

H35 Ectopic Pregnancy-Related Deaths at Autopsy in North Carolina: A 25-Year Retrospective Review

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After attending this presentation, attendees will be able to identify trends in clinical presentation as well as document and diagnose pregnancy-related ectopic deaths at autopsy.

This presentation will impact the forensic science community by raising awareness of common clinical and autopsy findings in the rare entity of medical examiner/coroner jurisdiction ectopic pregnancy-related deaths.

Ectopic pregnancy-related deaths are not commonly discussed in the forensic literature. Additional information could help identify trends and provide insights into how they can be more successfully diagnosed prior to and after death.

Ectopic pregnancy, the implantation of a fertilized ovum outside the endometrial cavity, accounts for 1.5% - 2% of all pregnancies and is an important cause of morbidity and mortality in women of reproductive age. The ectopic pregnancy mortality ratio in the United States declined by 56.6% from 1.15 to 0.50 deaths per 100,000 live births between 1980 - 1984 and 2003 - 2007. This decrease is predominantly attributed to early diagnosis and treatment prior to rupture. Nevertheless, due to the relatively young age of the patient population and some with death prior to diagnosis, ectopic pregnancy-related deaths will be encountered in medical examiner/coroner systems.

To better understand ectopic pregnancy related deaths in the setting of advancing medical imaging and diagnosis, a retrospective review of electronic and paper records from North Carolina's Office of the Chief Medical Examiner database between 1980 and 2015 was performed to define the autopsy findings and clinical presentation of fatal ectopic pregnancies in the North Carolina medical examiner autopsy population. Demographic information, circumstances, antecedent symptoms, toxicology findings, autopsy findings, and cause of death were collected from death certificates, autopsy reports, and investigative reports. Eleven cases of fatal ectopic pregnancies diagnosed at medical examiner autopsies were identified. Decedents were predominantly Black (55%), and ranged in age from 19 to 40 years, with a median age of 30 years. Only three (27%) were educated beyond high school, with one, two, or four years of college, respectively; 82% of decedents were employed (including one college student). Review of investigative information revealed 82% displayed classic antecedent symptoms of abdominal pain, nausea, and vomiting, 33% of which sought medical care for the symptoms. The remaining 67% were found deceased at home. Ruptured ectopic pregnancy was the proximal cause of death in 82% of cases. The remaining 18% of deaths resulted from post-surgical complications (pulmonary embolism and diffuse alveolar damage). In all cases where ruptured ectopic was the proximal cause of death, the autopsy documented intraperitoneal hemorrhage. The average volume was 1,800ml. In nine (82%) of the cases, a fallopian tube was the implantation site. The pelvic sidewall accounted for one case (9%) and the implantation site for 1 case (9%) was not reported.

In conclusion, ruptured ectopic pregnancy is a relatively rare cause of death but is likely to be encountered in medical examiner/coroner systems at autopsy. Massive intraperitoneal hemorrhage leads to rapid death, thus preventing many women from ever making it to the hospital to seek treatment. In this study, 67% of deaths occurred unwitnessed at home. Women of reproductive age without significant clinical history or an identifiable cause of



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death will often fall under medical examiner/coroner jurisdiction and likely undergo autopsy. Thus, all autopsy pathologists in medical examiner/coroner jurisdictions need to be familiar with the clinical presentation and autopsy findings in these maternal deaths to ensure this rare diagnosis is not missed. Additional studies with larger numbers in the forensic literature are needed to determine clinical presentation trends, symptoms, and risk factors in the hopes of ultimately preventing these deaths.

Ectopic Pregnancy, Maternal Death, Autopsy