## H110 Postmortem Fetal Angiography: A Tool for Better Understanding Congenital Vascular Malformations

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**Learning Overview:** The goal of this presentation is to adapt postmortem angiography to a small-caliber vascular system, as found in the fetus, and to evaluate the feasibility of the fetal postmortem angiography in a routine clinical examination. After attending this presentation, attendees will understand the feasibility and impact of the intravascular injection of contrast medium to detect vascular malformations. Preliminary results will be shown and discussed with attendees.

**Impact on the Forensic Science Community:** Few articles have been published on this topic or how to handle this type of forensic question. The injection technique, involving an oily contrast agent dedicated to postmortem examination using a multislice Computed Tomography (CT) scan has seemingly never before been performed in a fetus. Therefore, this presentation will impact the forensic science community by providing a methodological approach to this medicolegal issue. This method will also impact the forensic community in cases of untimely intra-uterine death, which raises questions about the obstetric management of pregnancy and may lead to complaints from parents.

**Method and Material:** In order to demonstrate feasibility, ten fetuses (fresh and frozen) were investigated by whole-body postmortem CT scanner with the following parameters: slice thickness: 0.4 mm; field of view: 25cm, 80kV, and 168mAs, using a multislice CT scan (Definition 40) in single-energy mode, without and after intravascular injection (very low flow) of contrast medium dedicated to postmortem examination (Angiofil®) by umbilical or transcardiac injection under ultrasound control. The images were reconstructed on a workstation using a dedicated software.

**Results:** The results show the feasibility of injection and opacification of the entire fetal vascular system without any tissue extravasation in a very important postmortem delay (up to two years after death) by umbilical vessels. The amount of contrast agent necessary to opacify the entire vascular system is approximately 15mL. The time required to obtain an access route for the injection was essentially dependent on the state of preservation of the fetus. Arteries and veins of large caliber and infra-millimeter vessels could be visualized during the CT examinations.

**Conclusion:** This study demonstrates the feasibility of postmortem angiography of the fetus and its ability to opacify very small visceral vascular structures on multi-slice CT. Further investigations, especially autopsy, are needed to compare the findings side-by-side and understand the clinical and medicolegal implications of such imaging.

**Fetal, Angiography, Vascular Malformation**