Benign Cystic Teratoma of the Ovary : A Review of 608 Patients

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Abstract

This retrospective study reports on 608 cases of benign cystic teratoma of the ovary treated at Siriraj Hospital over a ten-year period from 1988-1997. Mean age of the patients was 33.7 ± 11.3 years. Approximately one-third of the patients (35.0%) were asymptomatic when the teratomas were discovered, of the rest, the common presenting symptoms were abdominal pain (52.9%) or palpable abdominal mass (30.6%). The tumors were between 6-10 cm in greatest diameter in more than half of the patients (53.6%) and in 78 patients (12.8%), the tumors were bilateral. Complications from the tumors were found in 72 patients (11.8%): 68 cases of torsion (94.4%); two were spontaneous rupture (2.8%); and two were infected (2.8%). The mean age of patients with twisted tumor was significantly less than that of patients with uncomplicated tumor ($p = 0.02$), and abdominal pain was found more commonly in the patients with twisted tumor ($p < 0.001$). Among cases with torsion, more than 90 per cent of the tumors were found to be of intermediate size (6-15 cm), while only 68.8 per cent were found in uncomplicated cases ($p < 0.001$). Surgical treatment was conservative in 63.8 per cent) and radical in 36.2 per cent of the patients.

Key word : Benign Cystic Teratoma, Ovarian Neoplasms, Twisted Tumor

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Benign cystic teratomas (dermoid cysts) account for 10-20 per cent of all ovarian neoplasms. They are not only the most common germ cell tumor[1,2] but are the most common ovarian tumor in patients under 20 years of age[3-5]. Benign cystic teratomas of the ovary contain ectodermal elements which are usually skin, hair and a collection of sebum. Most have in addition tissue derived from mesoderm or endoderm or both. The objective of this study was to describe epidemiologic data, in-

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cluding clinical and surgical findings of benign cystic teratoma of the ovary at Siriraj Hospital over a ten-year period.

MATERIAL AND METHOD

Six hundred and eight patients with a histologic diagnosis of benign cystic teratoma of the ovary were admitted to Siriraj Hospital between January 1, 1988 and December 31, 1997. Information concerning each patient, including age, parity, presenting symptom, laterality, and type of surgical treatment was obtained from the medical records of the Department of Obstetrics and Gynecology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok within the study period. Tumor size (greatest diameter) was determined by review of the gross pathologic descriptions.

Data were described in mean, standard deviation, range, number and percentage. Comparison was made and chi-square or student *t*-test was used as appropriate.

RESULTS

During the years 1988-1997, 608 patients with a histologic diagnosis of benign cystic teratoma of the ovary underwent surgical removal at the Department of Obstetrics and Gynecology, Siriraj Hospital. The patients' age ranged from 10-79 years with a mean age of 33.7 $\pm$ 11.3 years. More than three quarters of the patients (77.4%) were under 40 years of age (Table 1) and only 8.9 per cent were in the postmenopausal stage. Two hundred and forty-three patients (40.0%) were nulliparous and 38.8 per cent had only one or two children.

Approximately one-third of the patients (35.0%) were asymptomatic and the teratomas were discovered during routine pelvic examination (73 patients, 34.3%) or during cesarean section (79 patients, 37.1%) or abdominal laparotomy for other gynecologic pathology (61 patients, 28.6%). Among the 395 symptomatic patients (65.0%), the most common presenting symptoms were abdominal pain (52.9%) and palpable abdominal mass (30.6%). Other presenting symptoms included menometrorrhagia, abdominal bloating, abnormal leukorrhea, dysmenorrhea, urinary symptoms, back pain, and obstructed labor. (Table 2)

In more than half of the patients (53.6%), the tumors were between 6-10 cm in greatest diameter (Table 3) and in 78 patients (12.8%), the tumors were bilateral. Complications from the tumors were found in 72 patients, of which 68 (94.4%) were twisted, 2 (2.8%) ruptured spontaneously and 2 (2.8%) were infected.

Table 4 shows comparison between patients with uncomplicated and twisted tumor. The mean age of patients with twisted tumor was significantly less than that of patients with uncom-

Table 1. Age distribution.

Age (years)	Number	%
< 20	58	9.5
21-30	212	34.9
31-40	201	33.0
41-50	91	15.0
51-60	28	4.6
61-70	15	2.5
71-80	3	0.5

Table 2. Presenting symptoms.

Symptom	Number	%
No symptom (incidental)	**213**	**35.0**
Cesarean section	79	37.1
Routine pelvic examination	73	34.3
Abdominal laparotomy	61	28.6
Symptoms	**395**	**65.0**
Abdominal pain	209	52.9
Abdominal mass	121	30.6
Menometrorrhagia	25	6.4
Abdominal bloating	19	4.8
Abnormal leukorrhea	8	2.0
Dysmenorrhea	5	1.3
Urinary symptoms	4	1.0
Back pain	2	0.5
Obstructed labor	2	0.5

Table 3. Tumor size (greatest diameter).

Tumor size (cm)	Number	%
< 5	121	19.9
6-10	326	53.6
11-15	110	18.1
16-20	38	6.2
21-25	9	1.5
26-30	3	0.5
> 30	1	0.2

Table 4. Comparison between cases with uncomplicated and twisted tumor.

Characteristics	Uncomplicated (N = 536)	Twisted (N = 68)	P value
Age in years (mean ± SD)	34.08 ± 11.18	30.28 ± 12.09	0.02*
Parity			0.54**
0	210 (39.2%)	32 (47.0%)	
1-2	213 (39.7%)	22 (32.4%)	
3-4	80 (14.9%)	11 (16.2%)	
≥ 5	33 (6.2%)	3 (4.4%)	
Status			0.79**
Premenopause	487 (90.9%)	63 (92.6%)	
Postmenopause	49 (9.1%)	5 (7.4%)	
Presenting symptoms (N=326)			< 0.001**
Abdominal mass	111 (34.1%)	9 (13.8%)	
Abdominal pain	150 (46.0%)	56 (86.2%)	
Menometrorrhagia	25 (7.7%)	-	
Abdominal bloating	19 (5.8%)	-	
Others	21 (6.4%)	-	
Laterality			0.91**
Unilateral	466 (86.9%)	60 (88.2%)	
Bilateral	70 (13.1%)	8 (11.8%)	
Size (cm)			< 0.001**
< 5	120 (22.4%)	1 (1.5%)	
6-15	369 (68.8%)	64 (94.1%)	
>15	47 (8.8%)	3 (4.4%)	

* Student *t*-test
** Chi-square test

plicated tumor (p = 0.02). Abdominal pain was more common in the patients with twisted tumor than those with uncomplicated tumor (86.2% *vs* 46.0%, p < 0.001). Among cases with torsion, more than 90 per cent of the tumors were found to be of intermediate size (6-15 cm), while only 68.8 per cent were found in uncomplicated cases (p < 0.001). Parity, menopausal status, and tumor laterality showed no significant difference between the two groups.

Conservative surgery, including unilateral cystectomy, bilateral cystectomy, or unilateral salpingo-oophorectomy etc. was performed in 63.8 per cent of patients, while 36.2 per cent underwent radical surgery (total abdominal hysterectomy with bilateral salpingo-oophorectomy) (Table 5). Patients who underwent conservative surgery were significantly younger than those who received radical surgery.

Table 5. Surgical treatment.

Treatment	Number	%	Mean age
Conservative	388	63.8	28.28 (±7.85)
Radical	220	36.2	43.32 (±10.12)

p < 0.001, student *t*-test

DISCUSSION

Benign cystic teratoma of the ovary usually occurs in young women, with the peak incidence between 20-40 years of age[6]. The mean age and distribution found in this series are consistent with other reports[1,5,7,8]. The size of tumor found in the present study (53.6% between 6-10 cm and 8.4% larger than 15 cm) is consistent with those previously reported that approximately one-half of benign cystic teratomas were between 5-10 cm in diameter, and approximately 10 per cent were larger than 15 cm[7,8]. The occurrence rate for bilateral benign cystic teratoma is 10-15 per cent[1,2-4, 9,10]. In our study, bilaterality was within this range (12.8%).

Benign cystic teratomas are often discovered as an incidental finding on pelvic examination or abdominal or pelvic surgery performed for other indications. A significant portion of patients ranging from 6-42 per cent are asymptomatic but when symptoms are present, the two common presenting symptoms are abdominal pain or palpable abdominal mass[3,5,7,8]. Our study confirmed this characteristic.

Torsion is the most common complication associated with benign cystic teratoma[8,11]. The torsion rate (11.2%) found in the present study is consistent with other reports in which the rates were 3.2-16 per cent[1,5,7,8,11,12]. Torsion is more frequent in tumors of intermediate size than in small or extremely large tumors[13].

Since most patients with benign cystic teratoma are of reproductive age, treatment should be conservative whenever possible. Attempts should be made to remove the cyst completely to avoid recurrence. Oophorectomy is an acceptable mode of treatment when cystectomy is technically impossible, when cystectomy is followed by uncontrolled hemorrhage, or when presentation of ovarian function is no longer a concern. In our study, conservative surgery was performed more frequently than radical surgery and patients were significantly younger in the conservative than radical treatment group.

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