G7 Intrauterine Sudden Death: Study of the Fetal Morphological Substrates

Emiliano Maresi, Antonina Argo, Pierangela Fleres, Paolo Procaccianti, and Michele Spicola, Palermo University, Via del Vespro, n. 127, Palermo, 90100, ITALY*

After attending this presentation, attendees will understand the risk factors, causes, and prevention of many fetal deaths as well as ancillary studies utilized for proper diagnoses.

This presentation will impact the forensic community by serving as an educational resource through discussing sudden fetal death in such cases as funicular thrombosis due to anticardiolipin antibodies, chorioamnionitis, deciduitis, cervicitis, and intrauterine Botallo's duct clousure due to aspirin Healthy pregnancy derives from the anatomic and functional relation-
ship between all the components of the pregnancy including, the fetus, placenta, and the mother. If the normal relationship between these elements fails because of intrinsic or extrinsic factors, a pathological pregnancy leading to fetal death may occur. To evaluate the morphological substrates leading to sudden death, an accurate evaluation of the fetal autopsy and examination of the placenta, together with the determination of chromosomal pattern, serological and microbiological evaluation, and total body X-rays are manda- tory for a correct diagnosis of the death. An exact diagnosis of fetal sudden death may help prevent the event from recurring in future pregnancies.

For a pregnancy, to be normal, it needs a complex anatomical-functional cooperation between three different biological systems: fetus, placenta, and pregnant mother. The interruption of this kind of connection, due to intrin- sic or extrinsic causes, produces a pathological pregnancy that can result in fetal death. In olden times, fetal deaths were not considered a competence of obstetricians, pediatricians, or pathologists, so it was not possible to establish the cause of death and identify the death-risks for subsequent preg- nancies. On February 2, 2006, the Italian government issued a law estab- lishing the role of pathologists in the sudden fetal death after 25th week. According to this rule, the pathologist must identify all the anomalous morphologic substrates, by performing a careful autopsy examination, with total body X-rays of the fetus, serological/ microbiological tests, and placental screening tests, in doing so to promote primary and secondary prevention. An essential role is obtaining an accurate medical history.

This retrospective study describes the causes of 1836 fetal deaths occurring after the 25th week, from January 1987 through December 2006. 314 sudden fetal deaths (38.8%) were observed. In this group there were 176 males (56%) and 138 females (44%), ranging in age from 26 weeks to 42 weeks of pregnancy; 127 (40.5%) fetal deaths occurred before the 37th week of pregnancy. 258 of 314 fetuses showed maceration due to intrauter- ine death. Some fetuses of this group showed signs of distress. Maternal risk factors were identified in 251 (80%) of the fetal deaths including hyperten- sion (35%), diabetes (20%), bigeminal pregnancy (18%), and central placenta previa (7%).

The fetal sudden deaths were due to placental causes in 283 (90%) cases, fetal causes in 16 (5.1%) cases, maternal causes in 10 (3.4%) cases and unknown causes in 5 (1.5%) cases.

The placental causes were: 130 (46%) funicular disorders; 54 (19.2%) amniotic membrane disorders; 99 (35%) chorionic villi disorders.

The fetal causes were: 12 cardiomyophaties; 4 intrauterine Botallo's duct closure.

Maternal causes were: 7 mother's sudden deaths due to amniotic and thrombotic pulmonary embolism; 3 uterus ruptures.

Most of sudden intrauterine fetal deaths are caused by funicular and chorionic villi disorders. It is possible to prevent sudden fetal death in cases of funicular thrombosis due to anticardiolipin antibodies, chorioamnionitis, deciduitis, cervicitis, and intrauterine Botallo's duct clousure due to aspirin. Genetic tests are important in the deaths due to cardiomyophaties. The sudden fetal deaths, occurring after 40° week, are related to maternal risk factors so it's important advance the delivery. **Fetal Sudden Death, Autopsy Guidelines, Prevention**

 ** Presenting Author*