

Diagnosis and Management of Ectopic Pregnancy in King Abdulaziz University Hospital: A Four Year Experience

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Abstract. The objective of this study is to describe the presentation and different modalities of management of ectopic pregnancies admitted to the gynecology ward over the same period. It is a retrospective study conducted between 19th March 2005 and 19th March 2008 of patients diagnosed and managed as an ectopic case. During this period, out of the 3921 admissions 52 cases were ectopic. Information was obtained by revising the medical records, history, physical examination, laboratory tests; or notes, hospital course and discharge summaries. Data was stored using Excel spreadsheet. Statistical analysis consisted of descriptive statistics calculated using StatsDirect software. A total number of 52 patients ranging from 18 years to 46 years were included in the study. Majority of the patients had no risk factors at presentation. Diagnosis was made depending mainly on ultrasound findings. 37 patients underwent surgical intervention; on the other hand, 10 received medical treatment. Ectopic pregnancy remains a major cause of maternal morbidity and mortality despite the modern day advances. In our study, fifth of the cases presented with ruptured ectopic. This delineates the importance of stressing on early detection.

Keywords: Ectopic pregnancy, Human chorionic gonadotropin, Laparoscopy, Laparotomy, Methotrexate.

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Introduction

There is a substantial and worldwide increase in ectopic pregnancy in recent decades^[1]. Ectopic pregnancy is a high risk condition occurring in 2% of all pregnancies^[2]. Predisposing risk factors, including tubal damage, multiple embryo transfer, smoking, IUCD, maternal age > 35 yrs and previous surgical interventions. The etiology is multifactorial; microbial infections of the genital tract favor ectopic implantation. Low fertility and high recurrence are the two important adverse effects of ectopic pregnancy even in the clinically treated patients^[3,4]. Despite the revolution in diagnostic techniques by laboratory test and high resolution transvaginal sonography, ruptured ectopic pregnancy remains a major cause of pregnancy related to maternal morbidity in the first trimester^[5,6]. Management of patients varies between conservative, medical or surgical intervention depending on the presentation, results of the investigations, ultrasound findings and last but not least, the experience of the attending physician^[7,8]. Treatment with methotrexate (MTX) single dose has long been in use as a reliable method when ectopic mass is less than 3.5 cm. Some authors believe that the fetal cardiac activity is not a hurdle for medical treatment. But, others experienced high failure rate in the presence of fetal heart activity. One should be prepared to face any emergency situation leading to surgical intervention^[9].

Spontaneous resolution could happen, but it's difficult to predict that the patient will experience uncomplicated spontaneous abortion. This modality of treatment can be adapted if the patient is kept under close observation where human chorionic gonadotropin is less than 2000 IU/L and is declining^[10,11].

Operative laparoscopy has some benefits such as low cost, low surgical risk and shorter convalescence period. On the other hand, laparoscopic procedures have failed to remove remnant trophoblast completely when compared to laparotomy^[12]. Salpingectomy is preferred over salpingotomy when the contralateral tube is healthy. Salpingotomy is reasonable when there is only one tube, but is associated with a 20% rate of further ectopic. Almost all the emergency cases are preferred only by laparotomy procedures because of the high advantage of visualization and more confidence to grab the tissue and control bleeding^[13].

Methodology

This was a retrospective study on patients admitted to the Gynecology Ward in King Abdulaziz University Hospital over a 4-year period. The total number of admitted ectopic cases was 52 of 3,921 gynecology cases. Information was obtained by revising the medical records, history, physical examination, laboratory tests, OR notes, hospital course and discharge summaries. Patients presented to the emergency room were evaluated by the emergency medicine attending physician and gynecology resident on call. All patients underwent a general physical and pelvic examination, pregnancy test and an ultrasound, except 4 cases where rupture ectopic was suspected. Ultrasound was conducted in the Radiology Department by the radiologist on call. Patients were divided into 2 groups: the first group was diagnosed as definite ectopic pregnancy due to the presence of extra uterine adnexal mass, with fetal pole seen and with or without fetal cardiac activity^[14,15], the second group was diagnosed as suggestive of ectopic pregnancy where no intra-uterine gestational sac was seen with large or moderate amounts of echogenic free fluid in *cul-de-sac*^[16-18]. Data was stored using Excel spreadsheet (Microsoft). Statistical analysis consisted of descriptive statistics calculated using Stats Direct software.

Results

A total number of 52 patients ranging in age from 18 to 46 years (mean 31 years) were included in the study. This study showed that the prevalence of ectopic pregnancies in King Abdulaziz University Hospital over a period of 4 years is 0.5% (52 ectopic of 9,414 deliveries in the same period).

The most common presentation was abdominal pain, which was found to be mild to moderate in 36 (69.2%) patients and severe with radiation in 13 (25%) patients. Thirteen (25%) patients had vaginal bleeding and 51 (98%) patients had missed their period with a median of 6 weeks in 13 (25%) patients.

However, 37 (71%) patients were found to have no risk factors. 2 (3.8%) patients had 10 abortions, 20 (38.5%) patients had 1-3 abortions and 3 (5.8%) patients had previous ectopic pregnancies. One (1.9%) patient had tubal operation done, 2 (3.8%) patients had ovulation

induction, 3 (5.8%) patients had Intra Uterine Contraceptive Device (IUCD) in place and 9 patients had more than one risk factor.

On examination, 32 (61.5%) patients were vitally stable and 5 (9.6%) patients were in shock; 3 (5.8%) patients were febrile ($> 37.5^{\circ}\text{C}$), 7 (13.5%) patients were tachycardia (pulse > 100), 39 (75%) patients were found to have abdominal tenderness, 12 (23%) patients had guarding, 7 (13%) patients had abdominal distension and 16 (30.8%) patients had rebound tenderness. Six (11.5%) patients presented with vaginal bleeding, 7 (13.5%) patients had positive cervical excitation, 1 (1.9%) patient had adnexal tenderness and 3 (5.8%) patients had more than one abnormal findings (Table 1).

Table 1. Symptoms, signs and risk factors in ectopic patients enrolled in this study.

Symptoms	Number (Percentage)
Mild- Mod abdominal pain	36 (69.2%)
Severe abdominal pain	13 (25%)
Bleeding	13 (25%)
Missed period	51 (98%)
Risk factors	Number (Percentage)
No risk factors	37 (71%)
10 Abortions	2 (3.8%)
1-3 Abortions	20 (38.5%)
Ectopic Pregnancy	3 (5.8%)
Tubal Operation	1 (1.9%)
Ovulation Induction	2 (3.8%)
IUCD	3 (5.8%)
More than one factor	9 (17.3%)
Signs	Number (Percentage)
Vital signs (Stable)	32 (61.5%)
(Shock)	5 (9.6%)
Febrile ($>37.5^{\circ}\text{C}$)	3 (5.8%)
Tachycardia (> 100)	7 (13.5%)
Guarding	12 (23%)
Abdominal tenderness	39 (75%)
Rebound tenderness	16 (30.8%)
Abdominal distension	7 (13.5%)
Vaginal bleeding	6 (11.5%)
+ve cervical excitation	7 (13.5%)
Adnexal tenderness	1 (1.9%)
More than one factor	3 (5.8%)

For patients with definite diagnosis of ectopic pregnancy; B Human Chorionic Gonadotropin (hCG) levels ranged from 33 mIU/mL to 73,679 mIU/mL (mean, 6464 mIU/mL). However, 10 patients had a 2nd reading for B hCG before intervention, the mean of B hCG fell to (mean, 5212 mIU/mL). Only 10 (19.2%) patients had follow-up of B hCG level in the blood after management. On ultrasound, 42 (80.8%) patients had no intrauterine gestational sac, 16 (30.8%) patients had free fluid in the Douglas pouch, 44 (84.6%) patients had adnexal masses, and the fetal heart activity or fetal pole was seen. Eight (15.4%) patients had no ultrasound done as their presentation were clear and were managed stat. And 50 (96%) patients had a positive pregnancy test (Table 2). As for clinical diagnosis, 13 (25%) patients had ectopic as the differential diagnosis, 31 (59.6%) patients were clinically diagnosed as ectopic and 8 (15.4%) patients were clinically diagnosed as ruptured ectopic. After final diagnosis, 9 (17.3%) patients still had ectopic in the differential, 33 (63.5%) patients remained consistent with the initial ectopic diagnosis, 8 (15.4%) patients remained consistent with ruptured ectopic diagnosis and 2 (3.8%) patients had a different diagnosis.

Table 2. Diagnosis of ectopic patients in this study.

Diagnosis	Number (Percentage)
Pregnancy test +ve	50 (96.1%)
B hCG before Rx	43 (82.7%)
B hCG follow-up	10 (19.2%)
IU gestational sac	42 (80.8%)
Fluid in Douglas pouch	16 (30.8%)
Complex mass	39 (75%)
Fetal heart activity	3 (5.8%)
Fetal pole	2 (3.8%)

Patients were managed as follows: 6 (11.5%) patients were conservatively with close observation only, 10 (19.2%) patients were given MTX, 35 (67.3%) patients underwent surgical treatment either laparoscopy or laparotomy or both, out of those only 7 (13.5%) patients required surgical intervention and blood transfusion and one (1.9%) patient was discharged to another hospital.

Reports showed; one (1.9%) patient underwent laparoscopy and was found to have no signs of ectopic; 1 (1.9%) patient underwent laparoscopic salpingotomy, 18 (34.6%) patients underwent laparoscopic salpingectomy, 5 (9.6%) patients were shifted to laparotomy because of technical difficulties, hence, 1 (1.9%) patient had diagnostic laparoscopy and MTX was given and 1 (1.9%) patient had aborted ectopic and normal anatomy. Thus, 15 (28.8%) patients underwent laparotomy with 13 (25%) salpingectomies, 1 (1.9%) salpingo-oophorectomy and 1 (1.9%) had evacuation of the ectopic (Tables 3 and 4).

Table 3. Management of patients in this study.

Management	Number (Percentage)
Conservative	6 (11.5%)
Medical (MTX)	10 (19.2%)
Surgical	28 (53.8%)
Surgical +Bld transfusion	7 (13.5%)
D/C to another hosp	1 (1.9%)

Table 4. The details of management.

	Laparoscopy	Laparotomy
Total number	22 (42%)	15 (28.8%)
Salpingotomy	1 (1.9%)	0
Salpingectomy	18 (34.6%)	14 (26.9%)
MTX	1 (1.9%)	0
Blood transfusion	1 (1.9%)	5 (9.6%)
Average Hospital stay	2-3 days	5-7 days

MTX = Methotrexate

Conclusion

Ectopic pregnancy remains a major cause of maternal morbidity and mortality despite advances in diagnostic and therapeutic tools^[19]. In this present study, one fifth of the cases were presented with ruptured ectopic.

Clinically the diagnosis of ectopic pregnancy is not always straightforward. In this study, only 87.9% were a definite diagnosis based on the recognized clinical features, ultrasound and laboratory findings.

The dilemma remains that the majority of cases present with no risk factors and have an atypical presentation^[20]. In this study, 71% of the patients presented with no risk factors. Only 5.8% presented with previous ectopic while 3.8% presented with a history of induction ovulation. One third of the patients presented with acute abdomen.

The diagnosis is usually made clinically based upon results from ultrasound in correlation with hCG hormone testing. The confirmation of the diagnosis by visualization at surgery or histopathological examination of tissue is unnecessary. However, in the absence of definitive surgical, sonograph, or histopathological findings, it may not be possible to differentiate between a failed intrauterine pregnancy and an ectopic pregnancy.

Diagnosis was mainly made by ultrasound where 80% had no intrauterine gestational sac; presence of complex adnexal masses was in 75% of the cases with moderate to large amounts of fluid in the Douglas pouch in 30.8% of the cases.

The most significant findings for ectopic pregnancy were the presence of live extra uterine pregnancy found only in 3% to 26% of cases of ectopic pregnancy. Patients within the reproductive age presenting with abdominal pain, amenorrhea and vaginal bleeding should be suspected for ectopic pregnancy, especially those with risk factors for extra uterine pregnancy.

In clinically stable patients with low B-hCG, conservative management could be an acceptable option; conservative management treated 6 patients successfully. Their mean B hCG was 955.5 IU/L. This modality should not be adapted, except under strict criteria with close observation of the patient since it's difficult to predict uncomplicated spontaneous resolution^[21].

Only one-fifth of the patients who fulfilled the criteria of medical management successfully underwent MTX therapy. The choice of therapy in these cases is usually guided by the patient's preference.

In women who were hemodynamically stable, medical and surgical therapy proved to be equally effective in contrast with those who were unstable where laparotomy proved to be more efficient.

This delineates the importance of stressing on early detection by having high index of suspicion by the physician and by educating the patients.

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تشخيص وعلاج حالات حمل خارج الرحم في مستشفى جامعة الملك عبدالعزيز، خبرة أربعة سنوات

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المستخلص. تهدف هذه الدراسة إلى وصف مختلف الصور السريرية والطرق العلاجية لحالات حمل خارج الرحم التي عولجت في القسم لفترة أربعة سنوات. تمت الدراسة بمراجعة ملفات المرضى، حيث تبين أنه تم إدخال ٥٢ مريضة إلى قسم النساء في الفترة المذكورة آنفاً، علماً أن عدد الولادات هو ٩٤١٤، أي أن نسبة حمل خارج الرحم إلى حالات الولادة هو ٠,٥%. وقد لوحظ أنه لا توجد عوامل الخطورة المعروفة في معظم هذه الحالات (٧٠%)، وأن الغالبية قد حضرن بسبب آلام متوسطة إلى شديدة (٦٩%) وأنه فقط (٢٥%) منهن كن يعانين من نزف مهلي، معظمهن حضرن ووظائفهن الحيوية مستقرة. إلا أن (٩,٦%) حضرن بحالة صدمة دموية. تم الاعتماد بالتشخيص بصورة أساسية على فحص هرمون الحمل الكمي في الدم، ومقارنة نتيجته بنتائج التصوير بالأشعة فوق الصوتية التي أعطت دقة جيدة للتشخيص.

عولجت الحالات المستقرة إما بجراحة المنظار، أو بالعلاج الدوائي (الميثوتركسيت) بنتيجة جيدة، أما الحالات التي لم يكن وضع المريضة مستقرًا فيها، فقد عولجت بإجراء فتح بطن استقصائي وعلاجي.

تؤكد هذه الدراسة أن حالات حمل خارج الرحم لا تزال إلى الآن تشكل خطورة صحية على حياة المرضى، ويمكن التخفيف من أضرارها بأن يبقى التشخيص في ذهن الطبيب مع تثقيف المرضى لأعراضه.