

Characteristics of Patients Admitted with Tubo-Ovarian Abscess and Surgical Treatment in Siriraj Hospital

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ABSTRACT

Objective: Tubo-ovarian abscess (TOA) is the most severe form of pelvic inflammatory disease (PID). We aimed to demonstrate the characteristics of patients admitted with TOA in Siriraj Hospital and to assess the prevalence of surgical treatment.

Methods: The descriptive chart reviews were conducted in all patients admitted with TOA during January 2008 - December 2012. One exclusion criterion was that the diagnosis was changed during the admission. Data were presented in n (%), mean $\pm$ S.D. Chi-square and Student t-test were used for the comparison between TOA with and without surgical treatment. A $p < 0.05$ was considered statistically significant.

Results: From 122 patients admitted with TOA, 107 cases had the same diagnosis on discharge. Mean age was 33.1 ± 11.8 years and mean BMI was 21.9 ± 4.9 kg/m². Around half of them were nulliparous, 55.1% were married and 67.3% were sexually active. About 14% reported multiple partners. Surgical treatment was performed in 42% of the participants. The characteristics associated with surgical treatment included older age (38.6 ± 11.2 vs. 29.1 ± 10.7 years, $p < 0.001$) and abscess size larger than 6 cm (75.6% vs. 22.6%, $p < 0.001$).

Conclusion: Older age and abscess size larger than 6 cm are associated with surgical treatment in patients with TOA.

Keywords: Tubo-ovarian abscess; surgical treatment (Siriraj Med J 2018;70: 66-69)

INTRODUCTION

Tubo-ovarian abscess (TOA) is a subset of pelvic inflammatory disease (PID) which includes abscess formation.¹ TOA has been mainly recognized as severe sequelae of acute PID. It accounts for 41.5% of all patients admitted with PID.^{2,3} Previous studies have shown that TOA is associated with longer hospital stay²⁻⁴ and is a negative predictive factor for fertility in reproductive-aged patients.²

The initial treatment of TOA is antibiotics administration.¹ The response to antibiotics administration was about 70% of all cases.⁵ If there is no clinical response, surgical treatment will be considered.⁶ Previous studies have shown that larger abscess size⁷⁻¹⁰, high white blood cell (WBC) count⁸, increasing patient's age⁸ and higher

parity^{8,9,11} were associated with surgical treatment.

This study aimed to demonstrate the characteristics of patients admitted with TOA in Siriraj Hospital and to assess the prevalence of surgical treatment.

MATERIALS AND METHODS

After ethical approval from Siriraj Institutional Review Board (Si 697/2013), a retrospective cross-sectional study was conducted at the Department of Obstetrics and Gynecology, Faculty of Medicine Siriraj Hospital. Patients admitted with TOA in Siriraj Hospital from January 2008 to December 2012 were included into the study. A change of diagnosis at any point was considered an exclusion criterion.

At our institute, as a tertiary teaching hospital,

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PID diagnosis was performed using clinical criteria by Centers for Disease Control and Prevention (CDC)¹ and all of those patients with PID were scanned for adnexal mass(es) by bed-side transvaginal ultrasonography. TOA was defined as PID with abscess formation.¹ All patients were admitted and initially treated with intravenous antibiotics according to the regimens of CDC guideline 2015 for treatment of TOA.¹ Clindamycin 900 mg IV every 8 hours plus gentamicin loading dose 240 mg IV drip once daily. The indications for surgical treatment included failure to respond to antibiotic treatment at 72 hours post-treatment and deterioration of clinical signs.¹

Data were retrieved from medical records, including demographic data, medical history, physical examination, biochemical blood test and ultrasonographic findings. Descriptive statistics, including number (percentage) and mean $\pm$ standard deviation (S.D.) were used to describe various characteristics as appropriate. Chi-square test and Student *t*-test were used to compare various characteristics between groups. A *p*-value < 0.05 was considered statistically significant.

RESULTS

From a total of 122 patients who were admitted with TOA as described on medical charts from January 2008 to December 2012, 107 patients were eligible for the study. During the study period, a total of 45 out of 107 patients (42%) received surgical treatment via exploratory laparotomy.

Study population characteristics are shown on [Table 1](#). Mean age was 33.1 ± 11.8 years and mean BMI was 21.9 ± 4.9 kg/m². About 43% were nulliparous, 55.1% were married and 67.3% were sexually active. 14.0% reported multiple partners. Majority of cases used no contraception (42.1%) and 10.3 % had tubal sterilization. Surgical treatment was performed in 45 cases (42.1%). Patients with surgical treatment were significantly older than those with medical therapy (38.6 ± 11.2 vs. 29.1 ± 10.7 years, $p < 0.001$).

Symptoms, signs and laboratory results of study population are described on [Table 2](#). Most common findings were abdominal tenderness (96.3%) and adnexal tenderness (84.1%). Bilateral abscess was found in only

TABLE 1. Demographic data of patients admitted with TOA at Siriraj Hospital a (N=107).

Demographic data	Total (N=107)	Surgical treatment		P value
		Yes (N=45)	No (N=62)	
Age (years)	33.1 $\pm$ 11.8	38.6 $\pm$ 11.2	29.1 $\pm$ 10.7	<0.001
BMI (kg/m ²)	21.9 $\pm$ 4.9	22.7 $\pm$ 5.2	21.1 $\pm$ 4.6	0.129
Nulliparous	46 (43.0)	18 (40.0)	28 (45.2)	0.497
Marital status				0.099
Single	41 (38.3)	12 (26.7)	29 (46.8)	
Married	59 (55.1)	29 (64.4)	30 (48.4)	
Divorced	9 (6.5)	4 (8.9)	3 (4.8)	
Active sexual activity	72 (67.3)	23 (51.1)	47 (75.8)	0.090
Multiple partners	15 (14.0)	6 (13.3)	9 (14.5)	0.918
Contraception				0.444
None	45 (42.1)	16 (35.6)	29 (46.8)	
Hormonal	9 (8.4)	4 (8.9)	5 (8.1)	
Non hormonal intrauterine device	16 (15.0)	5 (11.1)	11 (17.7)	
Tubal sterilization	11 (10.3)	6 (13.3)	5 (8.1)	

Data presented in mean $\pm$ S.D. and n (%). *P* values < 0.05 is considered statistically significant.

Abbreviation: BMI = body mass index

TABLE 2. Symptoms, signs and laboratory results of patients admitted with TOA (N=107).

Symptoms, signs and laboratory results	Total cases (107)	Surgical treatment cases		<i>P</i> value
		Yes (45)	No (62)	
Abdominal tenderness	103 (96.3)	41 (91.1)	62 (100.0)	0.860
Cervical tenderness	69 (64.5)	28 (62.2)	41 (66.1)	0.960
Uterine tenderness	51 (47.7)	19 (42.2)	32 (51.6)	0.916
Adnexal tenderness	90 (84.1)	33 (73.3)	57 (91.9)	0.514
Abnormal discharge	53 (49.5)	18 (40.0)	35 (56.5)	0.313
WBC >20,000/mm ³	16 (15.0)	10 (22.2)	6 (9.7)	0.074
Neutrophils >80%	60 (56.1)	23 (51.1)	37 (59.7)	0.675
ESR >30 mm/hr	36 (33.6)	9 (20.0)	27 (43.5)	0.449
Diameter of abscess >6 cm	48 (44.9)	34 (75.6)	14 (22.6)	<0.001
Bilaterality of adnexal mass	36 (33.6)	14 (31.1)	22 (35.5)	0.636

Data presented in n (%). *P* values < 0.05 is considered statistically significant.

Abbreviations: ESR = erythrocyte sedimentation rate, WBC = white blood cell

33.6% of the cases. Patients with surgical treatment had higher proportion with WBC >20,000/mm³ compared with the medical treatment-group with borderline significance (22.2% vs 9.7%, $p=0.074$). Patients with surgical treatment were more likely to have abscess size larger than 6 cm compared to medical treatment group (75.6% vs 22.6%, $p<0.001$). None of the other results were statistically significant.

DISCUSSION

The present study describes the characteristics of patients admitted with TOA at Siriraj Hospital. When there is no clinical response within 72 hours after initiation of antibiotics, surgical treatment might be considered. We found that almost half of patients with TOA required the procedure (42.1%). The rate was higher than that reported in previous studies, ranging from 15.7% to 34.4%.⁸⁻¹² This might be partly explained by the fact that this study was conducted in a large, tertiary university hospital where TOA cases were more likely to be complicated than in other settings.

Our study shows that older age is associated with surgical treatment in patients with TOA. The finding is similar to the study conducted by Greenstein et al and the study by Mizushima et al.^{7,8} As recurrent PID and incomplete treatment is prevalent among this population²,

TOA formation is likely to be more severe.

In terms of abscess size, those with a size larger than 6 cm are at increased risk for surgical treatment. This is compatible with previous studies which showed more surgical treatment in patients with larger abscess size.⁷⁻¹⁰ The efficacy of administered antibiotics is based on their ability to penetrate abscess wall. Larger TOA resulted from chronic, untreated PID. This might lead to some level of resistance to medical treatment. As no definite cut off value of the abscess size has been established, the present study may propose '6 cm' as a predictor for surgical treatment.

The main limitation of this study was the retrospective chart review design which might contain some missing data. The variation among physicians who took care of the patients might affect decision on surgical treatment. Exploratory laparotomy was the only surgical approach in this study while new technologies, such as diagnostic laparoscopy and drainage or drainage of pelvic collection under U/S guide have been reported.¹³

CONCLUSION

Surgical treatment in patients admitted with TOA is prevalent, at 42.1%. The associated factors include older age and abscess size larger than 6 cm.

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