

Accuracy of First-Trimester Ultrasound in Diagnosis of Tubal Ectopic Pregnancy in the Absence of an Obvious Extrauterine Embryo: Systematic Review and Meta-Analysis

Article by Denika Allen

MD Student, College of Medicine, Texila American University, Guyana, South America

Abstract

Context and aim: To survey the accuracy of ultrasound in the diagnosis of a tubal ectopic pregnancy in the absence of an obvious extrauterine embryo.

Subjects and Methods: This was a systematic review directed in accordance with the PRISMA statement and registered with PROSPERO. We examined MEDLINE, EMBASE and the Cochrane Library for applicable citations from database commencement to July 2014. Studies were selected in a two-stage process and their data extracted by two reviewers. Accuracy measures were calculated for each ultrasound sign, (empty uterus, pseudo sac, adnexal mass and free fluid in the pouch of Douglas) alone and in various combinations. Individual study estimates were plotted in summary receiver-operating characteristics curves and forest plots for examination of heterogeneity. The excellence of included revisions was judged.

Results: Thirty-one revisions including 5858 women were carefully chosen from 19 959 citations. Following meta-analysis, an empty uterus on ultrasound was found to forecast an ectopic pregnancy with a sensitivity of 81.1% (95% CI, 42.1–96.2%) and specificity of 79.5% (95% CI, 68.9–87.1%). The corresponding performance of the pseudo sac, adnexal mass and free fluid were: 5.5% (95% CI, 3.3–9.0%) and 94.2% (95% CI, 75.9–98.8%); 63.5% (95% CI, 48.5–76.3%) and 91.4% (95% CI, 83.6–95.7%); and 47.2% (95% CI, 33.2–61.7%) and 92.3% (95% CI, 85.6–96.0%), respectively.

Conclusion: Imagining of an empty uterus, adnexal mass, free fluid or a pseudo sac has poor sensitivity for the diagnosis of a tubal pregnancy when an obvious extrauterine embryo is absent, but it has decent specificity. We can therefore conclude that ultrasound is more useful. However, the findings were limited by the inadequate quality of some included studies and heterogeneity in the index test and reference standard.

Keywords: diagnostic accuracy, ectopic; pregnancy, systematic review, ultrasound.