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The role of sonographic endometrial patterns and endometrial thickness in the differential diagnosis of ectopic pregnancy

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KEY WORDS

Ectopic pregnancy
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Objective: The purpose of this study was to examine the usefulness of the endometrial trilaminar pattern and thickness in the diagnosis of ectopic pregnancy.

Study design: We reviewed patient records for clinical and ultrasonographic data for patients with the suspicion of ectopic pregnancy. The trilaminar pattern and endometrial thickness were tested as predictors for the diagnosis of ectopic pregnancy.

Results: The trilaminar pattern had a specificity of 94% and sensitivity of 38% (n = 403 women). The mean endometrial thickness was thinner in patients with ectopic, compared with normal pregnancy (9.5 ± 5.7 mm vs 12.4 ± 5.9 mm; P = .035). Patients with normal pregnancy or first-trimester losses had comparable thicknesses (12.4 ± 5.9 mm vs 12.5 ± 8.0 mm). The receiver operator curve showed that there was no thickness value useful for the diagnosis of ectopic pregnancy.

Conclusion: The trilaminar pattern is specific for the diagnosis of ectopic pregnancy, but it is associated with low sensitivity. The endometrial thickness tends to be thinner in patients with an ectopic pregnancy.

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Ectopic pregnancy is a potentially lethal obstetric emergency.¹ The diagnosis of ectopic pregnancy is based on the clinical presentation of pelvic pain and/or vaginal bleeding, positive pregnancy test, and characteristic findings on transvaginal ultrasonography.¹ Studies that combined the level of serum β -human chorionic gonad-

otropin (β -hCG) and pelvic ultrasonography led to the concept of the discriminatory zone (level of serum β -hCG above which a normal intrauterine pregnancy should be seen). The sonographic absence of an intrauterine gestational sac with a serum β -hCG level above the discriminatory zone is highly suggestive of an ectopic pregnancy.^{2,3} The diagnosis is less evident when the β -hCG level is below the discriminatory level and when the adnexal ultrasonographic findings are inconclusive.⁴ An earlier diagnosis in these latter situations could lead to the prevention of serious complications

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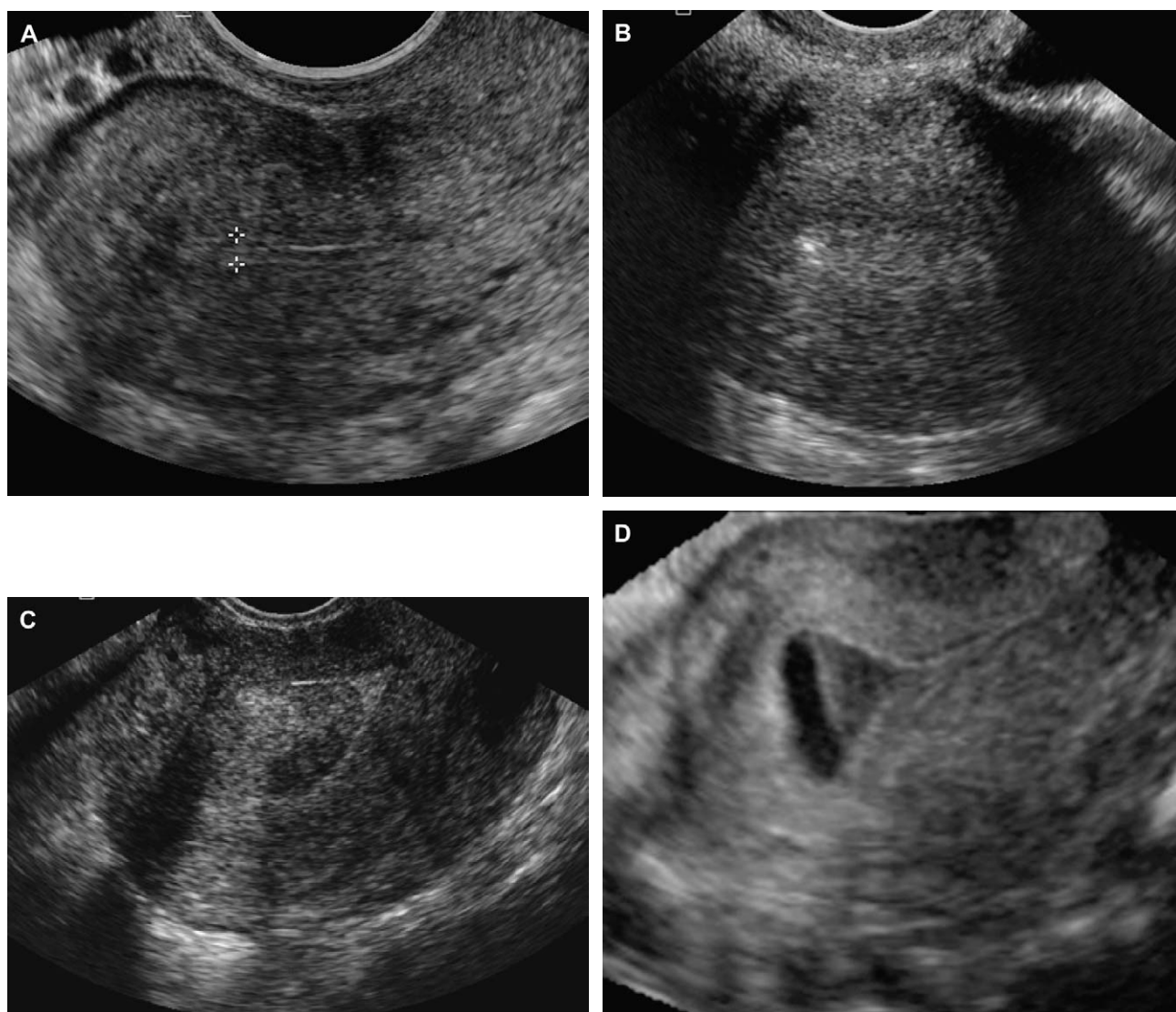


Figure 1 Classification of endometrial patterns on transvaginal ultrasound. **A**, Sagittal view of the uterus with an endometrial trilaminar pattern. **B**, Transverse view of a homogenous hyperechoic endometrial pattern. **C**, Sagittal view of a heterogeneous endometrial pattern. **D**, Sagittal view of a pseudogestational sac that contains fluid and debris.

and allow for therapies that potentially may preserve tubal function. Promising tools to achieve an early diagnosis of ectopic pregnancy are the ultrasonographic endometrial patterns and the endometrial thickness. Several endometrial patterns have been correlated with the presence of an ectopic pregnancy, which include the endometrial trilaminar pattern.⁵ Furthermore, a thinner endometrium was correlated to a diagnosis of ectopic pregnancy, as compared with a normal intrauterine pregnancy or to a first trimester pregnancy loss; however, investigators did not identify a cut off value for the endometrial thickness that is both sensitive and specific for each of these diagnoses.⁶

The purpose of this study was to test the endometrial trilaminar pattern as a predictor for ectopic pregnancy

and to define the role of endometrial thickness in the differential diagnosis of this disease.

Material and methods

This retrospective study included all patients who were referred to the Radiology Department for pelvic ultrasonography between July 1999 and July 2003 and who had abdominal pain and/or vaginal bleeding in the first trimester and a positive pregnancy test. These patients were evaluated initially by an emergency department physician and then by a gynecologist. We excluded patients whose condition was unstable and who needed urgent surgical intervention that precluded an ultrasound study. Those patients without ultrasonographic evidence

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