



### K38 Maternal Death in a Young, Irish Primigravida (in the Seventh Month of Pregnancy) With Positive Postmortem Toxicological Analysis for Pentobarbital

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After attending this presentation, attendees will understand a unique case of a maternal death in a pregnant young female, whose postmortem toxicology analysis revealed pentobarbital. The decedent was a mature student enrolled in third-level education, with a history of bipolar disorder and previous episodes of self-harm.

This presentation will impact the forensic science community by presenting a case of a death of pregnant female identified with pentobarbital in her blood and urine at a level just outside the therapeutic range, and almost borderline toxic level. It is certainly the first such case in Ireland, and possibly the first case reported in English literature of a suspected suicidal death by the ingestion of pentobarbital by a pregnant female.

Maternal death is a rare phenomenon in Ireland and in other developed countries. This is the case of a young, unmarried, Irish primigravida found dead in her seventh month of pregnancy. She lived with her mother and her step-father in a middle class neighborhood. She was a mature student in a third level education. She was known to be a non-drug abuser, and an advocate for curtailing the abuse of drug culture. She first attended antenatal clinic in her second trimester. Her pregnancy was progressing well with no identifiable antenatal abnormality. According to her family, she was excited about her pregnancy and was looking forward to motherhood and the baby.

Prior to this pregnancy, she was diagnosed with bipolar disorder for which she was not taking medication. Episodes of self harm were documented, that never materialized into life threatening or incapacitating injuries. She was found by her step-father in a kneeling-like position in her tidy bedroom. She was placed into supine position on the bedroom floor. She was found holding a pen in her left hand. Her face and upper torso revealed diffuse marked, purple, postural hypostasis (*livor mortis*) discoloration. Prominent, bilateral, petechial hemorrhages were noted on the eyelids and conjunctiva. Mucosal surfaces of the lips revealed similar petechiae. Larger, punctate (ecchymotic) hemorrhagic spots were noted on the upper torso.

Non-indentated, pale, neck-markings were seen on the anterior and posterior aspects of the neck. Internal hemorrhages were identified in the soft tissues of the neck and involving focally some of the neurovascular structures. The lungs were mildly congested and mildly to moderately oedematous. The heart was mildly dilated, but not scarred. The coronary arteries were free of acute thrombi. The external genitalia revealed no evidence of external trauma. The vaginal canal contained a small amount of pinkish-white discolored fluid. The cervix appeared purple, but not associated with bleeding or mucosal disruption. There was no evidence of DIC or TTP. The rest of the maternal examination was unremarkable; especially as there was no evidence of unusual allergic skin manifestations. The placenta was posterior and fundal. There was no evidence of placental abruption or infarction. The placental surfaces appeared unremarkable.

The fetal membranes were intact. The amniotic fluid was of normal and not meconium stained. The fetus was well developed for his gestational age. There were no congenital abnormalities (externally or internally). Re-examination of the scene two days later recovered two capped brown glass bottles, with Spanish language labels, bearing a canine picture and designation for veterinary medicine usage. Analysis of these bottles confirmed the presence of pentobarbital. This drug was identified in the postmortem blood and urine and the amniotic fluid. Phenobarbital level was 11ug/ml (therapeutic range is 2-10ug/ml, toxic levels start at 12ug/ml while lethal levels are much higher).

This drug is used in euthanasia in veterinary practices. In humans it has limited, therapeutic, medically-approved applications: treating intractable epilepsy, induction of neurological coma to protect the brain during certain procedures, and in the control of intra-cranial hypertension. It is likely the bottles were sourced out of country, possibly via the internet. A partially illegible short suicidal note recovered from the scene included, "I cannot continue anymore."

This drug is known to be a direct CNS and myocardial depressant. The decedent stomach contained evidence of a recently digested food and this drug is known to impair gastrointestinal motility and increases hepatic microsomal activity. It causes a decrease in sympathetic activity and thus increases venous capacitance.

In the United States, Andrew Grant DeYoung recently died in a Jackson prison following a three-drug protocol that included pentobarbital. Also executions in Alabama and Georgia, using pentobarbital, have raised concerns among human rights activists and opponents of the death penalty on the merit of employing this drug in inmate sanctioned executions. Roy Blankenship and Eddie Duval Powell, are inmates who apparently have exhibited signs indicating they might have been conscious or in pain during this chemical death process.

The literature review of suicidal maternal deaths in association with drug(s) overdose, especially barbiturates is discussed. Pertinent scene and autopsy photographs are presented to highlight the described circumstantial and anatomical findings.

#### Maternal, Death, Pentobarbital