B38 A Criminal Paternity Case Involving a Molar Pregnancy

Meghan E. Clement, MS, Shawn M. Weiss, BS, A. Dwayne Winston, BS, Matthew Hill, BS, Michael Mooney, BS, Kelly Pegram, MS, and Marcia T. Eisenberg, PhD, Laboratory Corporation of America Holdings, Inc., 1912 Alexander Drive, Research Triangle Park, NC 27709*

After attending this presentation, attendees will understand the dif- ference between a complete and partial molar pregnancy, the results the molar pregnancies will produce during development of a DNA profile and interpretation considerations in relation to questions of paternity issues.

This presentation will impact the forensic community and/or humanity by demonstrating that many cases there is limited information provided by the investigating agency to the laboratory, especially in criminal paternity situations. Therefore, being aware of unusual results such as those obtained with molar pregnancies can assist laboratory per- sonnel in drawing conclusions of paternity inquiries.

A criminal paternity case was submitted involving a 12-year-old female who presented at a local hospital with acute vaginal hemorrhage. It was determined she was miscarrying and she was subsequently taken into surgery during which, uterine tissue samples were collected. The pregnancy was a result of an alleged sexual assault and the sample submitted had pre- viously been sent to an alternate laboratory for DNA analysis. The original analysis resulted in “a mixture of phenotypes that could not be interpreted”.

A tissue block as well as known reference samples for the victim and suspect was included in the submitted samples. An STR DNA analysis was performed at the 13 CODIS loci. The tissue sample revealed only a hap- lotype profile with very minor additional activity at the D3S1358 locus. The victim could not be excluded as the source of the minor additional activity, but was excluded as the source of the major haplotype profile. Since these results were unusual, an additional sample was taken from the tissue block for a pathology consult. The pathologist confirmed that fetal material was present in the tissue block as well as placental material and also determined that the fetal tissue was from a molar pregnancy. A second section, designated by the pathologist as containing mostly fetal material, was analyzed and again a major haplotype profile was obtained with minor additional activity being observed at various loci.

The reasons behind the haplotype results will be discuss in this case study, as well as the subsequent conclusions that were drawn. Additionally, complete and partial molar pregnancies will be defined and the expected DNA analysis results for each instance will be presented.

Paternity DNA Testing, Molar Pregnancy, Forensic Casework

 ** Presenting Author*