

# Borderline and Malignant Epithelial Ovarian Carcinoma At Maharaj Nakorn Chiang Mai Hospital: A Retrospective Study of Epidemiology and Basic Characteristics

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**Abstract :** *This study reported on 324 cases of borderline and malignant common epithelial tumours treated at Maharaj Nakorn Chiang Mai Hospital over a nine-year period from 1984-1992. The mean age of patients was  $48.8 \pm 13.3$ . Most common presenting symptoms were abdominal pain or abdominal mass and 54.3% of the patients were diagnosed in the advanced stage. Mucinous tumour was the most common cell type (35%), but serous and endometrioid (60%) carcinoma were found in the more advanced stage and had a higher incidence of bilaterality and a higher incidence of ascites than other cell types. (Thai J Obstet Gynaecol 1994; 6: 7-15)*

**Key words :** ovarian carcinoma, epithelial tumors, epidemiology

Ovarian cancer which appears to be increasing in incidence, presents one of the most frustrating problems in gynecology. In the United States, this disease is the sixth most common female cancer<sup>(1-3)</sup>, the fourth most common cause of female cancer death<sup>(2)</sup> and the leading cause of gynecologic cancer death, accounting for 52% of all deaths due to gynecologic malignancy<sup>(2,4)</sup>.

Concerning gynaecology, ovar-

ian cancer is the second most common cancer after cervical cancer in Thailand<sup>(5-7)</sup>. Regarding histological type, common epithelial cancer account for 80-90% of all ovarian cancer in Western countries<sup>(8-9)</sup>, while comprising 70-76% in Japan<sup>(10)</sup>. The epidemiology and distribution of histological type of ovarian cancer varies from one ethnic group to another. Few information is available regarding epithelial ovarian carcinoma for nor-

therners in Thailand, hence, the objective of this study was to report on the epidemiology, the clinical characteristics, the distribution of histological type and stage of the diseases of borderline and malignant common epithelial tumours at Maharaj Nakorn Chiang Mai Hospital over a nine-year period.

## Materials and Methods

This study comprises all cases of primary epithelial ovarian cancer treated at Maharaj Nakorn Chiang Mai Hospital between January 1984 and December 1992. All patients had exploratory laparotomy with histologically proven epithelial carcinoma and were classified according to WHO classification<sup>(11)</sup> and FIGO staging (1987) of ovarian cancer<sup>(12)</sup>.

Information was collected from medical records and questionnaires recorded by the social worker who were responsible for the gynaecological cancer registry.

In the nine year-period, there were 433 new cases of primary ovarian cancer. Of these, 324 cases diagnosed as borderline or malignant epithelial tumours were analysed in this study.

## Results

During the period of study, 5040 cases of gynaecologic cancer were registered. Ovarian cancer was the second most common gynaecologic cancer accounting for 433 cases

or 8.6% of primary genital cancer.

Common epithelial tumour was the most common type, comprising 74.8% (324 cases) of all ovarian cancer. The rest were germ cell tumors, sex cord stromal tumours and unclassified type which accounted for 17.8% (77 cases), 6.2% (27 cases) and 1.2% (5 cases) respectively.

Of the 324 cases of borderline and malignant epithelial tumours studied, almost all patients (321 cases or 99.1%) were from different provinces in the Northern part of Thailand and 40.4% (131 cases) were from Chiang Mai province. However, only 49.1% (159 cases) were operated on at Maharaj Nakorn Chiang Mai Hospital, and 50.9% (165 cases) were operated on at other hospitals prior to referral to our hospital for further treatment after definite diagnosis.

The age distribution of the patients ranged from 15-82 years with the mean age of  $48.8 \pm 13.3$  years. More than half of the cases (52.2%) were between 40-60 years and 49.4% were in the post menopausal stage. Most of the patients (82.4%) were married and 25.6% were nulliparous. Determining the occupation of the patients, about 34% were agricultural workers and 20% were laborers. (Table 1)

Most patients presented with abdominal mass or abdominal pain (87%), only 3.1% presented with abnormal vaginal bleeding and 6.1% had no symptom and were diagnosed during their annual check up. Other less common symptoms were diffi-

**Table 1** *Characteristics of the patients (n=324)*

Characteristic	Number	Percent
<i>Age (year)</i>		
10-19	5	1.5
20-29	24	7.4
30-39	54	16.7
40-49	70	21.6
50-59	99	30.6
60-69	57	17.6
70-79	14	4.3
80-89	1	0.3
Mean age $\pm$ SD=48.8 $\pm$ 13.3	Range 15-82 years	
<i>Menopause</i>		
Yes	160	49.4
No	164	50.6
<i>Marital Status</i>		
Single	47	14.5
Married	267	82.4
Not stated	10	3.1
<i>Parity</i>		
0	83	25.6
1-2	95	29.4
3-4	56	17.3
5-6	38	11.7
7-8	23	7.1
9-10	11	3.4
>10	8	2.4
No data	10	3.1
Mean parity $\pm$ SD=2.91 $\pm$ 2.97	Range 0-14	
<i>Occupation</i>		
Agriculturer	110	33.9
Labourer	67	20.7
Merchant	42	13.0
Housewife	23	7.1
Government officer	19	5.9
Dependent (Children, elderly)	63	19.4



**Table 2** *Main symptoms of the patients*

Main Symptom	Number	Percent
Abdominal mass	152	46.9
Abdominal pain	130	40.1
Abnormal vaginal bleeding	10	3.1
Others	6	1.9
No symptom (check up)	6	1.9
No datum	20	6.1
Total	324	100.0

Others: difficulty in urination, enlargement of supraclavicular lymph node, weakness.

**Table 3** *Distribution of histological type of tumours*

Histological Type	Borderline	%	Malignant	%
	Number		Number	
Serous	4	16.7	90	30.0
Mucinous	20	83.3	105	35.0
Endometrioid	-	-	40	13.3
Clear cell	-	-	17	5.7
Brenner	-	-	1	0.3
Mixed type	-	-	8	2.7
Adenocarcinoma (not defined)	-	-	39	13.0
All	24	100.0	300	100.0

culty in urination, enlargement of supraclavicular lymph node or weakness. (Table 2)

Among the malignant tumours, mucinous tumour was the most common histological type (35.0%). Serous tumour and endometrioid tumour ranked the second and the third respectively, (30.0% and 13.3%). Of all cases studied, borderline tumour accounted for 7.4% and mucinous tumour was also the most common type in the borderline group (83.3%). (Table 3)

More than half of the patients

(54.3% or 163 cases) were admitted in advanced stage (Stage III or IV) and only 33.3% (100 cases) were in stage I. If histological type was considered, percentage of the patients in stage I with clear cell and mucinous carcinoma tended to be higher than those of serous and endometrioid carcinoma. Therefore, the percentage of patients in the advanced stage appeared to be higher in endometrioid and serous carcinoma than those of other types. However, all patients with borderline tumours were stage I. (Table 4)

Table 5 shows that malignant



**Table 4** *Stage of diseases by histological type*

Histological Type		Stage of Disease (%)				
		I	II	III	IV	Unknown
Serous carcinoma	(n=90)	31.1	8.9	50.0	5.6	4.4
Mucinous carcinoma	(n=105)	40.9	2.9	44.8	7.6	3.8
Endometrioid carcinoma	(n=40)	25.0	12.5	47.5	12.5	2.5
Clear cell carcinoma	(n=17)	41.2	23.5	23.5	-	11.8
All malignant tumours	(n=300)	33.3	7.7	46.0	8.3	4.7
All benign tumours	(n=24)	100.0	-	-	-	-

common epithelial tumours had the mean age of  $49.0 \pm 13.1$  years which tended to be a little higher than  $45.7 \pm 15.6$  of borderline groups. In addition, the higher the stage of the disease, the older the mean age of the patient. In the malignant tumour group, mucinous and clear cell tumours appeared to be found in the younger age group (mean age  $44.7 \pm 13.5$ ,  $44.5 \pm 13.0$ ) compared to serous and endometrioid tumours ( $50.0 \pm 12.1$ ,  $52.7 \pm 10.9$ )

Ascites tended to be more common in more advanced stages of the diseases. Endometrioid carcinoma seemed to be associated with ascites more frequently than any other cell type (57.5%), while clear cell carcinoma presented with ascites in only 29.4%. (Table 5)

In malignant tumours, ovaries were bilaterally involved in 34% and the right ovary seemed to be more frequently involved than the left. Bilateral involvement in stage I was 11.0% and appeared to be higher in the more advanced stage. Endometrioid and serous carcinoma involved both ovaries more frequently

than either clear cell or mucinous carcinoma. In all cell type except for endometrioid carcinoma, the right ovary seemed to be involved more commonly than the left ovary. With regard to the borderline tumours, bilaterality was found in 8.3% and the left ovary appeared to be involved more common than the right one. (Table 5)

Table 5 also shows that there was no difference in the size of the tumour compared by stage but considering histological type mucinous tumours appeared to be larger in size. The mean size of tumours in the malignant group was smaller than that of borderline group ( $15.1 \pm 6.7$  versus  $19.5 \pm 10.4$ )

## Discussion

The incidence of ovarian cancer varies from one ethnic group to another<sup>(4)</sup>. In developed countries, ovarian cancer is the second most common gynaecologic malignancy after endometrial cancer, comprising about 26% of all gynaecologic cancer<sup>(4)</sup>. This cancer is also the second

Table 5 Mean age of the patient, Presence of malignant ascite, Laterality of ovary involved and mean size of ovarian tumour in different group

Characteristic	Stage of Malignant Tumour				Histological Type			
	I (n=100)	II (n=23)	III (n=138)	IV (n=25)	Serous Ca. (n=90)	Mucinous Ca. (n=105)	Endometrioid Ca. (n=40)	Clear cell Ca. (n=17)
All malignant tumours (n=300)								
All borderline tumours (n=24)								
Mean Age Of The Patient (years)								
Mean ± SD	45.7 ± 13.9	45.7 ± 11.5	50.5 ± 12.8	53.04 ± 9.1	50.0 ± 12.1	44.7 ± 13.5	52.7 ± 10.9	44.5 ± 13.0
Range	18-82	26-69	15-78	34-67	25-82	15-74	27-75	15-66
Presence Of Malignant Ascite (%)								
No	64.0	56.5	15.9	8.0	35.5	34.3	27.5	58.8
Yes	27.0	30.4	60.9	68.0	47.8	40.9	57.5	29.4
No Datum	9.0	13.1	23.2	24.0	16.7	24.8	15.0	11.8
Laterality Of Ovary Involved (%)								
Left	32.0	30.4	16.7	16.0	17.8	27.6	27.5	29.4
Right	51.1	17.4	24.6	16.0	26.7	41.9	25.0	41.2
Bilateral	11.0	43.5	50.0	48.0	41.1	22.9	45.0	23.5
No Datum	6.0	8.7	8.7	20.0	14.4	7.6	2.5	5.9
Mean Size Of Ovarian Tumour (cm.)								
Mean ± SD	15.4 ± 6.7	16.0 ± 6.0	14.6 ± 6.8	15.9 ± 7.6	13.5 ± 6.9	17.4 ± 6.4	12.8 ± 5.1	14.7 ± 5.9
Range	3-32	8-30	3-40	5-30	3-30	5-40	5-25	8-30

Unknown stage=14 cases

Other malignant histological type of 48 cases [Brenner 1 case, Mixed epithelial carcinoma 8 cases, Adenocarcinoma (not defined type) 39 cases.]

most common gynaecologic cancer encountered in Thailand but comprised only 7-12% of all gynaecologic cancer<sup>(5,6,13)</sup>. This may be attributed to the high incidence of cervical cancer in our country. At Maharaj Nakorn Chiang Mai Hospital, the ovarian cancer made up 8.6% of cancer in gynaecology compared to 81.6% of cervical cancer.

Common epithelial tumour was the most common type, accounting for 74.8% of all ovarian cancer cases which was lower than 80-90% reported from western countries<sup>(8,9)</sup>, but was similar to 77.6% reported from Chulalongkorn Hospital<sup>(14)</sup>, 67.4% from Ramathibodi Hospital<sup>(15)</sup> and 70-76% from Japan<sup>(10)</sup>. This might be related to a greater proportion of germ cell tumours in oriental women<sup>(4)</sup>.

In this report, a mucinous carcinoma was the most frequent histological type, similar to the report from Srinagarind Hospital, Khon Kaen<sup>(16)</sup>; but quite different from studies of other countries and of the central part of Thailand which favored serous more than mucinous<sup>(8,10,14,15,17)</sup>.

The mean age of patients with malignant common epithelial tumours was  $49.0 \pm 13.1$  years. This is different from other reports which found these tumours in the older people<sup>(17,18)</sup>. We agree with Niruthisard S.<sup>(14)</sup> who stated that malignant epithelial tumours in Thailand are generally found in younger people than in western countries. Endometrioid carcinoma, though found in the older people than other types in this study,

had a mean age of about 52 years compared to 57 years from another report<sup>(18)</sup>.

With regard to borderline tumours; similar to many reports<sup>(10,14,15,17)</sup>, mucinous tumour was the most common type. However, in this study the mean age was only about 3 years lower than the study of malignant tumours. But in other reports the age difference between the two groups were about 7-20 years<sup>(14,15,17)</sup>.

Patients with malignant tumour in our study were diagnosed in the advanced stage in which 54.3% was a little lower than other reports.<sup>(4)</sup> This might be from incomplete surgical staging operation. The findings of the Ovarian Cancer Study Group<sup>(19)</sup> demonstrated that changes in stage occurred in patients of stage I, II in about 33% when further investigations and reoperations for restaging were performed.

Serous and endometrioid carcinoma appeared to be diagnosed more frequently in the advanced stage (stage III of IV,) while clear cell carcinoma was diagnosed in the advanced stage of only 23.5%. The study of Auer et al<sup>(17)</sup> and of Niruthisard<sup>(14)</sup> also indicated that clear cell carcinoma tended to be discovered in the early stage.

In the present study, the incidence of ascites increased as the disease became more advanced and was more common in endometrioid and serous carcinoma (57.5%, 47.8%) comparing to 40.9% and 29.4% for mucinous and clear cell carcinoma,



respectively.

Bilaterality was found in 34% of all malignant patients. In stage I bilateral ovaries were involved in 11% and in advanced stage both ovaries were involved in 40-50%. Concerning histological type, bilaterality was more common in endometrioid and serous carcinoma (45.0%, 41.1%) as opposed to mucinous and clear cell carcinoma (22.9%, 23.5%) respectively. These findings were nearly the same as those reported from Chulalongkorn Hospital<sup>(14)</sup> which indicated bilaterality in serous, endometrioid, mucinous and clear cell were 40.1%, 34.4%, 12.9%, 18.8% respectively. With regard to borderline tumours, bilaterality was found in 8.3% compared to 7.7% reported by Niruthisard.

Although unexplained, our study demonstrated that malignant tumours (with the exception of endometrioid and borderline groups) had a predilection for the right ovary, which was also observed in other studies<sup>(14,15,20)</sup>.

The high incidence of bilaterality and ascites in endometrioid and serous carcinoma may partly be attributed to more advanced stage at time of diagnosis.

Tumour size is usually larger in the mucinous group which is supported by the literature indicating that mucinous tumors may be fairly large<sup>(18)</sup>, but the size was not quite the same in other histological types or among various stages. However, it was surprising that in this study, the mean size of borderline tumour

appeared to be larger than the malignant group ( $19.5 \pm 10.4$  versus  $15.1 \pm 16.7$ ). This may be attributed to the fact that mucinous tumour was found in a higher percentage (83.3%) of the borderline group compared to 35.0% in the malignant group.

This was a retrospective study and some information is incomplete especially those cases that had been operated on in other hospitals and sometimes the referral notes did not sometimes have the details of operative findings or exact stage of the disease. Hence this report may only demonstrate the trend of epidemiology, clinical characteristics, distribution of histological type and stage of borderline and malignant common epithelial tumours of the patients treated in our hospital which is a referral hospital for 17 provinces in the North of Thailand.

The main treatment for the ovarian cancer in our hospital is chemotherapy after cytoreductive surgery. The regimen of chemotherapy given was considered accounting to histological type, stage of diseases and also the socioeconomic status of the patients.

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