tenderness, there were urinary and GIT disturbances. The feeling of mass in the adnexa, was not that clear.

Radiological findings in tubal ectopic pregnancy

Out of 15 cases, ultrasound was done in 10 cases of tubal gestation, all these 10(100%) cases showed adnexal mass. In 5 cases, the diagnosis was made predominantly on clinical bases and surgery was done on emergency ground.

In addition, 2 cases had torsion on USG one case had shown rupture of ectopic while in other 2 cases it was missed. Ultrasonography also revealed fluid in cul-de-sac in two cases, one of which was tubal ectopic while the other was abdominal.HCG levels were found to be raised in the patients of tubal ectopics investigated for it.

On laparoscopy fluid was found in pouch of Douglas in one case only.

Other lesions of tubes

As shown in bar chart no.1.Two cases of chronic salpingitis, out of which one was non-specific and other had tuberculous pathology (Fig.no.2). In both the cases tenderness and vaginal discharge was present.

Table 1: Ovarian Lesions: A. Non-neoplastic (n=21):

Lesion	No.of cases	Percentage
Oophoritis(non-sp.)	1	2.2
Simple serous cyst	15	33.33
Theca luteal cyst	2	4.44
Follicular cyst	3	6.66

B. Neoplastic (n=24)

Lesion	No. of cases	Percentage
Common epithelial tumour	12	26.66
Sex cord tumour	3	6.66
Germ cell tumour	9	20
Total	45	100

* There was no case of metastatic tumour or any other miscellaneous neoplasm.

There was no proved case of ectopic ovarian pregnancy although clinically 2 cases were? Ovarianectopics

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Clinical features of the ovarian tumours

Maximum number of the ovarian tumours presented with mass abdomen and pain abdomen, followed by abnormal bleeding per vaginum, asites, GIT disturbances and urinary disturbances.

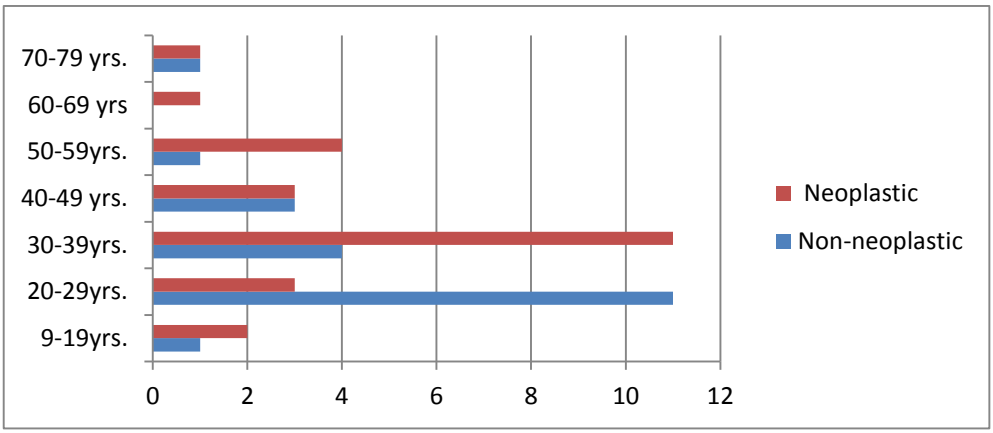
Table 2

Signs and symptoms	Benign	Malignant
Mass abdomen	70.83%	29.17%
Pain abdomen	61.28%	12.5%
Abnormal bleeding P/V	20.83%	4.16%
Urinary disturbances	4.16%	-
GIT disturbaces	4.16%	
Ascites	20.83%	12.50%
Weight loss	4.16%	4.16%

Age Incidence of ovarian tumours (Bar chart no.2)

The youngest patient was 9 years old having juvenile type of granulosa cell tumour while the oldest was 60 years with papillary serous cystadenocarcinoma (Fig.9) associated with hydrosalpinx.

Bar chart no.2



Gross examination of ovarian tumours

There were 24 cases of ovarian tumours. Most of benign tumours (19 in number) showed cystic (10), mixed (7) and remaining 2 were solid, while all the malignant tumours showed mixed variety.

Out of these 24 tumours, 12 were epithelial, 9 germ cell and 3 were sex cord tumours. No metastatic tumour was recorded in this study.

DISCUSSION

Combined study of lesions of both tubes and ovaries as tubo-ovarian mass is very rare. Clinical and pathological features of such lesions were recorded and compared with other studies. During specified period of time, out of total 75 cases, pure ovarian lesions were found in 45 cases, 25 pure tubal lesions (17i.e15+2 were ectopic pregnancies) and 5 were combined tubal and ovarian lesions.

Ectopic gestation

Jones 1970 quoted the split of ectopic pregnancies as 99% in fallopian tubes, 0.5% in ovaries and 0.1% in abdominal cavity.[6]

Seventeen ectopic gestations in the present study include 15 tubal (88.89%) and 2 abdominal (11.11%) pregnancies. Out of total 3463 pregnancies recorded during the specified period, these 17 ectopics constitute 0.49% or 4.9/1000.

The rate of tubal pregnancy(15 out of 17 ectopic i.e 88.89%),in the present study, is very near to study of Jones.11.11% abdominal pregnancies are more as compared to 0.1% quoted by Jones.[6] Two percent frequency of ectopic pregnancy observed by Sepilian is almost comparable to 0.49% as observed in the present study.[1]

Clinical presentation

Table 3: Signs and symptoms in ectopic gestation(comparative)

Symptoms	Present study(2002)		Jones 1970	Sepilian 2001
	No. of pat.	%age		
Pain	15	100	90%	75%
Mass abdomen	11	73.33	70%	50%
Vaginal bleeding	8	53.33	75%	40-50%
Amenorrhea	6	40	80%	-
Positive Ur. HCG	2	13.33	75%	
Syncope	3	20	-	20%

The patient may start with amenorrhea with sign and symptoms of usual pregnancy. In the present study, only 6(40%) patients had such signs and symptoms. According to Jones upto 80% pregnant women had these signs and symptoms.[6]

Pain abdomen is the main symptom of tubal pregnancy and tenderness in the right iliac fossa is almost always present. In the present study 100% had pain and tenderness. Jones quote it in 90% cases while Sepilian quotes pain in 75% cases as presenting symptoms of ectopic gestation. Other comparative parameters are shown in the table no. 3 above.[1,6]

Table 4: Incidence of Ectopic Pregnancy

Author	Year	Incidence
Jones	1970	1 in 150 pregnancies in developing countries and 1 in 250 pregnancies in developed countries.
Saxon et al[7]	1997	1.97 ectopic pregnancy/1000 preg.
Sepilian	2001	2% of all pregnancies
Present study	2002	4.9 ectopic/1000pregnancies

Table 5: Site of ectopic pregnancy

Author	Year	F . Tube	Ovary	Abd.cavity
Jones	1970	>99%	0.5%	0.1% Cx+Ovaries
Sepilian	2001	>80%	1.4%	0.2%
Present	2002	88.89%	-	11.11%

In addition two patients had evidence of torsion in the present study. There were 3 patients who had rupture. One of these patients had pregnancy going upto 2ndtrimester.This patient had a big mass of 20 weeks of gestation, which undergone rupture later on and showed signs and symptoms of shock.

Radiological findings

All the patients of ectopics had evidence of adnexal mass on ultrasound. Two patients had fluid in cul-de-sac and 2 presented with ruptured ectopic with torsion.

Trends in using tools of early diagnosis of ectopic

Slight enlargement of uterus with no gestational sac associated with irregular adnexal mass, ectopic fetal head and fluid in cul-de-sac constituted essential criteria for the diagnosis of ectopic gestation on USG.[8]

Thomas et al recorded pregnancy test was positive in 73% cases of ectopic.[8]In the present study urinary HCG was +ve only in two cases .In rest of the cases, the test was either not done because of clinical and sonographic data helping for deciding surgical intervention or it was negative.

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So, early diagnosis of ectopic pregnancy has helped a lot in reducing the mortality and morbidity. Diagnosis of ectopic before rupture, is a very healthy approach in any institution.

After working out for clinical diagnosis the subjects in the present study were subjected to ultrasonology. All the 15 patients of tubal pregnancyhad T.O. mass from which 3 cases had evidence of rupture. All other 12 tubal gestations were diagnosed and operated before rupture. In addition, one patient had evidence of torsion on ultrasound and one patient had radiological evidence of rupture. Thus there were some discrepencies in ultrasound and histopathology because one patient had shown rupture and 2 had not shown evidence of rupture on ultrasound.

Other lesions of fallopian tube

Vaginal discharge and pelvic tenderness in salpingitis, in the present study coincides with the study of Meiner, who reported these symptoms in>90% of cases of salpingitis.[9]

There was one case of leiomyoma(bizarre type as shown in bar chart no.1). Stringer reported a single case of fibromyoma.[10] These tumours are usually single. Walia et al. reported a single case of fallopian tube carcinoma, and observed that this carcinoma may be missed clinically or on Pap/per speculum examination.[11]

Ovarian tumours

In this study, the incidence of ovarian cancer was 4.54% of all malignant lesions i.e 110 malignancies recorded from all over the body during the study period. This finding coincides with the findings of Madan et al. and Sepilian who reported the malignancy rate as 4.6% and 4% respectively.[1,12]

Table 6: Comparative study of ovarian tumours

Author	Year	% of Benign	% of malign.
Tyagi et al.	1967	75.83	24.17
Mukherjee et al.	1991	63.5	36.5
Present study	2002	79.17	20.33

***** Benign tumours mostly outweighs the malignant 2-4 times.

Table 7: Comparative incidence of individual category of ovarian tumours:

Author & Year	Epithelial	Germ cell	Sexcord stromal	Metast.	Misc.
Tyagietal.1978[13]	63.84	23.84	7.69	5.38	-
Mukherjee et al. 1991	58.2	31.5	6.8	2.8	0.7
Present study 2002	49.97	37.5	12.4	-	-

Mukherjee et al. reported 20.5% as benign serous and 31.5% as mucinous benign tumours.[14] Maheshwari et al. had reported 32.46% as benign serous tumours and 14.53% as mucinous benign tumours.[15]In the present study, benign serous and mucinous tumours were of the order of 4.16% and 20.83% respectively.

In the present series, the incidence of Brenner tumour (Fig.6) was 4.16%, while Prabhakar & Maingi, Mukherjee et al. and Maheshwari et al. have observed the incidence of Brenner tumour in the tune of 0.47,1.05% and 0.77% respectively.[14,15,16]

Prabhakar & Maingi in their study of 636 ovarian tumours, had observed 142 cases of teratoma constituting 22.32% of the study. Out of these 20.44% were mature teratoma,0.94% were strumaovarii and immature teratomaeach, and 0.15% were cases of carcinoid.[15] The study of 285 cases had observed 70(24.56%) cases of teratoma out of which 63(22.10%) were benign cystic,1(0.35%) solid benign and 6 cases(2.11%) of malignant teratoma [14].

Benign cystic teratoma (Dermoid cyst) was observed in 9 out of 24 cases in the present study constituting 37.5% of the study (Fig.7&8)

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Prabhakar & Maingi and Mukherjee et al. had reported 28(out of 636) cases and 6(out of 285) cases of granulosa cell tumours constituting 4.40% and 3.31% of all ovarian tumours respectively.[14,16]

In the present study there were 3 cases of sex cord stromal group constituting 12.48% of the study. There was 1 case of malignant granulosa cell tumour and and one case of leiomyofibroma.

Table 8: Comparative age groups of ovarian tumours

Author	Year	Commonest Decade	%age in that decade	Range of age in years
Prabhakar and Maingi	1989	3rd	26.4	35-75
Mukherjee et al	1991	3rd	40.3	25-74
Present study	2002	4th	41.61	9-75

Table 9: Clinical Presentation

Sign and symptoms	Gupta et al.(1986) Overall symptoms (inbenign&malign.)	(Present study 2002)	
		Benign tumours	Malign.Tumours
Mass abdomen	60.57%	70.83%	29.1%
Pain abdomen	-	61.28%	12.5%
Abnormal bleeding	40.20%	20.83%	4.16%
Urinary disturbance	4.2%	4.16%	---
GIT disturbance	10.1%	4.16%	---
Ascites	---	20.83%	12.50%
Weight loss	---	4.16%	4.16%

Table 10: Gross appearance of ovarian tumours

Author and Year	Percentage of Benign			Percetage of Malignant		
	Cystic	Solid	Mixed	Cystic	Solid	Mixed
Gupta et al.1986	76.2	2.4	21.5	6.7	44.1	49.2
Prabhakar and Maingi 1989	88.35	7.45	4.2	0	18.92	71.4
Present Study 2002	41.66	8.33	29.16	0	0	100

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