Ulutas Med J 2022;8(1):5-17
DOI: 10.5455/umj.20220123023926

ORIGINAL ARTICLE OPEN ACCESS

Surgical Treatment in Gynecological Emergency: The Experience of a Tertiary Hospital

Simten Genc • **Yagmur Olmez Ozkan**
Department of Obstetrics & Gynaecology, Okmeydanı Training & Research Hospital, Cemil Taşçıoğlu City Hospital, Istanbul, Turkey

Introduction: Gynecological emergencies are conditions that are frequently encountered every day and can account for high morbidity and mortality rates. Ectopic pregnancy, tubo-ovarian abscess, ruptured ovarian cysts, and adnexal torsion are common gynecological diseases that require an emergency surgical approach.
Materials and Methods: Our retrospective study was conducted by examining the records of patients between the ages of 18-55 who applied to Prof. Dr. Cemil Taşçıoğlu City Hospital emergency department between January 1, 2017, and December 31, 2020. A total of 464 patients who were treated surgically with laparotomy or laparoscopic approaches were included in our study.
Results: The mean age of all patients was 32.28±8.25 years. 79.74% of the patients were under the age of 40, and our patients were operated on for ruptured ectopic pregnancy (50.64%), ruptured ovarian cyst (20.25%), ovarian torsion (12.71%), and tubaovarian abscess (16.37%), while 23.49% of the patients required blood transfusions. The mean initial β-hCG concentration was 3346 mIU/ml in ectopic pregnancy. The hospital stay was observed to be significantly longer in cases with tuboovarian abscesses. Salpingectomy was the most common surgical operation performed in all cases.
Conclusion: Gynecological emergencies have an important place in admissions to the emergency departments. Early diagnosis and treatment both reduce the morbidity and mortality of the patients and are important for preserving their fertility status in the later stages of their lives.
Keywords: Adnexal torsion, ectopic pregnancy, gynecological emergency, ruptured cysts, tubo-ovarian abscess

Introduction

Gynecological emergencies are conditions that are frequently encountered every day and can account for high morbidity and mortality rates. Ectopic pregnancy, ruptured ovarian cysts, tubo-ovarian abscess, and adnexal torsion are common gynecological diseases that require an emergency approach. The most common findings in patients who applied to the gynecology emergency clinics are a pain in the lower abdomen that started suddenly. Vaginal bleeding, nausea, vomiting may accompany these findings. In the approach to the patient, the patient's age and fertility desire should also be taken into account while making the decision favoring surgical intervention (1).

Corresponding Author: Simten Genç, MD; Okmeydanı Training and Research Hospital, Cemil Tascioglu City Hospital Medicine, Istanbul, Turkey
E-mail: simtengenc@yahoo.com.tr
ORCID: 0000-0003-4446-4467
Received: Jan 4, 2022 **Accepted**: Feb 18, 2022
Published: March 9, 2022

This is an Open Access article distributed under the terms of Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, or reproduction in any area, original work is properly cited.

The Ulutas Medical Journal © 2022

Ectopic pregnancy is defined as implantation of the fertilized ovum outside the uterus in a tissue other than the endometrium. The incidence of ruptured ectopic pregnancy differs in studies (2,3). Tuboovarian abscess (TOA) should also be considered in reproductive age patients presenting with lower abdominal quadrant pain. It presents with tachycardia, fever, tenderness, nausea, vomiting, lower quadrant, rebound, or septic shock (4).

Patients with ovarian cyst rupture may present with significant blood loss and signs of shock. However, some cases do not require emergency surgery and are followed up conservatively. Ovarian torsion, on the other hand, occurs when the ovary rotates around the ligaments on which it is supported. In some cases, the ovary with the adjacent fallopian tube rotates around itself, and this condition is termed adnexal torsion. Twisting of these ligaments can lead to venous congestion, edema, and, loss of blood supply to the ovary, and may result in ovarian necrosis and loss of fertility (5).

Differential diagnose of it should be made between gastrointestinal, and gynecologic and urologic diseases. Ultrasonography is the diagnostic imaging method that should be used as the first imaging technique. Computed tomography (CT) and magnetic resonance imaging (MRI) are useful in diagnosing suspicious cases, especially in complex adnexal masses or in detecting bleeding sites (6). Surgical intervention is performed urgently using laparoscopic methods or laparotomy, especially in patients with hemoperitoneum (7).

Our study aims to determine the proportion of emergencies among gynecological surgeries in a tertiary care center and to examine the clinical presentation of the diseases.

Materials and Methods

Our retrospective study was conducted by examining the records of patients between the ages of 18-55 who applied to Prof. Dr. Cemil Taşçıoğlu City Hospital emergency department between January 1, 2017, and December 31, 2020. The study was initiated after the approval of the hospital's Ethics Committee. Patients under the age of 18, and cases that underwent conservative management, oncological surgery, suction and evacuation, elective gynecological surgeries, and obstetric emergencies were excluded from the study. In our study, only the patients who underwent emergency surgery with laparotomy/laparoscopy were examined. A total of 464 patients were decided to be included as a study sample. After physical and gynecological examination, laboratory tests and ultrasonography were performed for each patient. Imaging methods such as computed tomography (CT and MRI) was used in patients who could not be definitively diagnosed. All data were retrieved from database. Information about gravida, parity, number of miscarriages, laboratory values, type of operation, length of hospital stay, and need for blood transfusion were recorded for all patients.

Ethical Statement

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of University of Health Sciences, Prof. Dr. Cemil Tascioglu City Hospital (Okmeydanı Training and Research Hospital - Date.17/01/2022/No. 48670771-514.99/04)

Statistical Evaluation

In the study, statistical analyzes were performed with NCSS (Number Cruncher Statistical System) 2007 Statistical Software (Utah, USA). Descriptive statistical methods, mean, standard deviation, median, frequency, interquartile range and percentage distributions were used in the evaluation of the data

Results

A total of 4121 gynecological surgeries were performed in our clinic for 5 years. Of these patients, 456 were oncology patients, and 473

patients had been operated on in the emergency gynecology. Nine patients under the age of 18 were not included in the study. A total of 464 patients who were treated surgically with laparotomy or laparoscopic approaches were included in our study. The demographic characteristics of all patients included in the study are summarized in Table-1.

The mean age of all patients was 32.28±8.25 years. 79.74% of the patients were under the age of 40, and our patients were operated on for ruptured ectopic pregnancy (50.64%), ruptured ovarian cyst (20.25%), ovarian torsion (12.71%), and tuboovarian abscess (16.37%), while 23.49% required transfusions. The hospital stay was 4.34±3.06 days.

The patients were also analyzed separately according to the diagnoses they received. The characteristics of patients who were operated on due to ruptured ectopic pregnancy are summarized in Table-2. The mean age of the patients was 31.33±6.31 years. A history of previous ectopic pregnancy was present in 9.36% of the patients. Tubal pregnancy was observed most frequently with a rate of 94.04 percent. The mean initial β-hCG was 3346 mIU/ml. Laparotomy and salpingectomy were performed in 74.04% of the patients, and laparoscopic salpingectomy in 20%. Unilateral twin ectopic pregnancy was detected in 1 patient, and 3 patients were followed up in the postoperative intensive care unit.

The characteristics of the patients who were operated on for a ruptured ovarian cyst are summarized in Table-3. The mean age of the patients was 30.03±7.49 years. Most frequently (61.70%) cystectomy was performed through laparotomy incision. When the pathologies were examined, most commonly, rupture of the corpus luteum hemorhagicum was observed with a rate of 35.11 percent. One patient required postoperative intensive care. In addition, pregnancy and simultaneous rupture of the ovarian cyst were observed in one.

The characteristics of the patients who were operated on for twisted ovarian cysts are summarized in Table-4. The mean age of these patients was 29.98±10.66 years. Unilateral salpigoopherectomy was performed most frequently with a rate of 44.07 percent. When the pathologies were examined, serous cystadenoma was found most frequently with a rate of 67.80 percent.

The characteristics of the patients who were operated on for tubaovarian abscesses (TOA) are summarized in Table-5. The mean age of these patients was 39.82±8.2 years, and 52.63% of the patients were between the ages of 40-49 years. Besides, 63.16% of these patients were multiparous. Mean WBC 15323.4 ±6911.85 u/L and CRP 161.77 mg/L (83.61-245.1 mg/L) values were as indicated. Unilateral salpigoopherectomy was performed most frequently in the patients with a rate of 48.68 %, and one patient required intensive care.

The lowest mean age was observed in the ovarian torsion group among all patients, and the highest mean age was noted in the tubaovarian abscess group. In addition, the longest hospital stay (8.42±3.44 days) was recorded in the tubaovarian abscess group.

Discussion

Gynecological emergencies have an important place in admissions to emergency departments. Early diagnosis and treatment both reduce the morbidity and mortality of the patients and are important for preserving their fertility status in the later stages of their lives. In our study, we encountered the most frequently ruptured ectopic pregnancy, followed by a ruptured ovarian cyst in the group of patients who applied to the gynecology emergency department and underwent surgical treatment. Considering the age distribution of the patients, adnexal torsion was seen in the younger patient group, while tubaovarian abscess (TOA) was seen at older ages. Approximately one-third of the patients required blood transfusion.

Table-1. Demographic characteristics and clinical outcomes of all patients

Variables		N, %	
Age	*Mean (SD)*	32,28±8,25	
Age Group	*18-29*	188	40,52%
	30-39	182	39,22%
	40-49	84	18,1%
	>50	10	2,16%
Marital Status	*Single*	114	24,57%
	Married	350	75,43%
Based On Parity	*Nullipara*	157	33,84%
	Primipara	122	26,29%
	Multipara	185	39,87%
Hospital Stay *(day)*	*Mean (SD)*	4,34±3,06	
Blood Transfusion	*No*	355	76,51%
	Yes	109	23,49%
Surgery Type	*Laparoscopic Salpingectomy*	47	10,13%
	Salpingectomy	191	41,16%
	Laparoscopic Cystectomy	15	3,23%
	Cystectomy	80	17,24%
	Laparoscopic unilateral salpingo-oophorectomy	9	1,94%
	Unilateral salpingo-oophorectomy	87	18,75%
	Oophorectomy	6	1,29%
	Laparoscopic Salpingostomy	2	0,43%
	Abscess Drainage	9	1,94%
	Total abdominal hysterectomy-Bilateral salpingo-oophorectomy	9	1,94%
	Laparoscopic Abscess Drainage	4	0,86%
	Milking	1	0,22%
	Hysterotomy	1	0,22%
	Laparoscopic Ovarian Resection	1	0,22%
	Cornual Resection	2	0,43%
Gravidity	*Mean (SD)*	2,57±2,33	
	Median (IQR)	2 (1-3)	
Parity	*Mean (SD)*	1,35±1,43	
	Median (IQR)	1 (0-2)	
Abortus	*Mean (SD)*	0,65±1,41	
	Median (IQR)	0 (0-1)	
Hemoglobin *(g/dL)*	*Mean (SD)*	11,47±1,73	
Hematocrit *(%)*	*Mean (SD)*	34,52±4,94	
WBC *(u/L)*	*Mean (SD)*	11744,4±4955,7	
Symptoms	*Abdominal pain*	432	93,10%
	Vaginal bleeding	380	81,89%
	Nausea /Vomiting	121	26,07%
Diagnosis	*Ectopic Pregnancy*	235	50,64%
	Ruptured ovarian cysts	94	20,25%
	Adnexal torsion	59	12,71%
	Tuboovarian abscess	76	16,37%

Table-2. Demographic characteristics and clinical outcomes of ectopic pregnancy group

Variables		N, %	
Age	*Mean (SD)*	31,33±6,31	
Age Group	*18-29*	99	42,13%
	30-39	115	48,94%
	40-49	20	8,51%
	>50	1	0,43%
Marital Status	*Single*	22	9,36%
	Married	213	90,64%
Based on Parity	*Nullipara*	70	29,79%
	Primipara	86	36,6%
	Multipara	79	33,62%
History of Ectopic Pregnancy	*No*	213	90,64%
	Yes	22	9,36%
Hospital Stays *(day)*	*Mean (SD)*	3,3±1,27	
Blood Transfusion	*No*	178	75,74%
	Yes	57	24,26%
Localization	*Tubal*	221	94,04%
	Ovarian	6	2,55%
	Heterotopic	5	2,13%
	Cornual	2	0,85%
	Scar	1	0,43%
β-hCG *(mIU/ml)*	*Mean (SD)*	10120,6±23081,2	
	Median (IQR)	3346 (1616-9307)	
Hemoglobin *(g/dL)*	*Mean (SD)*	11,54±1,69	
Hematocrit *(%)*	*Mean (SD)*	34,44±4,94	
WBC *(u/L)*	*Mean (SD)*	10817,6±4234,3	
Surgery Type	*Laparoscopic salpingectomy*	47	20%
	Salpingectomy	174	74,04%
	Unilateral salpingo-oophorectomy	4	1,7%
	Oophorectomy	3	1,28%
	Laparoscopic salpingostomy	2	0,85%
	Milking	1	0,43%
	Hysterotomy	1	0,43%
	Laparoscopic ovarian resection	1	0,43%
	Cornual resection	2	0,85%

Table-3. Demographic characteristics and clinical outcomes of ruptured ovarian cysts group

Variables		N, %	
Age	*Mean±SD*	30,03±7,49	
Age Group	*18-29*	48	51,06%
	30-39	34	36,17%
	40-49	11	11,7%
	>50	1	1,06%
Marital status	*Single*	48	51,06%
	Married	46	48,94%
Based on parity	*Nullipara*	49	52,13%
	Primipara	11	11,7%
	Multipara	34	36,17%
Pathology	*Corpus luteum*	33	35,11%
	Serous cystadenoma	27	28,72%
	Endometrioma	21	22,34%
	Mucinous cystadenoma	5	5,32%
	Mature cystic teratoma	7	7,45%
	Mesenchymal	1	1,06%
Hospital stays *(day)*	*Mean (SD)*	4,18±73,75	
Blood Transfusion	*No*	59	62,77%
	Yes	35	37,23%
Hemoglobin *(g/dL)*	*Mean (SD)*	11,27±2	
Hematocrit *(%)*	*Mean (SD)*	34,19±5,62	
WBC *(u/L)*	*Mean (SD)*	11715±3964,7	
Surgery Type	*Laparoscopic Cystectomy*	10	10,64%
	Cystectomy	58	61,7%
	Laparoscopic unilateral salpingo-oophorectomy	3	3,19%
	Unilateral salpingo-oophorectomy	20	21,28%
	Oophorectomy	2	2,13%
	Total abdominal hysterectomy-Bilateral salpingo-oophorectomy	1	1,06%

Table 4. Demographic characteristics and clinical outcomes of adnexal torsion group

Variables		N, %	
Age	*Mean (SD)*	29,98±10,66	
Age Group	*18-29*	33	55,93%
	30-39	12	20,34%
	40-49	13	22,03%
	>50	1	1,69%
Marital Status	*Single*	29	49,15%
	Married	30	50,85%
Based on Parity	*Nullipara*	28	47,46%
	Primipara	7	11,86%
	Multipara	24	40,68%
Pathology	*Corpus luteum*	8	13,56%
	Serous cystadenoma	40	67,8%
	Endometrioma	3	5,08%
	Mucinous cystadenoma	4	6,78%
	Mature cystic teratoma	3	5,08%
	Mesenchymal	1	1,69%
Hospital stays *(day)*	*Mean (SD)*	3,49±1,81	
Blood Transfusion	*No*	56	94,92%
	Yes	3	5,08%
Hemoglobin *(g/dL)*	*Mean (SD)*	12,16±1,55	
Hematocrit *(%)*	*Mean (SD)*	36,56±4,3	
WBC *(u/L)*	*Mean (SD)*	10873±3961,92	
Surgery Type	*Laparoscopic Cystectomy*	5	8,47%
	Cystectomy	22	37,29%
	Laparoscopic unilateral salpingo-oophorectomy	3	5,08%
	Unilateral salpingo-oophorectomy	26	44,07%
	Total abdominal hysterectomy-Bilateral salpingo-oophorectomy	3	5,08%

Table-5. Demographic characteristics and clinical outcomes of tuboovarian abscess group

Variables		N, %	
Age	*Mean (SD)*	39,82±8,2	
Age Group	*18-29*	8	10,53%
	30-39	21	27,63%
	40-49	40	52,63%
	>50	7	9,21%
Marital Status	*Single*	15	19,74%
	Married	61	80,26%
Based On Parity	*Nullipara*	10	13,16%
	Primipara	18	23,68%
	Multipara	48	63,16%
Hospital Stay (day)	*Mean (SD)*	8,42±3,44	
Blood Transfusion	*Yes*	62	81,58%
	No	14	18,42%
Hemoglobin (g/dL)	*Mean (SD)*	11±1,42	
Hematocrit (%)	*Mean (SD)*	33,59±4,04	
WBC (U/L)	*Mean (SD)*	15323,4±6911,85	
CRP *(mg/L)*	*Mean (SD)*	161,15±96,44	
	Median (IQR)	161,77 (83,61-245,12)	
Surgery Type	*Salpingectomy*	17	22,37%
	Laparoscopic unilateral salpingo-oophorectomy	3	3,95%
	Unilateral salpingo-oophorectomy	37	48,68%
	Oophorectomy	1	1,32%
	Abscess Drainage	9	11,84%
	Total abdominal hysterectomy-Bilateral salpingo-oophorectomy	5	6,58%
	Laparoscopic Abscess Drainage	4	5,26%

The hospital stay was observed to be longer in cases with TOA. Salpingectomy was the most common surgical operation performed in all cases. Clinical presentation differs in each patient. Our patients also most frequently had lower abdominal quadrant pain.

In the prospective study of Alouini et al., 205 patients who applied to the emergency department were examined, and 88% of the patients were consulted for abdominal/pelvic or lumbar pain and or metrorrhagia. The mean age of the patients was 31 years (8). In another study, patients were between the ages of 15 and 55 years. The majority (43%) of the patients aged 25-34 years, and most of (92%) of the patients were married (1). In our study, the mean age of the patients was 32.28±8.25 years. Our proportion of patients under 40 years of age in reproductive age was higher. The most common gynecological emergencies were seen in the 18-29 age group. Unlike the literature, 75.43% of our patients were married. In a study by Acharya et al., gynecological emergencies were most common in the age group of 20-29 years. The rate of gynecological emergencies was 23.30% among all surgeries performed. The researchers most commonly detected ectopic pregnancy (70.8%). In their study, twisted/ruptured ovarian cyst was found in 21.66% of the patients (9).

In another study, ruptured ectopic pregnancy (61%), hemoperitoneum and pyoperitoneum (6.26%), twisted ovarian cyst (6.26%) were detected in respective percentages of patients who applied to the clinic (1). In our patients, the rate of emergency gynecological operations among all gynecological operations was 11.47% which was lower relative to other studies. Similar to many studies cited in the literature, most commonly (50.64%) ruptured ectopic pregnancy was found in our patients. Ruptured ovarian cyst, ovarian torsion, tuboovarian abscess were seen less frequently.

In patients presenting with acute pelvic pain, appendicitis and ureteral calculi may mimic gynecological diseases. Gynecological diseases such as endometriosis and uterine fibroids can cause sudden onset lower abdominal quadrant pain. In these patients, differential diagnoses of emergencies should be made (10). In our patient group, at the time of the first admission, transabdominal or transvaginal ultrasonography were performed in each patient. Other diagnostic methods such as Doppler US, CT, or MRI were used in doubtful diagnoses.

Emergency surgery may not be considered in hemodynamically stable patients who are not actively bleeding, without any enlargement in the size of the hemoperitoneum, and no decrease in initial hemoglobin values during follow-up. However, when there is doubt about the diagnosis, diagnostic laparoscopy should be performed. In the study of Beuran et al., 56 patients diagnosed with hemoperitoneum due to ectopic pregnancy and ovarian cyst rupture were examined and the authors stated that laparoscopy can be used safely in patients with extensive intra-abdominal bleeding (7). In our clinic, the rate of emergency laparoscopy was found to be 16.81% among the patients. Salpingectomy was performed in 47.8% of gynecological emergency patients in a study among patients admitted to the emergency gynecology clinic (1, 9). In our study, consistent with the literature, salpingectomy was the most frequently performed surgical intervention in emergency patients with a rate of 41.16 percent.

Ectopic pregnancy is most commonly seen in the fallopian tubes. The incidence of implantation outside the fallopian tube is less than 10 percent. Ovarian pregnancy accounts for 0.15-3% of ectopic pregnancies and diagnosis is usually made pathologically (11). Cornual pregnancy is seen in 4% of ectopic pregnancies (2). In our study, tubal, ovarian, corneal ruptured ectopic pregnancies were observed in 94.04%, 2.55 %, and 0,85% of the

cases, respectively. Cesarean scar pregnancy is seen at a rate of 4% among ectopic pregnancies (12). In our patient group, scar pregnancy was observed in one (0.43%) case that is at a lower rate than that reported in the literature. Unilateral tubal twin pregnancy is seen in 1/125000 of spontaneous pregnancies (13). Spontaneous twin pregnancy, which is extremely rare, was observed in 1 patient. Heterotopic pregnancy is the simultaneous occurrence of ectopic and pregnancy (14). In our study, heterotopic pregnancy was observed in 2.13% of patients. In the subsequent follow-ups of the patients, intrauterine pregnancies were maintained after appropriate surgical interventions and deliveries were achieved.

In a study examining patients who underwent laparotomy for abdominal pain, the incidence of ectopic pregnancy was reported as 65.3 percent (15). In the study of Pradhan et al., only 36 ruptured ectopic pregnancies were observed within 5 years (16). This rate was quite low compared to many studies. In our study, this rate was found to be 9.36 percent.

The risk is reportedly 12.5, and 76.6 times higher when ectopic pregnancies had been previously experienced once and twice, respectively (17). In one study, a history of ectopic pregnancy was reported at a rate of 16.7 percent (16). In our study, this rate was found to be 9.36 percent. There is a strong correlation between serum β-hCG levels and depth of trophoblast infiltration (18). In a study, a better response to medical treatment was obtained when the β-hCG level was less than 2121mIU/ml (19). In another study, the extensive trophoblastic invasion was found at β-hCG concentrations over 6.475 mIU/ml (20). In our study, preoperative β-hCG values were measured for each patient, and the initial β-hCG value was found to be 3346 mIU/ml in cases of ruptured ectopic pregnancy.

The laparoscopic approach should be the surgical method of the first choice in ruptured ectopic pregnancy. It is preferred to open surgery due to shorter hospital stays, shorter operation time, and lesser intraoperative blood loss. Salpingectomy or salpingostomy can be performed when the contralateral tube is intact but the risk of persistent trophoblast and bleeding was found to be higher in salpingostomy (21). Because of these risks, laparoscopic salpingostomy was applied to only 2 patients in our clinic. Exploration by emergency laparotomy is one of the primary methods to be applied surgically in hemodynamically unstable patients and shock. We treated our patients diagnosed with ruptured ectopic pregnancy surgically, either using laparotomy (78.72%) or laparoscopic (21.28%) procedures.

Adnexal torsion may cause necrosis of the ovary or tuba, peritonitis, and a clinical picture that can lead to shock. It is most common in reproductive ages and very rare in the post-menopausal period (22). In our study, it was observed most frequently in the 18-29 age group with a rate of 55.93 percent. It was extremely rare, with a rate of 1.69% over the age of 50.

Huchon et al. determined a pattern in their retrospective study. Five parameters including abdominal pain lasting less than 8 hours after the first admission, vomiting, detection of a cyst larger than 5 cm in the ovary on the US, and absence of leukorrhea or abnormal vaginal bleeding were evaluated and the reliability of this model was determined to be 75% in diagnosing torsion (23). In another study, 7.64% of the patients who applied to the clinic with acute pelvic pain had a twisted ovarian cyst. (1). In the study of Oelsner et al., adnexal torsion was found in 3.5% of benign cystic teratomas (24). In our patient group, the twisted ovarian cyst was detected at a rate of 12,71 percent. Unlike many other studies, the pathological examination of these cysts was also classified and serous cystadenoma was the most

common finding with a rate of 67.80 percent. In the past, oophorectomy was performed in all cases due to the possible risk of embolism after ovarian detorsion. However, this approach has been completely abandoned today. One study evaluated 102 cases of ovarian torsion. All cases were treated by detorsion. Follicular development was detected and oocytes could be retrieved during ART treatment in patients who were still necrotic after detorsion but did not undergo oophorectomy (25). In our twisted ovarian group, the most frequently performed operation was detorsion and cystectomy.

Rupture of the ovarian cyst and hemorrhage is usually self-limiting and are seen in functional cysts. Many patients can be followed up without surgery (5,26). Kim et al. studied 78 cases of ruptured ovarian cyst with hemoperitoneum and they stated low diastolic blood pressure and a large amount of hemoperitoneum suggest the need for surgical intervention (27). In our study group, we operated on the patients with the diagnosis of cyst rupture in whom we detected extensive intra-abdominal bleeding. Publications are stating that the first choice in the rupture of the ovarian cyst is laparoscopic surgery. (5,28). In our clinic, cystectomy was performed most frequently in patients with ruptured ovarian cysts, with a rate of 72.34 percent. When examined pathologically, the most frequently corpus luteum cyst was found.

Treatment of tuboovarian abscess (TOA) should be safe, cost-effective, and efficacious. Surgery in TOA is technically difficult and can lead to complications. Minimally invasive methods such as transvaginal ultrasound-guided drainage of tuboovarian abscesses can also be applied (29). The most common surgical treatment applied to our patients was unilateral salpingo-oophorectomy with a rate of 48.68% and postoperative complications did not develop in any patients. TAH-BSO was applied to our patients with an abscess at a higher rate than other gynecological emergency diseases because these patients were at an advanced age relative to other patient groups and the majority of the patients were multiparous.

In a 5-year retrospective study, a success rate of 96.8% was achieved in the early surgical group and the risk of recurrence of the abscess within 1 year was found to be very low (30). In another study, when the cut-off values for the age of the patient, and the CRP values were accepted as 41.5 years and 143.5 mg/L, respectively, it was reported that above these values an early surgical approach should be preferred in large cases with TOA (4). In our patient group diagnosed with abscess, the mean age was 39.82±8.2 years. Most of the patients were aged 40-49 years and the mean CRP was 161.77 mg/L.

We have acknowledged that this study has some limitations. Data related to socio-economic status, education status, ethnicity of the patients were not analyzed in this study.

In conclusion, ectopic pregnancy was the most common type in patients who underwent emergency gynecological surgery in our study. The most common treatment method applied was salpingectomy. The majority of the patients presented with lower abdomen pain and were of reproductive age. In patients presenting with abdominal pain, the medical history should be taken meticulously, the abdominopelvic examination should be performed, and patients should be evaluated with pregnancy tests and laboratory findings. Our study was conducted with a remarkably higher number of patients. However, we need multicenter prospective studies that will determine the prognosis of patients in the long term.

Conflict of Interest

All authors declared no conflict of interest and no sources of funding.

Reference

1. Pokharel HP, Dahal P, Rai R, Budhathoki S. Surgical emergencies in obstetrics and gynecology in a tertiary care hospital. JNMA J Nepal Med Assoc. 2013; 52(189): 213-6

2. Panelli DM, Phillips CH, Brady PC. Incidence, diagnosis, and management of tubal and nontubal ectopic pregnancies: a review. Fertil Res Pract. 2015;15;1-15
3. Poonam, Uprety D, Banerjee B. Ectopic pregnancy - two years review from BPKIHS, Nepal. Kathmandu Univ Med J (KUMJ). 2005;3(4):365-9
4. Akselim B, Karaşin SS, Demirci A, Üstünyurt E. Can antibiotic treatment failure in tubo-ovarian abscess be predictable? Eur J Obstet Gynecol Reprod Biol. 2021;258: 253-257
5. Bottomley C, Bourne T. Diagnosis and management of ovarian cyst accidents. Best Pract Res Clin Obstet Gynaecol. 2009;23(5):711-724
6. Wattar B, Rimmer M, Rogozinska E, Macmillian M, Khan KS, Al Wattar BH. Accuracy of imaging modalities for adnexal torsion: a systematic review and meta-analysis. BJOG. 2021;128(1):37-44
7. Beuran M, Negoi I, Hostiuc S, Catena F, Sartelli M, Negoi RI, et al. Laparoscopic Approach has Benefits in Gynecological Emergencies - Even for Massive Hemo peritoneum. Chirurgia (Bucur). 2016;111(1):48-53
8. Alouini S, Mesnard L, Coly S, Dolique M, Lemaire B. Urgences gynécologiques: nature et degré de gravité. J Gynecol Obstet Biol Reprod. 2012;41(1):48-54
9. Acharya I, Thapa S. Surgical Emergencies among Gynecological Surgeries in a Tertiary Care Center: A Descriptive Cross-sectional Study. JNMA J Nepal Med Assoc. 2020;58(232):1052-1055
10. Knoepp US, Mazza MB, Chong ST, Wasnik AP. MR Imaging of Pelvic Emergencies in Women. Magn Reson Imaging Clin N Am. 2017;25(3):503-519
11. Szadok P, Kubiaczyk F, Bajorek A, Suchocki S. Ovarian ectopic pregnancy. Ginekol Pol. 2019;90(12):728
12. Maheux-Lacroix S, Li F, Bujold E, Nesbitt-Hawes E, Deans R, Abbott J. Cesarean Scar Pregnancies: A Systematic Review of Treatment Options. J Minim Invasive Gynecol. 2017;24(6):915-925
13. Seak CJ, Goh ZNL, Wong AC, Seak JC, Seak CK. Unilateral live twin tubal ectopic pregnancy presenting at 12 weeks of gestation: A case report. Medicine. 2019;98(38):e17229
14. Ramalho I, Ferreira I, Marques JP, Carvalho MJ, Lobo A, Rebelo T, et al. Live birth after treatment of a spontaneous ovarian heterotopic pregnancy: A case report. Case Rep Women Health. 2019;10(24):e00144
15. Awori MN, Jani PG. Surgical implications of abdominal pain in patients presenting to the Kenyatta National Hospital casualty department with abdominal pain. East Afr Med J. 2005;82(6):307-310
16. Pradhan P, Thapamagar SB, Maskey S. A profile of ectopic pregnancy at Nepal medical college teaching hospital. Nepal Med Coll J. 2006;8(4):238-42
17. Bouyer J, Coste J, Shojaei T, Pouly JL, Fernandez H, Gerbaud L, et al. Risk factors for ectopic pregnancy: a comprehensive analysis based on a large case-control, population-based study in France. Am J Epidemiol. 2003;157(3):185-194
18. Elito J Jr, Ferreira DF, Araujo Júnior E, Stavale JN, Camano L. Values of beta-human chorionic gonadotrofin as a risk factor for tubal pregnancy rupture evaluated by histopathology. J Matern Fetal Neonatal Med. 2014;27(6):637-639
19. Helmy S, Bader Y, Pablik E, Tiringer D, Pils S, Laml T, et al. Cut-off value of initial serum β-hCG level predicting a successful MTX therapy in tubal ectopic pregnancy: a retrospective cohort study. Eur J Obstet Gynecol Reprod Biol. 2014;179:175-180
20. Turgut EN, Celik E, Celik S, Arikan DC, Altuntas H, Leblebici C, et al. Could serum β-hCG levels and gestational age be the indicative factors for the prediction of the degree of trophoblastic invasion into tubal wall in unruptured ampullary pregnancies? Arch Gynecol Obstet. 2013;287(2):323-8
21. Ozcan MCH, Wilson JR, Frishman GN. A Systematic Review and Meta-analysis of Surgical Treatment of Ectopic Pregnancy with Salpingectomy versus Salpingostomy. J Minim Invasive Gynecol. 2021;28(3):656-667
22. Abdelazim IA, AbuFaza M, Bekmukhambetov Y, Zhurabekova G, Shikanova S. Postmenopausal adnexal torsion: case report. Prz Menopauzalny. 2020;19(1):49-51
23. Huchon C, Staraci S, Fauconnier A. Adnexal torsion: a predictive score for pre-operative diagnosis. Hum Reprod. 2010;25(9):2276-2280
24. Oelsner G, Shashar D. Adnexal torsion. Clin Obstet Gynecol. 2006;49(3):459-463
25. Oelsner G, Cohen SB, Soriano D, Admon D, Mashiach S, Carp H. Minimal surgery for the twisted ischaemic adnexa can preserve ovarian function. Hum Reprod. 2003;18(12): 2599-2602
26. Fiaschetti V, Ricci A, Scarano AL, Liberto V, Citraro D, Arduini S, et al. Hemoperitoneum from corpus luteal cyst rupture: a practical approach in emergency room. Case Rep Emerg Med. 2014:252657
27. Kim JH, Lee SM, Lee JH, Jo YR, Moon MH, Shin J, et al. Successful conservative management of ruptured ovarian cysts with hemoperitoneum in healthy women. PLoS One. 2014;9(3):e91171
28. Teng SW, Tseng JY, Chang CK, Li CT, Chen YJ, Wang PH. Comparison of laparoscopy and laparotomy in managing hemodynamically stable patients with ruptured corpus luteum with hemoperitoneum. J Am Assoc Gynecol Laparosc. 2003;10(4):474-477
29. Granberg S, Gjelland K, Ekerhovd E. The management of pelvic abscess. Best Pract Res Clin Obstet Gynaecol. 2009;23(5):667-678
30. Zhu S, Ballard E, Khalil A, Baartz D, Amoako A, Tanaka K. Impact of early surgical management on tubo-ovarian abscesses. J Obstet Gynaecol. 2021;41(7):1097-1101

Contact Details

Simten Genç, MD
Okmeydanı Training and Research Hospital, Cemil Taşçıoğlu City Hospital Medicine, Istanbul, Turkey; Darulaceze Cad. No:25, Okmeydani, Sisli, 34384, Istanbul, Turkey
E-mail: simtengenc@yahoo.com.tr
ORCID: 0000-0003-4446-4467

Yagmur Olmez Ozkan, MD
Department of Obstetrics and Gynecology
Okmeydanı Training and Research Hospital
Istanbul, Turkey (Prof. Dr. Cemil Taşçıoğlu City Hospital); Darulaceze Cad. No:25, Okmeydani, Sisli, 34384, Istanbul, Turkey
E-mail: yagmurolmez92@hotmail.com
ORCID: 0000-0003-0568-9575

How to cite?
Genc S, Ozkan YO. Surgical Treatment in Gynecological Emergency: The Experience of a Tertiary Hospital. Ulutas Med J. 2022;8(1):5-17
DOI: 10.5455/umj.20220123023926