

First Trimester Vaginal Bleeding
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Vaginal bleeding and pain are two common chief complaints of first trimester pregnancies. The following studies provide evidence to help you give anticipatory guidance to your patients regarding their risk of miscarriage after presenting with either of these complaints in the setting of fetal cardiac activity detected on ultrasound.

- Juliano, Dabulis, and Heffner. “Characteristics of Women with Fetal Loss in Symptomatic First Trimester Pregnancies with Documented Fetal Cardiac Activity.” *Annals of Emergency Medicine*. Volume 52, No 2, August 2008
 - In women who did not use assisted reproductive technology or pro-ovulatory medications, the risk of heterotopic pregnancy is between 1/4000-1/8000 meaning if an IUP is detected, they are low risk for ectopic
 - Their study had ultrasound credentialed ED providers scan a population of pregnant women presenting with first trimester abdominal-pelvic-back pain, vaginal bleeding, or both, looking for live IUP. These patients were then followed through chart review to a 20-week ultrasound whereby a live fetus was used as a surrogate of successful pregnancy. The study had an overall fetal loss of **9.2%**. **Bleeding** had the highest risk of pregnancy loss **irrespective of pain**, RR=5.6. In other words, 13.8% of people who had vaginal bleeding later had fetal loss, and all but 3 patients who had fetal loss had an initial ED complaint of vaginal bleeding (89%). This is compared to a loss of 2.5% without bleeding.
 - Although 20-week ultrasound is a common marker in obstetrical studies to signify fetal success, there is a low rate of IUFD that is not accounted for by this study.
 - An unknown percentage of the ultrasounds were done formally in the radiology department if the ED evaluation was indeterminate
 - 37% of patients were lost to follow-up
- Hessert, Juliano. “Fetal loss in symptomatic first trimester pregnancy with documented yolk sac intrauterine pregnancy.” *American Journal of Emergency Medicine*. 2012. Volume 30, issue 3
 - Similar categories (pain +/- bleeding) and surrogate live delivery criterion (20 week ultrasound) as above, however, the ED ultrasounds had no visible fetal pole
 - **30% fetal loss**, again with the RR increased by the presence of **bleeding** (17.4% pain only vs 41.2% bleeding only vs 35.1% pain and bleeding)
 - Higher fetal loss rates were found <20 and >35 years old
 - Previous miscarriage did not affect fetal outcome
 - >5mls of blood on exam increased the rate of fetal loss by 62%
 - 22% of scans were done in the radiology department

- Poulouse, Richardson, Ewings, Fox. “Probability of early pregnancy loss in women with vaginal bleeding and a singleton live fetus at ultrasound scan.” *Journal of Obstetrics and Gynaecology*. November 2006; 26
 - Women in the first trimester classified their bleeding as lighter than, as heavy as, or heavier than a normal period and all had a live IUP on TVUS. **11.1% miscarried in total**, with 9% of light bleeders, and roughly 24% of each moderate and heavy bleeders.
 - The presence of an **intrauterine hematoma** (“echo-poor area between the chorionic membrane and myometrium”...without a chorionic ring) was an indicator of poor outcome. 22.6% of women with an intrauterine hematoma miscarried. Their data on the RR of miscarriage with a hematoma was not statistically significant.
 - This study only included women <35 years old, no co-morbidities, with fewer than 2 previous miscarriages. This is a limiting factor to being able to extend these results to all ED patients.