

Classifying molar pregnancy

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Researchers from The Johns Hopkins Medical Institutions have used short tandem repeat (STR) genotyping and p57 immunohistochemistry to distinguish hydatidiform moles. The related report by Murphy et al "Molecular Genotyping of Hydatidiform Moles: Analytic Validation of a Multiplex Short Tandem Repeat (STR) Assay," appears in the November 2009 issue of *The Journal of Molecular Diagnostics*.

Molar pregnancy is an abnormal form of pregnancy in which a fertilized but non-viable egg implants in the uterus, resulting in a hydatidiform mole. Hydatidiform moles, which occur in one in every 1000 pregnancies in the United States, increase the risk of persistent gestational trophoblastic disease (GTD) and choriocarcinoma, a malignant, rapidly-growing, and metastatic form of cancer. Molar pregnancies can have either partial or complete hydatidiform moles. Complete hydatidiform moles (CHMs) arise when an empty egg with no nucleus is fertilized by a normal sperm, and partial hydatidiform moles (PHMs) arise from a normal egg fertilized by two sperm.

CHMs, PHMs, and non-molar specimens (NMs) have different risks for persistent GTD, and thus differentiation is important for clinical treatment of patients. Morphological diagnosis results in high inter- and intra-observer variability; therefore, Murphy et al explore using genetic features to differentiate CHMs, PHMs, and NMs. They found that STR genotyping and p57 immunohistochemistry, by identifying the parental source of particular alleles, can distinguish CHMs, PHMs, and NMs and have developed an algorithm for the interpretation of STR data.

Dr. Murphy and her colleague Dr Brigitte Ronnett "have applied this algorithm in routine practice to ensure accurate diagnosis of hydatidiform moles. In doing so, they have determined that the genetics of molar specimens can be more complicated than traditionally thought." Drs. Murphy and Ronnett are now working to "discover additional risk factors for GTD, in order to identify women who may require chemotherapy."

More information: Murphy KM, McConnell TG, Hafez MJ, Vang R, Ronnett BM: Molecular Genotyping of Hydatidiform Moles: Analytic Validation of a Multiplex Short Tandem Repeat (STR) Assay. *J Mol Diagn* 2009, 598-605

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