

Diagnosing Ectopic Pregnancy in the UK Emergency Department

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Abstract

Objectives: To examine the pattern of presentation of ectopic pregnancy and the role of the Emergency Department (ED) in its diagnosis and management.

Method: The medical records of consecutive patients with ectopic pregnancy diagnosed and treated over a 16-month period at Southampton University Hospitals NHS Trust in the UK were reviewed retrospectively. Data were collected on initial presentation route to medical care, chief complaints, other presenting symptoms, means of diagnosis, and management.

Results: Seventy-seven women were included in the analysis. Twenty-six percent initially presented at the ED. More than half (52%) did not have the classic symptom triad of vaginal bleeding, abdominal pain, and amenorrhea. Diarrhea (7%) and syncope (4%) were relatively common presenting symptoms. Fifty-six percent of patients did not have risk factors for ectopic pregnancy. A urine pregnancy test was performed in 97% of cases; one was negative. The large majority of women referred to obstetrics/gynecology from the ED underwent ultrasound within 24 hours. Nine percent of the women required emergency surgery. None of the patients died.

Conclusion: About one-fourth of ectopic pregnancies present via the ED. Therefore, emergency medicine physicians must be alerted to the common presence of nonclassic symptoms and maintain a high index of suspicion when treating women of child-bearing age.

MeSH Words: Ectopic pregnancy, tubal pregnancy, emergency department, diagnosis

Introduction

Ectopic pregnancy is potentially life- and fertility-threatening, and its early recognition is an important factor in successful management [1-4]. In the UK, the incidence of ectopic pregnancy is 11 per 1000 pregnancies. Ectopic pregnancy was the direct cause of 12 deaths in the UK in 1994-1996, 13 deaths in 1997-1999, and 11 deaths in 2000-2002. In most cases, death was attributed to a delay in providing medical attention in the emergency department (ED) following triage or patient discharge from the ED

because of a misdiagnosis of urinary tract infection [4].

Physicians are trained in medical school to recognize ectopic pregnancy by the classic triad of abdominal pain, vaginal bleeding, and amenorrhea. However, in clinical practice, the presentation of ectopic pregnancy is often varied and nonspecific; sometimes the physician is faced with a woman of child-bearing age in circulatory collapse. Therefore, a proper history and clinical examination are critical to the

diagnosis, although to definitively confirm or exclude it, transvaginal ultrasound scanning and serial measurements of beta human chorionic gonadotropin (bHCG) are required [4-8].

Women in early pregnancy are a common patient group seen in the ED. The aim of the present study was to examine the pattern of presentation and method of diagnosis of ectopic pregnancy in a major UK hospital, with a focus on the role of the emergency medicine physician.

Patients and Methods

We requested a search through Clinical Coding of the Medical Records of Southampton University Hospitals NHS Trust in Hampshire UK for the last 85 consecutive patients treated over a 16-month period for ectopic pregnancy. Patients whose records were unavailable for review, incomplete, or illegible were excluded. Data were collected on initial presentation route to medical care, major complaints, other presenting symptoms, means of diagnosis, and management.

Results

Of the 85 records requested, 7 were unavailable and 1 was illegible, leaving 77 cases of confirmed ectopic pregnancy for analysis. The findings showed that 26% of the patients initially presented to the ED, and 38% initially presented during off hours (outside the 9am-5pm Monday-to-Friday shifts). Six percent were referred to general surgeons on the assumption of a nongynecological cause of their symptoms.

Presenting symptoms

Only 48% of the women presented with the classic triad of abdominal pain, vaginal bleeding, and amenorrhea. Diarrhea (7%) and syncope (4%) were common, followed by shoulder tip pain (6%), chest pain (3%), dizziness (3%), and severe back pain (1%). More than half the patients (56%) did not have any of the known risk factors associated with ectopic pregnancy; indeed, one patient had been sterilized 5 years previously. Twenty-one percent did not know they were pregnant; 36% were estimated to be at 6 weeks' gestation.

Management

A urine pregnancy test (HCG) was performed in 97% of cases, and a vaginal examination in 34%. Nine percent required emergency surgery. None

of the patients died. Seventy-eight percent of the patients who were referred to the Obstetric and Gynecology Department from the ED underwent an ultrasound scan within 24 hours.

Noteworthy Clinical Cases

One patient presented in hypovolemic shock and had 2 negative HCGs in the ED. Ultrasound scan revealed an upper abdominal cause of free fluid. An actively bleeding ectopic pregnancy was identified only at laparotomy.

One patient who was referred by the community physician directly to the general surgery department collapsed in the ambulance from hypovolemia. She was transferred to the operating room for emergency surgery, where a bleeding ectopic pregnancy was identified. Two patients who were initially referred to general surgery on the assumption of a nongynecological cause of their symptoms were subsequently found to have a positive pregnancy test. They were transferred for surgery by a general surgeon in the presence of a gynecologist.

Discussion

This study indicates that ectopic pregnancy does not always present with the classic triad of symptoms, and that some patients have nonspecific symptoms, such as diarrhea and syncope. The absence of abdominal pain, vaginal bleeding, or amenorrhoea in a woman of child-bearing age cannot be relied upon to rule out ectopic pregnancy in the ED. This should be emphasized during postgraduate training of emergency physicians. The present findings agree with a larger study from Singapore which reported a similarly low 56.3% rate for the classic presentation of ectopic pregnancy [9]. However, a Pakistani study of 38 patients had a much higher rate [10].

The finding that more than one-fourth of the patients initially presented to the ED points to the important role of the emergency medicine physician in the diagnosis and treatment of ectopic pregnancy.

It is generally assumed that an ectopic pregnancy of sufficient maturity to cause fallopian tube rupture and hypovolemic shock should be associated with detectable urine bHCG. However, a negative HCG has been reported in about 1% of cases [11], and was noted in one

patient in the present series as well. The lack of known risk factors and previous tubal ligation in women with ectopic pregnancies has also been described [12]. At the same time, given the ease of bedside HCGs, we would expect them to be performed for all women of reproductive age with symptoms. Nonetheless, the test was not performed in 3% of our series, inviting misdiagnosis.

Very few vaginal examinations were carried out in our series. However, an earlier study of 382 patients found that the additional information provided by vaginal digital examination was limited when weighed against transvaginal ultrasound scanning and serum HCG measurements alone, suggesting that it may even be unnecessary [13].

This study was limited by its retrospective design. The review of case notes is open to bias, as the documentation of patient symptoms depends on the individual clinician's interpretation and record-keeping style at the time of the clinical encounter. A prospective study with an independent observer present during the interviews could help resolve this problem.

Conclusions

Approximately one-fourth of ectopic pregnancies are managed in the ED, and about half of all women with ectopic pregnancy present with nonclassic symptoms. We suggest that syncope and diarrhea also be considered potential presenting features of ectopic pregnancy. A HCG should be performed in all women of child-bearing age in the ED, although a negative test does not necessarily exclude ectopic pregnancy. Emergency medicine physicians should be aware of uncommon features of ectopic pregnancy and maintain a high index of suspicion when treating women of child-bearing age.

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