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Annual Clinicopathological Analysis of Ovarian Tumours at TUTH

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Abstract

Objectives: To determine the incidence, epidemiological factors and clinical presentations of different types of ovarian tumours and their correlation with histopathology.

Methods: A descriptive study was conducted in Teaching Hospital, Kathmandu, Nepal in the Department Of Obstetric and Gynaecology from 13th April 2007 to 12th April 2008.

Results: Of the total one hundred and forty six adnexal masses, only 102 were histopathologically proven as ovarian tumours while one was unapproved due to torsion leading to infarction of all ovarian tissues. Benign tumours comprised of 74 (74.5%), borderline 3 (2.9%) and malignant 23 (22.5%). Mature cystic teratoma, 40.7% was the commonest benign tumour, whereas serous cystadenocarcinoma (8.7%) was the commonest ovarian malignancy. Age ranged from 10 to 76 years. Abdominal discomfort, 22.3% was the commonest presentation followed by abdominal mass (17.5%).Torsion was observed in 6.8%. Size of the tumour ranged from 2.5 cm to the largest of giant tumour size of 45 cm. Majority of benign tumours 59 (77.6%) had unilateral distribution while more than half malignant 12(52.1%) ones were bilateral. Most cystic tumours 79(76.6%) were benign and all the mixed tumours 13(12.6%) observed were malignant. Majority of malignant epithelial tumours presented in late stage of disease where as germ cell tumours presented in early stage.

Conclusion: The commonest ovarian tumour was epithelial followed by germ cell. Mature cystic teratomas were predominant in benign group and serous cystadenocarcinomas in the malignant group. Abdominal discomfort was the major symptom presented by malignant epithelial tumours. Malignant germ cell tumours were presented in earlier age group whereas malignant epithelial tumours more prevalent in postmenopausal group.

Key words: Ovarian tumours, histopathology, epithelial, germ cell, benign, borderline malignant.

Introduction

Ovarian cancer is the second most common genital tract malignancy accounting for 25% gynaecological malignancies. It accounts for 6-7.5% of all cancers and is the fifth most common form of malignancy in women in the United States or sixth worldwide being highest in the Scandinavian countries (14.9/100,000) and lowest in Japan (2.7/100,000).[1-4] It is one of the leading cause of death from gynaecological malignancies, approximately in 50% of deaths that occurs at all the age. [5]

A detailed study on this subject in Nepal has not been conducted to the best of our knowledge this study titled "A clinicopathological analysis of ovarian tumours was undertaken to study the incidence and clinicopathological correlation of ovarian tumours.

Methods

A descriptive study of one year duration (13th April 2007 to 12th April 2008) was conducted in the Department of Obstetrics and Gynaecology. IOM, TUTH on all the cases of ovarian tumour admitted during the period.

Results

Of the total of 926 gynaecological admissions, adnexal masses were 146. In which 103 were ovarian tumours and non tumourous conditions were 43. Of the total 103 ovarian tumours, histopathologically proven

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Table 1. Types of ovarian tumours according to age

Ovarian tumour	Types	10-19yrs	20-29yrs	30-39yrs	40-49yrs	50-59yrs	60-69yrs	>70yrs
Epithelial	Benign	1	7	10	6	4	2	2
(N=51)	Borderline				2		1	
	Malignant		2	3	3	3	4	1
Sex Cord	Benign						1	
(N=2)	Malignant						1	
Germ cell	Benign	7	14	13	6	3		
(N=47)	Malignant	2	1			1		
Miscellaneous	Benign							
(N=2)	Malignant		1		1			

Table 2a. Clinical features with the type of ovarian tumours.

C/F	Total no	Types of ovarian tumour	Benign	Borderline	Malignant
Mass per abdomen	2	Serous	2		
N=18 (17.5%)	5	Mucinous	3	1	1
	1	YST			1
	8	MCT	8		
	1	MCT with malignant trans formation			1
	1	Mixed germ cell			1
Abdominal discomfort	12	Serous	4	1	7
N=23 (22.3%)	3	Mucinous	2		1
	2	Endometroid			2
	1	YST			1
	5	MCT	5		
Acute pain abdomen	2	Serous	2		
N=7(6.8%)	2	Mucinous	2		
	3	MCT	3		
Acute on chronic pain	1	Inconclusive			
N=1(0.9%)					
Chronic pain abdomen	3	Serous	2		1
N=16(15.5%)					
	2	Mucinous	1		1
	2	Endometroid			2
	8	MCT	8		
	1	Monodermal	1		

Table 2b. Clinical features with the type of ovarian tumours

C/F	Total no	Types of ovarian tumour	Benign	Borderline	Malignant
Gastro intestinal	3	Serous	2		1
symptoms	1	Mucinous	1		
N=14 (13.6%)	9	MCT	9		
	1	Krukenberg			1
Menstrual	1	Brenner	1		
disturbance	1	AGCT			1
N=4 (3.9%)	2	MCT(in association with adenomyosis)	2		
Dysmenorrhoea	3	Serous	3		
N=3 (2.9%)					
Pressure symptoms	1	Serous	1		
N=2 (1.9%)	1	MCT	1		
Incidental	5	Serous	4	1	
N=11 (10.7%)	5	MCT	5		
	1	Krukenberg			1
Asymptomatic	3	MCT	3		
N=5 (4.9%)	2	Serous	2		

ovarian tumours were 102, one was unproven due to necrosis of ovarian tissue as a result of torsion.

Benign ovarian tumours were 76 (74.5%), borderline, 3 (2.94%), and malignant ovarian tumours were 23 (22.5%). The commonest ovarian tumour observed was epithelial 51 (50%) followed by germ cell tumour 47 (46.08%) out of 102 histopathologically proven ovarian tumours. Mature cystic teratoma 42 (55.3%) was the commonest benign ovarian tumour. Serous cystadenocarcinoma 9 (39.1%) was the most common malignant tumour.

Benign epithelial tumours 10 (19.6%) were most prevalent in the age range of 30 – 39 years. Malignant epithelial tumours 4 (7.84%) were most prevalent in the age range of 60-69 years. Both sex cord stromal tumours were observed in postmenopausal age group. Majority of the benign germ cell tumours 14 (29.8%) were prevalent in 20-29 years and 2 out of 4 malignant tumours were observed in 10-19 years. Miscellaneous tumours comprising of krukenberg were observed in the reproductive age group. (Table1)

Acute abdominal pain (6.8%) due to torsion was presented by 9.2% of benign ovarian tumours while in one case; there was acute exacerbation on chronic pain, also due to torsion of the pedicle. HPE was inconclusive due to infarction and necrosis of the ovarian tissues. Forty eight percent of the malignant tumours presented with abdominal discomfort followed by chronic pain abdomen (17.4 %) and mass per abdomen (17.4%). (Table 2 a/b)

Out of 16 malignant epithelial tumours, had presented with abdominal discomfort and majority (N=9) presented in advanced stage of disease. (Table3 a/b) Majority of germ cell tumours, 3 out of 4 presented with mass abdomen. All of the malignant germ cell tumours of ovary presented in early stage (Stage I A –IC)

Maximum numbers of benign tumour were less than 10 cm and malignant were more than 10 cm.

Smallest size (2.5cm) of the tumour observed was serous cystadenoma while the largest of giant size (45x36cm) was seen in a mucinous cystadenocarcinoma. Majority of benign tumours 59(77.6%) had unilateral distribution.Of the total of 23 malignant ovarian tumours, 12(52.1%) had bilateral distribution. Total numbers of cystic tumours observed were 79 (76.6%).Majority of cystic tumours 74(93.7%) were benign and 3(3.8%) were of borderline type. Only 2.5% of malignant ovarian tumours (mucinous cystadenocarcinoma) were cystic in nature. Total number of mixed ovarian tumours were 13 (12.6%).All of the mixed ovarian tumours were of malignant type Total numbers of solid tumours were seen in 4 (3.9%). Of the solid tumours half (50%) were malignant and half (50%) were benign.

Table 3a. Clinical details of malignant epithelial ovarian tumours

Types of tumour	Age (yrs)	Symptoms	Surgical Stage of tumour	Types of surgery	F/u
Serous cystadeno Ca (N=9)	32	Abdominal discomfort	IIIC	Staging TAH BSO with omental biopsy	CT(PC)
	34	Abdominal discomfort	IV	Staging laparotomy with omental biopsy	CT with Interval cytoreduction
	41	"	IIIC	"	"
	42	"	IIIC	"	expired
	53	Menstrual disturbances (Association with fibroid)	IA	TAH BSO	No F/U
	55	G.I.symptoms	IIIB	Staging TAH BSO with mental biopsy	CT (PC)
	60	Abdominal discomfort	IB	Staging TAH BSO with omental biopsy	No F/U
	64	Abdominal discomfort	IV	Operation not done	Expired at CCU
	65	Abdominal discomfort	IIIC	Staging laparotomy with omental biopsy	CT(PC)
Mucinous cyst adeno Ca (No=3)	22	Abdominal Discomfort (pregnancy)	IA	USO+LSCS	CT(PC) Interval cytoreduction
	32	Mass+UVP	IA	VH PFR with enucleation of cyst	No F/U
	76	Abdominal Discomfort	IA	Staging TAH BSO with omental biopsy	No F/U
Endometroid Ca (N=4)	29	Abdominal discomfort	IA	USO	Staging TAH BSO with omental biopsy
	42	Abdominal discomfort	IIIC	Staging with omental biopsy	CT (Bharatpur)
	46	Pain abdomen	IIIC	Staging TAH BSO with omental biopsy	CT(PC)
	58	Pain abdomen	IC	Staging TAH BSO with omental biopsy	No F/U

Table 3b. Clinical details of sex cord stromal, malignant germ cell and Krukenberg tumours

Types of tumour	Age(yrs)	Symptoms	Stage of tumour	Types of surgery	F/u
Adult GCT (N=1)	60	Menstrual disturbances	StagingTAH BSO with omental biopsy	No F/U	
YST (N=2)	12	Mass abdomen	IA	USO+omental biopsy	CP (BEP)
	14	Abdominal discomfort	IC	USO with omental biopsy	CP (BEP)
Mixed Germ Cell (N=1) YST 90%+MCT-10%	20	Mass abdomen	IA	USO with omental biopsy	No F/U
MCT.malignant transformation (N=1)	50	Mass abdomen	-	StagingTAH BSOwith omental biopsy	No-F/U
Krukenberg (N=2)	47	G I symptoms	IB	StagingTAH BSO with omental biopsy	F/U at Bharatpur
	25	incidental	IC	StagingTAH BSO with Omental biopsy	CT(PC)

Table 4. Ovarian tumours associated with other gynaecological pathology

Clinical conditions	Types of Ovarian Tumours	Benign	Malignant	borderline	No
Fibroid Uterus	Serouscysadenoma	1	1		4
	MCT	2			
Adenomyosis	MCT	2			2
UVP	Serous cystadenoma	1			2
	Mucinous cys adeno Ca		1		
Pyometra due to Ca cervix (endometroid adeno Ca)	Serous cystadenoma	1			1
Total		7	2		9

Benign ovarian tumours like serous cystadenoma was associated with endometroid adenocarcinoma of cervix, while ovarian malignancy like serous cystadenocarcinoma and mucinous adenocarcinoma was associated with fibroid uterus and uterovaginal prolapse respectively. (Table 4.)

Tumour associated with pregnancy was found in 21 to 39 years, in primi (55.5%) and multipara which were discovered in 5 to 39 weeks period of gestation, the nature of tumour being benign (88.8%), their presentation being torsion 44.4%. There was a case mucinous cyst adenocarcinoma in pregnancy.

Discussion

The incidence, clinical appearance and the behavior of the different types of ovarian tumours are extremely variable. It becomes difficult to diagnose the nature of the ovarian tumours pre-operatively only on the basis of clinical examination, serum markers, imaging, peritoneal fluid cytology indicating the necessity of histopathological correlation.

Also all the tumor like conditions are not ovarian tumours, thus pointed by this study, 102 being the histologically proven ovarian tumours, 43 of the adnexal masses being non neoplastic cystic lesions like endometroitic cysts, fimbrial cyst, corpus luteal cyst, follicular cysts, and hydatid cyst, those being excluded from the study.

Histological types of ovarian tumours

Benign ovarian tumours accounted for 76 (74.5%) followed by malignant ovarian tumours 23(22.5%) and borderline tumours 3(2.94%) and similar findings have been quoted.[6-8] Epithelial tumours accounted for 51 (50%), followed by germ cell tumours 47 (45.08%), sex cord stromal tumours and miscellaneous tumours of 2(1.96%) each which coincided to others. [6,9]

Among the benign tumours, serous cystadenoma (43.1%) was the commonest benign epithelial tumour followed by mucinous cystadenoma (17.6%) that goes in favour with other study.[10] Boderline tumour are also noted as in other studies. [11-13.] Mucinous cystadenocarcinoma has been reported as the next common epithelial malignancy following serous cystadenocarcinoma. [12-14.]

Sex-cord stromal tumours, like Fibroma and Granulosa cell tumour are rare [15, 16]

Mature cystic teratomas 42(89.3%) is by and large the most common Germ cell ovarian tumor as alignment with other studies.[15,17-19] Monodermal tumour comprising Struma ovarii accounted for 2.1% in our study.[20-21] Malignant transformation of mature cystic teratoma or squamous cell carcinoma arising a in MCT is a rare finding quoted to be 1-2% was seen in our study too.[22] While yolk sac tumour (4.25%) was noted as the most common malignant germ cell tumour, 8% of malignant germ cell tumours were mixed, mixture formed by dysgerminoma and endodermal sinus tumour.[23] Present observation showed 90% of endodermal sinus tumour with 10% of mature cystic teratoma in a case of mixed germ cell tumour.
Secondary Krukenberg tumours (1.94) came as an interesting finding.

Types of ovarian tumours according to age

Ovarian tumours can occur at all age ranging from 7 months to seventy two years in ours it was 11 years to 76 years (Table 2). [24,25] Both the sex cord stromal tumours were found in postmenopausal age group. In contrary to the epithelial ovarian tumours, malignant germ cell tumours occurred at a premenarchal age.[26] Sqamous cell carcinoma arising in mature cystic teratoma (MCT) was observed in 57 year. [27] Of the two Krukenberg tumours, both were seen under 50 and at late age.[28]

Clinical presentation

Incidental findings were seen in 8.7% of the tumours, one of them being a case of Krukenberg in her follow

up, who had completion of chemotherapy for adenocarcinoma of stomach. Rest of the incidental findings were during caesarian section, laparatomy for ectopic pregnancy and general health check up (pelvic examination and USG).

Abdominal pain / discomfort, bloating sensation, GI upsets, and pressure symptoms as urinary frequency, constipation, palpable mass major presentations. [29] Because of endometrial hyperplasia, atypia, and endometrial carcinoma Granulosa cell tumour presented with postmenopausal bleeding.[30] Majority of malignant germ cell tumours were presented with mass per abdomen while abdominal mass is more likely a presentation. [26]

Size of the tumour

Size of the tumour as big as 45 cm in the present study in a case of mucinous cytadenocarcinoma stage IA measuring 45x38 cm in a 76 years old lady and mucinous cystadenoma measuring 35x45x50 cm denoting giant cell tumour.[31]

U/L or B/L distribution of ovarian tumour

Benign ovarian tumours (77.6%) were unilateral and malignant (52.1%) were bilateral.

Consistency

Of the cystic tumours, 93.7% were benign. Mature cystic teratoma 53.4% was the commonest although Mucinous cystadenocarcinoma (2.5%) formed little exception. Half of the solid tumours were benign Brenner and Fibroma one each. Mixed consistency was also malignant and the only solid tumours was Krukenberg tumours.[32]

Ovarian tumours associated with pregnancy

The incidence of ovarian tumours during pregnancy is 0.22% which is comparable to other series.[33-35]

Acute abdomen (77.7 %) was the presentation due to torsion (44.4%). Ovarian malignancy is the second commonest gynaecological cancer detected during pregnancy.

Conclusion

The commonest ovarian tumour was epithelial followed by germ cell. Mature cystic teratomas were predominant in benign group and serous cystadenocarcinomas in the malignant group. Abdominal discomfort was the major symptom presented by malignant epithelial tumours. Malignant germ cell tumours were presented in earlier age group whereas malignant epithelial tumours more prevalent in postmenopausal group.

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