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Retrospective Analysis Of Factors Affecting The Clinical Course And Treatment Outcome Of Ectopic Pregnancy

Ektopik Gebelik Klinik Seyrini ve Tedavi Sonuçlarını Etkileyen Faktörlerin Retrospektif Analizi

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ABSTRACT

Aim: Ectopic pregnancy (EP) is a life-threatening serious medical condition in which the embryo implants outside the uterine cavity. Without appropriate treatment it has an increased morbidity and mortality rates. The aim of this retrospective study is to identify the incidence, clinical characteristics and treatment outcomes associated with EP in a tertiary referral center.

Material and Methods: In this study, we retrospectively evaluated a total of 79 EP cases that was diagnosed and treated between 2011 and 2015 in Department of Obstetrics and Gynecology at Çanakkale Onsekiz Mart University. The medical records of EP patients were retrieved from hospital patient database and recorded to the data-entry forms designed for this purpose.

Results: During a 5 years period a total of 1920 deliveries with 79 EP diagnoses recorded. The incidence of EP was found to be 4.1%. The peak age group was 30-34 years (34.2%). Abdominal and/or pelvic pain (56.9%) was the most common presenting complaint. The diagnosis was mostly achieved by ultrasound and serial βhCG measurements. Medical and surgical treatments are the most common treatment options. No mortality was observed in EP patients.

Conclusion: EP still considered to be a major health problem with considerable morbidity and mortality rates. Early and appropriate treatment is necessary for a favorable outcome and to avoid various complications. Greater emphasis should be laid on prevention and early detection of EP so as to give patients opportunities for tubal conservation and decreasing surgical requirement.

Keywords: Ectopic pregnancy, treatment, risk factors

ÖZ

Amaç: Ektopik gebelik (EG) embryonun uterin kavite dışında bir yerde implante olmasıyla karakterize ciddi bir medikal durumdur. Uygun tedavi verilmediğinde artmış morbidite ve mortalite ile ilişkilidir. Bu retrospektif çalışmanın amacı bir üçüncü basamak tedavi merkezi olan hastanemizde EG insidansı, klinik karakteristikleri, ve tedavi sonuçlarını analiz etmektir.

Gereç ve Yöntemler: Bu çalışmada Çanakkale Onsekiz Mart Üniversitesi Kadın Hastalıkları ve Doğum kliniğinde 2011ve 2015 yılları arasında EG tanısı alan 79 hasta retrospektif olarak incelendi. EG hastalarının tıbbi bilgileri hastane kayıt sisteminden alınarak bu çalışma için tasarlanmış formlara kayıt edildi.

Bulgular: Beş yıllık sürede kliniğimizde gerçekleşen 1920 doğum içinde 79 EG vakası saptandı. EG insidansı %4.1 olarak kayıt edildi. Tanı alan hastaların en sık gözlendiği yaş aralığı 30-34 (34.2%) yıl idi. Abdominal ve/veya pelvik ağrı %56.9 ile en sık gözlenen şikayetti. Tanı sıklıkla ultrasonografik incelemeler ve seri βhCG ölçümleri ile konuldu. Tıbbi ve cerrahi yöntemler en sık başvurulan tedavi şekilleri idi.EG hastalarında mortalite izlenmedi.

Sonuç: EG belirgin morbidite ve mortalite ile seyreden ciddi bir sağlık sorunu olmaya devam etmektedir. Ciddi komplikasyonların önlenmesi için erken ve uygun tedavi verilmesi son derece önemlidir. Bununla birlikte EG'den korunma ve erken tanı, tüplerin korunması ve cerrahi ihtiyacının azaltılması açısından özel bir önem taşımaktadır.

Anahtar Kelimeler: Ektopik gebelik, tedavi, risk faktörleri

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Introduction

Ectopic pregnancy (EP) is a common, life-threatening condition that affects 1-16/1000 among all pregnancies and occurs when a fertilized ovum implants outside the normal uterine cavity resulting an increased maternal mortality and morbidity in the first trimester. Due to its bizarre clinical presentation and clinical course it is a real challenge for the obstetrician (1, 2). Although an increase in the incidence of EP has been widely reported in the last two decades, the reason for this increase has not been fully elucidated. But most risk factors are seems to be associated with prior damage to the fallopian tube, infection or congenital tubal damage, pelvic inflammatory disease (PID), presence of intrauterine device (IUD), ovulation inducing drugs and previous EPs (3,4).

There is considerable regional variation in EP incidence and there is a significant rising global trend over the past decades. In most of Europe and North America, the incidence of EP has tripled over the last 30 years and is currently estimated at 2% of live births (5). But despite its increasing incidence, the chances of early diagnosis have increased and mortality associated with ectopic pregnancy have decreased from 19.6/10.000 to 3.4/10.000 due to common applications of transvaginal ultrasound (USG), minimally invasive surgeries and sensitive laboratory quantitative human chorionic gonadotropin (hCG) measurements (6). With the help of these early diagnostic tools, the risk of tubal rupture decreases and allows more conservative medical treatments to be employed. Unfortunately this decline is apparent especially in developed countries. In developing countries; a majority of hospital-based studies have reported an EP case-fatality rates of around 1%–3%, 10 times higher than those reported in countries with developed economies and health systems (7).

The aim of this study is to analyze the clinical features and risk factors which affect treatment outcomes in EP patients. For this reason, patients who were diagnosed as EP at our institution were retrospectively evaluated in order to make strict recommendations on interventions to reduce morbidity and mortality rates of this life-threatening condition.

Material And Methods
Characteristics of the Patients

Seventy-nine patients aged 32.2±5.8 years and diagnosed as EP between March 2011 and December 2015 at gynecology and obstetrics department of Çanakkale Onsekiz Mart University Hospital, were retrospectively evaluated. The medical data of each patient was obtained from the hospital records, discharge summaries and operation notes. All the relevant information including the details of demographic characteristics, clinical symptoms and signs, diagnostic tools used, treatment, risk factors for the EP, outcome of treatment as well as associated morbidity and mortality were obtained and recorded in a structured data-entry form prepared by the study conductors. The gynecology and total birth records for the study period were also collected from the gynecology and maternity ward record books. All those whose medical records were incomplete or missing were excluded from the study. The study was approved by the hospital's Research and Ethics Committee (18920478-050.01.04-E.47930)

Statistical Analysis

Statistical Package for Social Sciences (SPSS) for Windows 18.0 (SPSS for Windows, SPSS, Chicago) was used for statistical analysis. The process involved descriptive statistics.

Results

During the study period of 5 years, there were a total of 1920 deliveries in our university hospital and 79 EP cases were diagnosed and treated. The incidence of EP in the present study was found to be 4.1% (1920/79 deliveries). A great majority of the patients was between 30-34years (Table 1), and 21.5% was primigravida (17/79). Previous abdominal /pelvic surgery and dilation and curettage history was found to be a significant factor contributing to EP development (Table 1). Abdominal and/or pelvic pain and amenorrhea was most consistent symptoms in 56.9% and 65.8% of women respectively (Table 2). Vaginal bleeding was seen in 32.9% of EP patients (Table 2).

According to the EP sites, tuba is the most common localization of EP (77.4%). The other EP sites are depicted in table 3.βhCG values of EP patients at diagnosis are given in table 4. The majority of patients had a βhCG values between 1501-3000 (36.7%). The most common contraception method among EP patients was found to be coitus interruptus (56.9%) followed by condom (26.6%) and intrauterine device (IUD) (11.4%) (Table 5).

According to treatment modalities, expectation method was applied in only 1 (1.2%) patient. Medical treatment with methotrexate was applied to 59 (74.7%) patients and surgery was performed to 15(18.9%) patients. Four patients both received medical and surgical treatments. (Table 6). Among patients that received surgical treatment, laparoscopic salpingectomy (26.3%) was the most widely applied modality. The other surgical modalities that applied to EP patients are depicted in table 7.

Table 1: Demographic characteristics of study participants

Age group (years)	Number (n=79)	%
<20	1	1.2
20-24	10	12.6
25-29	11	13.9
30-34	27	34.2
35-39	24	30.4
≥40	6	7.7
Gravida		
1	17	21.5
2	24	30.4
3	22	27.8
4	11	13.9
≥5	5	6.4
Previous abdominal/pelvic operation		
Yes	50	63.2
No	29	36.8
Dilation and curettage history		
Yes	32	40.5
No	47	59.5

Table 2:Clinical presentation of Ectopic Pregnancy patients at diagnosis

Clinical presentation	Number (n=79)	%
Abdominal/pelvic pain	45	56.9
Vaginal bleeding	26	32.9
Amenorrhea	52	65.8

Table 3: Site of ectopic pregnancy(EP)

Site of EP	Number (n=79)	%
Tubal	61	77.4
Ovarian	4	5.1
Cornual	1	1.2
Cervical	3	3.8
Heterotopic	10	12.4

Table 4: Beta hCG values of EP patients

β-hCGvalues (IU/ml)	Number (n=79)	%
5-1500	27	34.2
1501-3000	29	36.7
3001-4500	11	13.9
4501-6000	4	5.1
6001-7500	3	3.8
>7500	5	6.3

Table 5: Contraception methods of Ectopic Pregnancy patients

Contraceptionmethod	Number (n=79)	%
No contraception+/- Coitus interruptus	45	56.9
Condom	21	26.6
Intrauterinedevice (IUD)	9	11.4
Oral contraceptivepills	1	1.2
Tuballigation	3	3.9

Table 6: Treatment of EctopicPregnancy patients

Treatmentoptions	Number (n=79)	%
Expectation	1	1.2
Medicaltreatment	59	74.7
Surgery	15	18.9
Medical+surgery	4	5.2

Table 7: Type of surgical treatment

Surgery	Number (n=19)	%
Laparoscopy		
Salpingostomy	3	15.7
Salpingectomy	5	26.3
Oophorectomy	1	5.3
Laparotomy		
Salpingostomy	4	21.1
Salpingectomy	2	10.5
Dilation and curettage	4	21.1

Discussion

In the present study the incidence of EP was found to be 4.1%. It is also noted that previous abdominal/pelvic operation history significantly increases EP development. Moreover spontaneous or induced abortion is significant risk factors predisposing EP.

Although EP prevalence among women admitting to emergency services with bleeding in first trimester, abdominal or pelvic pain ranges from 6-16%, the incidence of EP differs between studies (8). In a recent study from Bangladesh by Yeasmin et al (9) the incidence of EP was reported to be 7.4/1000 deliveries with a majority of patients belonged to the age group 20-25 years (44.6%). Similarly in a retrospective analysis of 205 EP patients, it was reported that EP incidence was 2.1 % and a majority of patients' ages were between 25-29 (42.9%). Compatible with current literature, our study found an actual EP incidence of 4.1% with a highest incidence among 30-34 years.

In order to reduce morbidity and mortality rates associated with EP early and accurate detection is strongly needed. This is not only allows to reduce repeated emergency department visits, hospitalizations due to complications, emergency and elective surgical operations but also future infertility and mortality rates. The most common presenting symptoms associated with EP are abdominal and pelvic pain as in our study. The other complaints related to EP are amenorrhea and abnormal vaginal bleeding. In a recent study by Gupta R et al. (10) 87.5% of women with EP reported to have abdominal pain, 67.5% reported vaginal bleeding and 90% of patients had history of amenorrhea ranging from 6 weeksto 4 months. Based on this high symptom rates, detection of these features should motivate physicians to request further tests to ascertain the diagnosis of EP.

In order to establish a definitive diagnosis of EP history, physical examination and simple diagnostic tests including urine pregnancy test, abdominal USG examination and paracentesis has considerable diagnostic values. USG should be the initial investigation for symptomatic women in their first trimester; when the results are indeterminate, the serum βhCG levels should be measured for each patient. The importance of USG is also demonstrated in a study by Condous et al (11). The authors stated that an experienced sonologist can diagnose 75-80% of ectopic gestation by transvaginal sonography in the first visit itself. In our study the diagnosis of each patient was confirmed with USG

and serial βhCG measurements. At the time of diagnosis a majority of patients (36.7%) had βhCG levels between 1501 and 3000 IU/l. Moreover USG assessments were found to be compatible with EP diagnosis.

In the present study, tubal pregnancy found in 77.4% EP patients. The commonest tube location was ampulla.Ampullary part of the tube was commonly involved in most of the EPs in other studies (12). Nearly 80% of all EPs are localized in tubal ampulla, 12% in isthmic part, 5% in fimbria and 2% in interstitial part (cornual pregnancy). Other EP sites are uncommon with an incidence of 1% and localized in ovaries, cervix and abdomen (13). In a retrospective analysis, Khaliquee et al. (12) reported that 58.9% of their EP patients had anampullary EP localization whereas 15.4% fibrial and 7.7% isthmus localization. In this context our results are considered to be comparable with Khaleeque et al.

Based on clinical condition and the presentation of the patient, the treatment of EP can be either or both medical or surgical. Although historically the treatment was limited to surgery decades ago, with evolving experience with methotrexate the treatment of selected cases has been revolutionized. This change in treatment approach is because for a number of reasons including eliminating morbidity resulting surgery and anesthesia, potentially less tubal damage, and need for hospitalization. Moreover in selected cases in which the risk of tubal rupture is minimal, expectant management is appropriate option of treatment(14). In the present study 74.7% patients underwent medical management with methotrexate. Expectant management was applied only 1 (1.2%) of patients and 19 patients underwent surgical operation (either laparoscopy or laparotomy). With appropriate and adequate treatments, we had no recorded mortality during the study period. This is probably because of being a specialized tertiary reference center and the relatively small size of our study population. There is a 1.5-3.7% reported mortality rates during the clinical course of EP in different studies (15).

In conclusion, EP still remains a major gynecological problem associated with considerable mortality and mortality rates. Early identification of associated risk factors with and using appropriate diagnostic tools including USG and serum markers help in reducing morbidity and mortality rates associated with EP. Moreover appropriate medical or surgical treatment will be of definite benefit by improving fertility outcomes.

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