



H75 Spontaneous Uterine Rupture as a Complication of Placenta Previa and Percreta

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Learning Overview: After attending this presentation, attendees will be able to describe abnormal placental implantation and the potential complications that can occur and be able to recognize the findings of uterine rupture on postmortem, non-contrast computed tomography.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by highlighting a rare, potentially fatal complication of abnormally invasive placental implantation during pregnancy.

Abnormally invasive placental implantation, also known as placenta accreta, is a rare complication of pregnancy with significant morbidity and mortality. Placenta accreta occurs when the normal decidua basalis fails to form (or only partially forms), and the chorionic villi directly invade into the myometrium. Placenta increta occurs when the chorionic villi invade through at least half the thickness of the myometrium. The most severe form of placenta accreta, placenta percreta, occurs when the chorionic villi invade through the entire thickness of the myometrium. Complications of placenta accreta are life-threatening and may include retained placental components after delivery, severe postpartum hemorrhage, and postpartum infections. Additionally, depending on the invasiveness through the myometrial wall, severe complications such as uterine rupture may occur. Without medical/surgical intervention, uterine rupture as a consequence of placenta accreta may cause severe hemorrhage and rapid fatality.

In addition to placenta accreta, placenta previa is a rare but well-recognized complication in pregnancy. Placenta previa occurs when the placenta implants within the lower uterine segment instead of the uterine fundus or body. This may result in the placenta partially or completely overlying the uterine cervix, which can lead to both maternal and fetal morbidity and mortality.

Myometrial damage is increasing in frequency with Cesarean births, which places women at greater risk for the development of both placenta accreta and previa. Placenta previa and placenta accreta have additional risk factors in common, including scarring from prior surgical intervention or curettage and congenital uterine abnormalities, which often results in them occurring together. Furthermore, the lower uterine segment is prone to placenta accreta because of a thinner endometrial component compared to the uterine fundus or body.

Reported here is the case of a 32-year-old woman who was found collapsed on the floor of her apartment. She was known to abuse both depressant and stimulant drugs and it was suspected that she had succumbed to the toxic effects of illicit substances. No external traumatic injuries were present. Her previous surgical history was significant for two prior Cesarean deliveries. Full body, non-contrast computed tomography revealed an intrauterine, third-trimester pregnancy and a large volume of fluid within the abdomen. It remains unknown if the decedent was aware of the pregnancy or had any prenatal care.

At autopsy, 3.5L of liquid and clotted blood was present within the peritoneal cavity. The anterior and right lateral lower uterine wall was visibly ruptured, with placental tissue extruding through a 6cm defect. An intrauterine, female fetus of a 30-36 weeks gestational age, without gross developmental abnormality, was confirmed. The placenta was implanted in the lower uterine segment and completely covered the internal os of the uterine cervix. Approximately one-quarter of the placental disc had invaded entirely through the myometrium and was covered only by a thin layer of uterine serosa with focal rupture. The area of invasion corresponded with an anterior uterine scar, consistent with prior Cesarean section. Toxicology analysis of postmortem femoral blood samples revealed the presence of methamphetamine, which likely contributed to the development of uterine rupture and massive hemoperitoneum due to increased intravascular pressure adjacent to the thin uterine serosa.

Uterine Rupture, Placenta Percreta, Computed Tomography