

HOSPITAL PHYSICIAN®

EMERGENCY MEDICINE BOARD REVIEW MANUAL

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The *Hospital Physician Emergency Medicine Board Review Manual* is a peer-reviewed study guide for residents and practicing physicians preparing for board examinations in emergency medicine. Each manual reviews a topic essential to the current practice of emergency medicine.

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Obstetrical Emergencies

Series Editor:

Susan Promes, MD

Residency Program Director, Division of Emergency Medicine, Associate Clinical Professor of Surgery, Duke University Medical Center, Chapel Hill, NC

Contributor:

Noelle Rotondo, DO, FACEP

Attending Physician and Medical Student Clerkship Director, Department of Emergency Medicine, York Hospital, York, PA

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Obstetrical Emergencies

Noelle Rotondo, DO, FACEP

INTRODUCTION

Obstetrical emergencies involving significant risk to both the mother and fetus are frequently encountered in the emergency department. This article reviews life-threatening obstetrical emergencies that occur during early pregnancy (ectopic pregnancy, hydatidiform mole), late pregnancy (preeclampsia and eclampsia, abruptio placenta, placenta previa), delivery (breech presentation, shoulder dystocia), and the postpartum period (postpartum hemorrhage and postpartum endometritis).

DIAGNOSIS OF PREGNANCY

The symptoms of pregnancy are fatigue, nausea, vomiting, urinary frequency, breast tenderness, and amenorrhea. The signs of pregnancy include breast swelling, Chadwick's sign (bluish discoloration of the cervix), and uterine enlargement. The most sensitive and specific laboratory test for diagnosis of pregnancy is the serum quantitative human chorionic gonadotropin (β -hCG) assay.

The beta subunit of hCG is secreted by trophoblastic tissue and is measured in the urine and/or serum as an indicator of pregnancy. Production of β -hCG begins 2 to 3 days after implantation, which occurs 8 days after conception. In 85% of normal pregnancies, the measured β -hCG level increases by more than 66% every 2 days.¹ Urine quantitative assays are positive at 20 mIU/mL, corresponding to a positive qualitative test 2 weeks post-conception. False-negative urine tests can occur if the urine specific gravity is less than 1.015. Serum quantitative assays are positive at 5 to 10 mIU/mL, corresponding to a positive qualitative test 1 week post-conception. False-positive urine and serum assays can occur with tubo-ovarian abscess, thyrotoxicosis, gestational trophoblastic disease, and use of aspirin, methadone, marijuana, and some antidepressants and antiepileptics.²

Physicians should know the anatomic and physiologic changes that occur during pregnancy (Table 1). These changes are normal during pregnancy and can be mistaken for pathophysiology in the clinical setting.

COMPLICATIONS OF EARLY PREGNANCY

ECTOPIC PREGNANCY

Ectopic pregnancy (EP) is the implantation of a fertilized ovum outside the cavity of the uterus (Figure 1). The incidence of EP is 2% of all pregnancies, and it is the most common cause of maternal death during the first trimester.³⁻⁵ Approximately 95% of EPs implant in the fallopian tube. The ampulla is the most common tubal implantation site for an EP, followed by the isthmus.⁶ The most common site of a ruptured EP is the isthmus because it is the narrowest portion of the fallopian tube.

A heterotopic pregnancy is the simultaneous existence of an intrauterine and extrauterine pregnancy. Although rare in naturally occurring pregnancies (0.03%–0.125%), the rate of heterotopic pregnancy is higher (1%–3%) in women undergoing treatment for infertility.⁷ Clinicians must be cautious to not miss the diagnosis of heterotopic pregnancy in these patients.

Risk factors for EP include any alteration in the tubal transport mechanism and functional or hormonal factors that alter the fertilized ovum. The most important risk factors for EP are a history of pelvic inflammatory disease (PID), tubal ligation, treatment for infertility, and previous EP (Table 2).^{2,3}

Diagnosis

Abdominal pain and vaginal bleeding in the first trimester are the most common presenting symptoms of an EP. The emergency physician must be aware that no historical or physical examination finding alone can predict with certainty the diagnosis of EP.⁸ Therefore, a transvaginal ultrasound examination should be performed on all symptomatic first trimester patients who present to the emergency department. The diagnosis of EP on ultrasound examination is definitive if the uterus is empty and there is a gestational sac with an accompanying yolk sac or fetal pole visualized outside the uterine cavity.^{7,9} Findings highly suggestive of an EP in a patient with a positive pregnancy test include an empty uterus plus one of the following: an adnexal mass or sac-like ring separate from the ovary, moderate