

METHODS OF TREATING THE TUBOOVARIAN ABSCESS DEPENDING ON THE SEVERITY OF SYMPTOMATOLOGY

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Abstract

The aim of this study was to identify the treatment methods for the tuboovarian abscess (TOA), depending on the seriousness of symptomatology, mild, medium and severe, granting points for each symptom. Since there is no strategy for managing the TAO, I considered that a grading system would be necessary in managing these patients.

The 159 patients elected for the study are split in three batches according to the seriousness of symptomatology. For each mild symptom one point is awarded, two points are awarded for each medium symptom and three points for the severe symptoms. Depending on the score obtained, the treatment method is chosen and the patient's evolution is being monitored.

From the 159 women patients, 94 were treated by laparotomy, 37 received medicines and 28 underwent surgical laparoscopy. Morbidity was linked to the surgical incision in the case of patients treated by surgical laparotomy.

According to the results of our study, the surgical laparoscopy represents the best treatment option. The treatment with medicines, despite the fact that patient needs to be under surveillance for a longer period of time, may be appropriate in well-selected cases.

Key words: tuboovarian abscess, pelvic inflammatory disease.

INTRODUCTION

One of the main causes of pelvic masses in women at the age of reproduction is the tuboovarian abscess [1 - 4]. This is caused by the infection with *Neisseria gonorrhoeae* or *Chlamydia trachomatis*, both being sexually transmitted, but other organisms may be involved, too, like the *E coli*, *B fragilis*, peptococci, peptostreptococci and mixed flora [5 - 8].

The tuboovarian abscess often leads to the irreversible damage of the fallopian tubes and ovaries, in consequence it represents a serious threat to fertility, being itself a frequent cause for the pelvic abscess [9, 10]. In the pelvic abscesses, the large ligaments, adnexa, the intestine, the caul, the uterus or the pelvic wall (in any combination) may form the rims of the abscess cavity. The rupturing of the tuboovarian abscess is marked by a severe and sudden exacerbation of the abdominal and pelvic pain, disproportionate tachycardia reported to the fever and signs of peritonitis and shock.

There are contradictory reports concerning the effect of using intrauterine devices of contraception (DIU) in the pathogeny of the pelvic inflammatory disease (PID) and the tuboovarian abscess [11 – 32]. Thus, in this study we meant to underline the importance of using intrauterine devices in the etiology of the tuboovarian abscess, with the exception of other risk factors as adolescence, nulliparity or sexual multi-

There are controversies regarding the management of patients with tuboovarian abscess: should they undergo a surgical intervention shortly after beginning the antibiotic treatment or after a latent period which to allow full recovery through intense antibiotic treatment [33 – 38]. It is suggested that a surgical intervention should be reserved for the cases where antibiotics fail after a predetermined period of treatment or in case there is proof of abscess rupture [39 - 41].

Patients with tuboovarian abscess need parenteral antibiotherapy which is efficient against anaerobe and aerobic bacteria [42 – 51]. The controversy lies on the safety to manage a patient with tuboovarian abscess without surgical drainage [52]. The complex bacterial environment in an abscess often limits the efficiency of antibiotics so that in most cases the surgical intervention becomes necessary.

There is also, another controversy concerning the method of surgical intervention in a unilateral tuboovarian abscess that needs surgical intervention due to failure in the response to antibiotic treatment or due to a rupture [53]. Unilateral adnexectomy with aggressive antibiotic treatment for women willing to preserve their reproductive function does not seem to have unjustified risks if monitored closely [54]. The recurrence risk with this approach could be too high for a woman at the end of her reproductive years. The risk of rupture is more present. This serious complication is associated to high mortality even if conducted properly [55, 56]. It is unreasonable to expose a woman with tuboovarian abscess, found at perimenopause, to the risk of relapse or rupture if there are no other factors that make the surgical intervention unjustifiably dangerous. The degree of surgery varies from drainage by posterior colpotomy [57] to complete hysterectomy and bilateral salpingo – oophorectomy by removing the necrotic or inflamed adjacent tissues [58, 59]. It is quite obvious that the most appropriate approach of tuboovarian abscess management is an individualized therapy considering age, clinical status and the wishes of the patient who should be properly informed.

In conclusion, as there is no consensus regarding the optimal treatment method in managing the tuboovarian abscess we propose to develop a grading system depending on the symptomatology for the patients with tuboovarian abscess, helpful in treating and monitoring the patients.

MATERIALS AND METHODS

This observational, prospective and interventionist study was conducted during the period 2000 – 2012, on a number of 159 patients with tuboovarian abscess, admitted to the Surgery II Section of the Emergency County Clinical Hospital Oradea.

The study was approved by the ethics committee and all patients were requested to fill in an informed acceptance form.

The inclusion and exclusion criteria are identified in the table below:

Table no. 1

Criteria for inclusion and exclusion from the study	
Inclusion Criteria	<ul style="list-style-type: none"> ✓ age > 18 years ✓ one sexual partner ✓ no history of using oral contraceptives
Exclusion Criteria	<ul style="list-style-type: none"> ✓ age under 18 ✓ pregnant women

All information were gathered and processed with the Microsoft[®] Excel[®] 2010 (Microsoft[®] Corporation, USA) software, constituting the database of the statistic study where we have assessed the following parameters: temperature, pulse, intestinal auscultation, sensitivity of the cervix, adnexa and uterus, echographic dimension of adnexa, the number of leucocytes in the blood (WBC/mm³), the speed of red blood-cells sedimentation (VSH) and protein C-reactive (PCR).

Depending on the seriousness of symptomatology, for each mild symptom one point is awarded with an interval of 0 – 10, two points for each medium symptom with an interval of 11 – 20 and three points for each severe symptom with an interval of 21 – 30. By the score obtained, the treatment method is chosen and the evolution of the patient is followed up. (Table no. 2). All patients have been monitored and physically examined twice a day, gynecologically and echographically every third day. There were no routine cervical or endometrial cultures drawn, instead there were taken tissue cultures from patients with intra-abdominal abscesses discovered through laparotomy or laparoscopy.

Table no. 2

The score awarded according to the seriousness of the tuboovarian abscess symptomatology

Parameters	Mild Symptomatology (0 – 10 points)	Moderate Symptomatology (11 – 20 points)	Severe Symptomatology (21 – 30 points)
Temperature (T° C)	< 37°C	37 – 37,5°C	□ 37,6°C
Heart rate (beats/minute)	< 90	90 – 100	□ 100
Intestinal auscultation	Normal	Minimal	Absent
Sensitiveness of cervix	(+)	(++)	(+++)
Sensitiveness of adnexa	(+)	(++)	(+++)
Sensitiveness of uterus	(+)	(++)	(+++)
Echographic dimensions of adnexa	< 4 cm	4 – 6 cm	□ 6 cm
WBC/mm ³	< 10000	10000 – 20000	□ 20000
VSH (mm/h)	< 20	20 – 30	□ 30
PCR (mg/dl)	< 15	15 - 20	□ 20

As statistical methods of analysis were used the Chi-square test, the Anova One-way analysis of variance test and the Comparison of proportions test using the medical statistics program MedCalc[®] version 12.2.1.0 (MedCalc[®] Software, Mariakerke, Belgium). The value $p < 0,05$ shows a statistically significant difference between the studies batches.

RESULTS AND DISCUSSIONS

As per the previously described criteria, 159 patients diagnosed with tuboovarian abscess were chosen for the study.

The women patients obtaining a score of 30 points or more have received a double antibiotic regimen consisting in Ofloxacin (400 mg every 12 hours) and Metranidazol (500 mg every 8 hours) intravenously. The patients with the score under 30 points have received a triple antibiotic regimen consisting in Ampicillin (1 g every 6 hours), Clindamicin (900 mg every 8 hours) and Gentamicin (1,5 mg/kg every 8 hours after a loading dose of 2 mg/kg) intravenously (Table no. 3).

In patients whose score did not drop after 3 days of treatment with antibiotics or in those whose abscess diameter was of 10 cm or more (especially in patients with persistent fever and pelvic pain) laparotomy was called for. Patients whose monitoring showed no fever, the disappearing of pelvic organs sensitiveness, the normalization of laboratory parameters and decrease of the abscess diameter after 72 hours of parenteral antibiotic treatment were discharged under per os administration of doxycycline (100 mg twice a day for 14 days). They were monitored for one year (every fortnight during the first three months and then monthly). Patients under 35, with an abscess diameter under 10 cm and wanting to preserve fertility underwent a laparoscopic treatment after three days of parenteral antibiotic treatment (Table no. 3).

Table no. 3

Indication of treatment considering the obtained score		
Calculated score	Patients 159	Treatment
≥ 30 points	69	Double antibiotic regimen
20 – 30 points	62	Triple antibiotic regimen
< 20 points	28	
Persistent fever, pelvic pain and abscess diameter ≥ 10 cm	94	Laparotomy
Lack of fever, of pelvic sensitiveness, decrease of abscess diameter and normalization of functional parameters after 72 hours of parenteral antibiotic treatment	37	Medication treatment at home
Patients under 35 years with abscess diameter < 10 cm, preserving fertility	28	Laparoscopy

Thus, the 159 patients under study were divided into three batches:

- Batch A – patients having as indication surgical laparotomy treatment

- Batch B – patients undergoing parenteral medication treatment followed by per os anti-biotherapy at home, subsequently monitored for one year (every fortnight in the first three months and then monthly)
- Batch C – patients with laparoscopic treatment

Analyzing the demographic, clinical and paraclinical data we can observe that there are statistically significant differences in the three batches.

The age average for the A batch patients was 46,67 years, these being at pre- or post-menopause, with no other pelvic pathology. Recent studies report an incidence of 1,7% of the tuboovarian abscess in women at menopause [60 – 63]. It is unreasonable to expose a woman with tuboovarian abscess, found at perimenopause, to the risk of relapse or rupture if there are no other factors that make the surgical intervention unjustifiably dangerous. The patients chosen for the conservatory treatment and laparoscopy were of a much younger age, age at which fertility preservation was taken into account (Table no. 4).

Also, the symptomatology was severe in A batch patients as compared to the B or C batches, hence the score obtained was statistically significantly increased (Table no. 4).

The use of the contraception intrauterine devices (DIU) were of special importance in the etiology of the disease. Thus, 58 A batch patients had DIU between 5 and 10 years, displaying a statistically significant difference as opposed to the other two batches (Table no. 4).

Table no. 4

Demographic, clinical, paraclinical characteristics and treatment				
Total patients = 159	Batch A 94	Batch B 37	Batch C 28	<i>p</i> [†]
Age (average)	(42 – 52) 46,67	(18 – 42) 31,45	(20 – 35) 28,67	<i>p</i> < 0,001**
Body temperature (T°C) (average)	38,2°	37,7°	37,95°	
WBC/mm ³ × 10 ³ (average)	18,45	14,15	15,35	
VSH (mm/h) (average)	55,4 ± 9,6	30 ± 8,2	36,5 ± 16,5	
PCR (mg/dl) (average)	21,3	14,8	19,7	
Echographic diameter of the abscess (cm) (average)	(7 – 10) 8,38	(3 – 5) 4,00	(4 – 7) 5,53	<i>p</i> < 0,001**
Use of DIU [‡]	58	13	9	<i>p</i> = 0,0025*
Duration of DIU use (years)	(5 – 10) 7,39	(2 – 5) 3,3	(2 – 5) 3,7	<i>p</i> < 0,001**
≥ 30 points	50	9	10	<i>p</i> = 0,0074*
20 – 30 points	34	16	12	<i>p</i> = 0,6799*
< 20 points	10	12	6	<i>p</i> = 0,0109*

*Chi-square test; **Anova One-way analysis of variance test; ***Comparison of proportions test;

[†]*p* < 0,05 proves a statistically significant difference between the studied batches;

[‡]DIU – contraception intrauterine devices

The clinical response to the antibiotic treatment appears at 48 – 72 hours [64 – 68]. In the present study we initiated the antibiotic regimen depending on the points score obtained for the tuboovarian abscess and there were stated statistically significant differences between the three batches (Table no. 5). In cases where the clinical and laboratory responses were insufficient at 24 – 48 hours for the initial antibiotic regimen, it was modified.

10 patients treated with medications in which fever disappeared, the pelvic sensitiveness disappeared and the laboratory parameters normalized and the abscess diameter decreased after 72 hours of parenteral antibiotic treatment, were released from the hospital under per os doxycycline administration (100 mg twice a day for 14 days). They were monitored for one year (every fortnight during the first three months and then on a monthly basis). The advantages of the medications treatment are lack of surgical morbidity and preservation of fertility.

The surgical procedures were the unilateral adnexectomy and hysterectomy with bilateral salpingo-oophorectomy. The first was done on patients willing to preserve the reproduction function and having an uncomplicated intra-surgical clinical background, there being a statistically significant difference between batch A, respectively C (28% vs. 92,86%, $p < 0,0001$) (Table no. 5). The hysterectomy with bilateral cu salpingo-oophorectomy prevailed in batch A in proportion of 72%. These results are in concordance with the literature of specialty [69 – 71].

Intra-surgically intestine lesions were stated in 8 patients, 6 treated by laparotomy and 2 by laparoscopy and also lesions of the ureter in 5 patients treated by laparotomy (Table no. 5).

The microbiologic examination of the abscess as well as the tissue cultures taken from patients with intra-abdominal abscesses discovered through laparotomy or laparoscopy showed the presence of a mixed bacterial flora, identifying *E. coli* in 34 (28%) patients, *B. fragilis* in 19 (16%) patients, anaerobe streptococci and Peptostreptococci in 7 (6%) patients.

Considering the antibiotic regimen used and the surgical treatment established, the admission period was significantly shorter in patients treated by laparoscopy ($p < 0,001$).

Morbidity was connected to the surgical incision, in patients treated by laparotomy being significantly higher as compared to those treated by laparoscopy ($p = 0,0444$) (Table no. 5).

Table no. 5

Treatment established for patients with tuboovarian abscess				
Total patients = 159	Batch A 94	Batch B 37	Batch C 28	p^{\dagger}
Double antibiotic regimen	50	9	10	$p = 0,0074^*$
Triple antibiotic regimen	44	28	18	$p = 0,0074^*$
Unilateral adnexectomy	26 (28%)	-	28 (100%)	$p < 0,0001^{***}$
Hysterectomy with bilateral salpingo-oophorectomy	68 (72%)	-	-	
Lesion of the intestine	6 (6,38%)	-	2 (7,14%)	$p = 0,7700^{***}$
Lesion of the ureter	5 (5,32%)	-	0	$p = 0,4818^{***}$
Period of hospitalization (days)	(5 – 10) 7,38	(10 – 14) 12 for 27 patients	(3 – 4) 3,5	$p < 0,001^{**}$
Surgical morbidity (%)	26 (27,6%)	-	2 (7,1%)	$p = 0,0444^{***}$

* Chi-square test

**Anova One-way analysis of variance test

***Comparison of proportions test

$^{\dagger}p < 0,05$ proves a statistically significant difference between the studied batches

CONCLUSIONS

1. According to the present study it is quite evident that the most proper approach of the tuboovarian abscess management is an individualized therapy, accounting for age, clinical status and the patient's wishes, if informed correctly.
2. By awarding points according to the clinical symptomatology the optimal individualized treatment was successfully accomplished for addressing the tuboovarian abscess.
3. If the treatment with medication and the laparoscopic treatment were decided for young patients in whom the reproduction function was aimed to be preserved, the surgical treatment by laparotomy was established for older patients, at their pre- or post-menopause, with a clinical background whose points score for the tuboovarian abscess was high.
4. In what the etiology of the disease is concerned, we may observe that the use of intrauterine contraceptive devices has played an important role in the apparition of the disease, especially in patients over 40.
5. Surgical laparoscopy represents the best treatment option because the morbidity related to the abdominal incision is very low as compared to laparotomy, as it cuts down the hospitalization period and preserves fertility.
6. The medication treatment, apart from the fact that the patient must be monitored for a longer period of time, may be adequate in well

selected cases, as it presents no surgical complications risks and preserves fertility as well.

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