H52 A Case of Intrauterine Fetal Cranial Injury After Attempted Suicide During Pregnancy

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After attending this presentation, attendees will understand the importance of considering how relatively minor maternal trauma during pregnancy can lead to direct fetal injury *in utero*, especially during the second and third trimester.

This presentation will impact the forensic science community by showing the importance of manner-of-death reconstruction in unusual fetus injuries after maternal trauma.

Trauma in pregnancy is subdivided into three different types: blunt abdominal trauma; pelvic fractures; and, penetrating trauma. The effect of trauma on pregnancy depends on the gestational age of the fetus, the extent of disruption of normal uterine and/or fetal physiology, and type and severity of trauma. During the first trimester, minor trauma is not threatening to the pregnancy. During the second and third trimester, even relatively minor trauma can have significant adverse effects (e.g., maternal injury or death, shock, internal hemorrhage, intrauterine fetal demise, direct fetal injury, abruptio placenta, and uterine rupture). Blunt abdominal trauma associated with skull fractures and intracranial hemorrhage represents a rare event that complicates <1% of all pregnancies affected by trauma.

A case report of a 46-year-old woman who was 34 weeks pregnant when admitted to the Emergency Room (ER) after being found lying on the ground approximately 10 meters below an overpass. Witnesses noticed the woman driving fast along the overpass before being involved in a collision with the guardrail. Soon after the accident, she attempted suicide by jumping from the overpass guardrail. Police discovered the victim was concerned about her pregnancy and work.

She was admitted to the ER unconscious and obstetric/gynaecological personnel were consulted. Fetal heart tones were normal. A complete computed tomography scan showed fractures of five lumbar vertebrae, fractures of three ribs with pulmonary contusions, and a fracture of the left metatarsus with no cranial injury. After the mother was stabilized, the fetal heart tones were abnormal and, three hours after admission, the patient had an emergency caesarean section, delivering a male infant who was lifeless despite attempts at resuscitation.

No alcohol or drugs were found in the mother. After admitting to the suicide attempt, the mother was transferred to the psychiatric department where an unspecified episodic mood disorder was diagnosed. She recovered completely from the physical trauma.

Due to the unclear dynamics of the traumatic event, a medicolegal autopsy was performed on the baby. The external examination revealed a fully developed infant showing a deformity of the skull and left eyelid bruises. A massive subgaleal hemorrhage with a slippage of the left parietal bone below the right parietal bone was found. The brain showed a subarachnoid hemorrhage of the left temporal, parietal, and occipital lobes and of the right parietal and occipital lobes. Histological examination confirmed the brain injury and pulmonary signs of intubation. The cause of death was brain injury after maternal blunt abdominal trauma following a car accident and the fall from ten meters.

Direct fetal injury is significantly less common because the fetus is protected by the maternal body wall, uterus, and amniotic fluid. Fetal trauma usually occurs in late third trimester pregnancies when the amniotic fluid volume is low relative to the size of the fetus. Furthermore, the most common fetal trauma is head injury as the uterus is above the level of the pelvic rim and the head engages into the bony pelvis, possibly being compressed between the symphysis pubis and the sacral promontori.

The findings from this case confirmed that maternal "minor" trauma can be devastating for the fetus. Nevertheless, in any case of obstetric trauma, it is imperative to maintain the mother's stability and survival since the survival of the fetus after a trauma depends on the mother's condition with respect to oxygenation and hypovolemia.

Pregnancy, Blunt Abdominal Trauma, Fetal Trauma