Ectopic pregnancy outcomes in patients discharged from the emergency department

Krista Hawrylyshyn, MSc*; Shelley L. McLeod, MSc, PhD(c)*†§; Jackie Thomas, MD, MSc‡§; Catherine Varner, MD, MSc*†§

CLINICIAN'S CAPSULE

What is known about the topic?
There is a paucity of data that is useful for emergency department (ED) physicians counseling women with symptomatic early pregnancies about the future risk of ectopic pregnancy.

What did this study ask?
What are the clinical outcomes of pregnant women discharged from the ED where ectopic pregnancy had not yet been excluded?

What did this study find?
Of the 230 ectopic pregnancies, 5.1% patients had a ruptured ectopic pregnancy after their index ED visit.

Why does this study matter to clinicians?
Given the risk of a final diagnosis of ectopic pregnancy and more importantly possible rupture, patient education of these risks is critical on discharge from the ED.

ABSTRACT

Objective: The objective of this study was to determine the proportion of women who had a ruptured ectopic pregnancy after being discharged from the emergency department (ED) where ectopic pregnancy had not yet been excluded.

Methods: This was a retrospective chart review of pregnant (<12-week gestational age) women discharged home from an academic tertiary care ED with a diagnosis of ectopic pregnancy, rule-out ectopic pregnancy, or pregnancy of unknown location over a 7-year period.

Results: Of the 550 included patients, 83 (15.1%) had a viable pregnancy, 94 (17.1%) had a spontaneous or missed abortion, 230 (41.8%) had an ectopic pregnancy, 72 (13.1%) had unknown outcomes, and 71 (12.9%) had other outcomes that included therapeutic abortion, molar pregnancy, or resolution of βHCG with no location documented. Of the 230 ectopic pregnancies, 42 (7.6%) underwent expectant management, 131 (23.8%) were managed medically with methotrexate, 29 (5.3%) were managed with surgical intervention, and 28 (5.1%) patients had a ruptured ectopic pregnancy after their index ED visit. Of the 550 included patients, 221 (40.2%) did not have a transvaginal ultrasound during their index ED visit, and 73 (33.0%) were subsequently diagnosed with an ectopic pregnancy.

Conclusion: These results may be useful for ED physicians counselling women with symptomatic early pregnancies about the risk of ectopic pregnancy after they are discharged from the ED.

RÉSUMÉ

Objectif: L'étude visait à déterminer la proportion de femmes ayant subi une rupture de grossesse ectopique après avoir obtenu leur congé du service des urgences (SU) alors que le diagnostic de grossesse ectopique n'avait pas encore été écarté.

Méthode: Il s'agit d'un examen rétrospectif de dossiers de femmes enceintes (âge gestationnel : <12 semaines) ayant obtenu leur congé d'un SU de soins tertiaires, rattaché à un hôpital universitaire, chez qui un diagnostic : 1) de grossesse ectopique avait été posé; 2) de grossesse ectopique avait été écarté; 3) de grossesse au siège inconnu avait été posé, et ce, sur une période de 7 ans.

Résultats: Sur les 550 femmes retenues dans l'étude, 83 (15,1 %) ont connu une grossesse viable; 94 (17,1 %) ont subi un avortement spontané ou une fausse couche passée inaperçue; 230 (41,8 %) ont subi une grossesse ectopique; 72 (13,1 %) ont obtenu des résultats cliniques inconnus de notre part et 71 (12,9 %) ont connu d'autres résultats, notamment un avortement thérapeutique, une grossesse môlaire ou un taux négatif d'hormone gonadotrophine chorionique humaine sans mention du siège. Sur les 230 grossesses ectopiques, 42 (7,6 %) ont fait l'objet d'une prise en charge attentiste; 131 (23,8 %) ont été traitées médicalement par le méthotrexate; 29 (5,3 %) ont été traitées chirurgicalement et 28 (5,1 %) se sont soldées par une rupture de grossesse ectopique après la consultation de référence au SU. Sur les 550 patientes retenues, 221 (40,2 %) n'avaient pas subi d'échographie transvaginale au cours de la consultation de référence au SU et 73 (33,0 %) ont

From the *Schwartz/Reisman Emergency Medicine Institute, Toronto, ON; †Department of Family and Community Medicine, University of Toronto, Toronto, ON; ‡Department of Obstetrics and Gynaecology, University of Toronto, Toronto, ON; and §Mount Sinai Hospital, Toronto, ON.

Correspondence to: Dr. Catherine Varner, Department of Family and Community Medicine, University of Toronto, 206-600 University Avenue, Toronto, ON M5G 1X5; Email: catherine.varner@sinaihealthsystem.ca

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ultérieurement fait l'objet d'un diagnostic de grossesse ectopique.
Conclusion: Les résultats de l'étude peuvent se révéler utiles aux urgentologues qui donnent des conseils aux femmes présentant des symptômes précoces de grossesse anormale sur les risques de grossesse ectopique, une fois leur congé obtenu du SU.

Keywords: ectopic pregnancy, emergency department, patient outcomes

INTRODUCTION

Previous research describes that 6% to 16% of patients in their first trimester of pregnancy presenting to a healthcare provider with vaginal bleeding or abdominal pain will have an ectopic pregnancy.[1,2] Therefore, excluding an ectopic pregnancy is critical when caring for women presenting to the emergency department (ED) with vaginal bleeding or abdominal pain in early pregnancy.

To date, there is a paucity of prognostic data that may be useful for ED physicians counselling women with symptomatic early pregnancies about the future risk of ectopic pregnancy. The objective of this study was to determine the clinical outcomes of pregnant (less than 12 weeks' gestational age) women discharged from the ED where ectopic pregnancy had not yet been excluded.

METHODS

Study design, setting, and population

This was a single-centre, retrospective medical record review of pregnant (<12 weeks' gestational age), adult (≥18 years) women discharged from the ED of an academic tertiary care centre (annual ED census 60,000) in Toronto, Ontario with a diagnosis of ectopic pregnancy, rule out ectopic pregnancy, or pregnancy of unknown location (PUL) over a 7-year period (January 2010 to January 2017). This tertiary care institution has a high-acuity obstetrical care program, and a radiologist-interpreted transvaginal ultrasound (US) is available 24 hours a day, 7 days a week to rule out suspected ectopic pregnancy in ED patients. Emergency physicians at this institution do not perform a transvaginal US in the ED.

Study protocol

Using a computerized, structured, data abstraction form, trained research personnel reviewed the medical records and extracted patient data. The study protocol was approved by the institutional research ethics board.

Outcomes

The primary outcome was the proportion of women who had a ruptured ectopic pregnancy after being discharged from the ED where an ectopic pregnancy had not yet been excluded. Other pregnancy outcomes and related medical/surgical management were also reported.

Data analysis

Data were entered directly into a study-specific Microsoft Excel database (Microsoft Corporation, Redmond, Washington). Descriptive statistics were summarized using means with standard deviations (SD), medians with interquartile ranges (IQRs), or frequencies with 95% confidence intervals (CIs) where appropriate.

RESULTS

Of 661 suspected ectopic pregnancies in the ED, 550 patients were discharged from the ED where ectopic pregnancy had not yet been excluded (Figure 1). Of these, 230 (41.8%) had an ectopic pregnancy, and 28 (5.1%) patients had a ruptured ectopic pregnancy after their index ED visit (Figure 1).

The mean (SD) patient age and gestational age were 32.0 (6.0) years and 6.3 (2.0) weeks, respectively. Risk factors for ectopic pregnancy (e.g., prior ectopic, history of pelvic inflammatory disease, in vitro fertilization) were similar for patients who did and did not have an ectopic pregnancy; 154 (28.0%) patients had a point-of-care US in the ED.

Of the 550 patients with a suspected ectopic pregnancy, 329 (59.8%) had a transvaginal US during their index ED visit. Of these, 157 (47.7%) were diagnosed with an ectopic pregnancy; 143 patients had initial US

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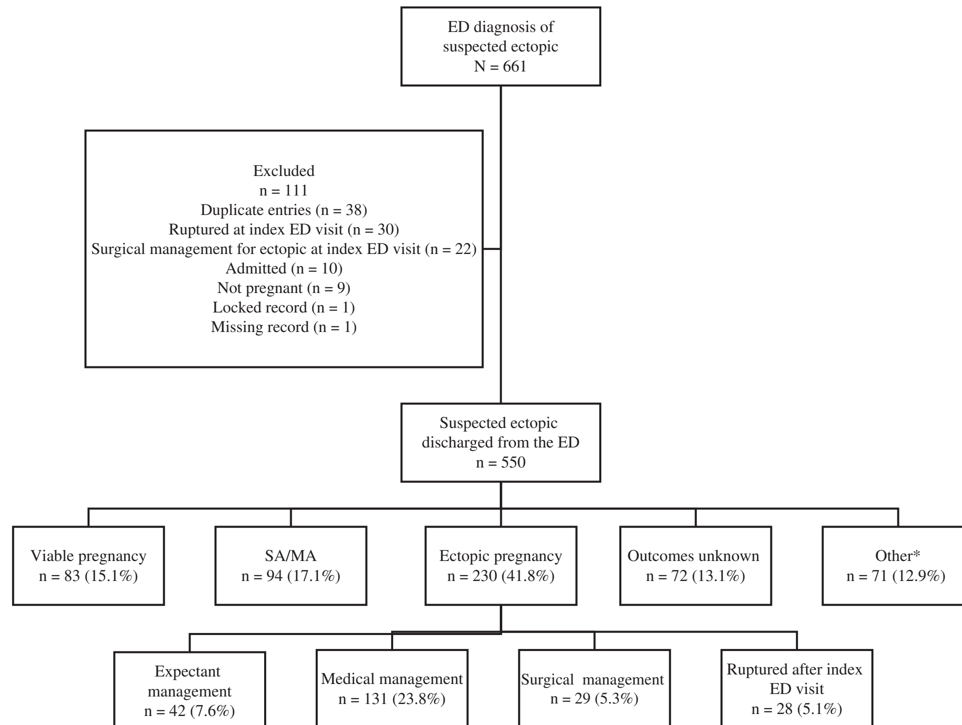

Figure 1. CONSORT diagram of included patients.
*Includes therapeutic abortion, molar pregnancy, or resolution of beta human chorionic gonadotropin serum level with no location documented.
ED = emergency department; SA/MA = spontaneous abortion/missed abortion

results, suggesting a suspicious adnexal mass. Of these, 124 (86.7%) went on to have an ectopic pregnancy. Of the 221 (40.2%) patients who did not have a transvaginal US during their index ED visit, 73 (33.0%) were diagnosed with an ectopic pregnancy.

Two hundred twenty-three (40.5%) patients with a suspected ectopic pregnancy had a PUL on the US that took place at or within 72 hours following the index ED visit. Of these, 40 (17.9%) had a viable pregnancy, 57 (25.6%) had a spontaneous or missed abortion, 42 (18.8%) had an ectopic pregnancy, 38 (17.0%) had unknown outcomes, and 46 (20.6%) had other outcomes that included a therapeutic abortion, molar pregnancy, or a resolution of βHCG with no location documented.

DISCUSSION

The primary objective of this study was to determine the clinical outcomes of pregnant women discharged from the ED where ectopic pregnancy had not yet been excluded, a higher risk cohort of patients discharged from the ED. Our results show that 41.8% of patients discharged from the ED with a suspected ectopic pregnancy are subsequently diagnosed and managed for an ectopic pregnancy, and 5.1% ruptured after their index ED visit.

Our findings of pregnancy outcomes following a transvaginal US showing a PUL are similar to previously reported studies from outpatient gynecology clinics.[3-6] Surprisingly, despite the 24 hours a day, 7 days a week availability of transvaginal US to rule out suspected ectopic pregnancy, only 59.8% of patients had a transvaginal US during their index ED visit. Current guidelines recommend that all higher risk patients with PUL warrant further investigations with transvaginal US.[7,8] Non-adherence to these recommendations may result in patients being incorrectly diagnosed, having an ectopic pregnancy overlooked, or being inappropriately reassured about viability. These findings stress the importance of following current recommendations, because maternal morbidity and mortality can be reduced with an early diagnosis of ectopic pregnancy.[8] Future research should focus on barriers and solutions to accessing a timely transvaginal US.

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LIMITATIONS

This study has several limitations. It was conducted in a single-centre tertiary care institution with a high-acuity obstetric care program, and the results might not be generalizable to other settings. This study did not include search terms such as *first trimester bleeding*, *vaginal bleeding*, *pregnancy* or *miscarriage*, because we were interested in identifying only higher risk ED patients and describing their management. Therefore, these results should not be extrapolated to all ED patients experiencing first trimester complications. Due to the retrospective nature of this study, we can only report what was documented in the patient chart. It is possible that ED clinical management was dictated by US results from outpatient settings, point-of-care ultrasound findings, or presence of known risk factors for ectopic pregnancy not documented in the chart.

CONCLUSIONS

These results may be useful for ED physicians counselling higher risk women with symptomatic early pregnancies about the risk of ectopic pregnancy after they are discharged from the ED. Given the risk of a final diagnosis of ectopic pregnancy and more importantly, possible rupture, patient education of these risks is critical on discharge from the ED.

Competing interests: None declared.

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