

Intrauterine Fetal Death in Gunshot Injury to the Gravid Uterus: Forensic Perspective

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ABSTRACT

Assault on pregnant women is not a rare event; however forensic analysis of gunshot injuries among the same group requires a greater deliberation. This is the report of a 38-week-old fetus which succumbed following gunshot injuries to the mother while the latter survived. The uniqueness of fetal injuries in the form of avulsed wound with complete detachment of anus is of great forensic interest. Such unusual wound pattern could have been the result of a blast wave effect created due to the high velocity projectile affecting the fluid filled uterine cavity.

Keywords: Blast effect, Pregnancy, Rupture uterus

CASE REPORT

A 38-week-pregnant woman was brought to the emergency of PGIMER, Chandigarh with history of gunshot injury to abdomen with Intra-uterine fetal death. She underwent surgical intervention within two hours of the incident.

As per records, the mother presented with an entry wound of 5 x 3 cm just above the umbilicus, and an exit wound of 2 x 1.5 cm posteriorly over the right lumbar region. Bowel along with mesentery was exposed at the entry wound site.

Caesarean section was performed and on exploration of the abdomen, a dead fetus was found lying in the peritoneal cavity along with 2 litres of fluid blood mixed with feces. The uterus showed a 10 cm rent over (big laceration) the fundus, which was repaired surgically. The dead fetus was sent for post-mortem examination, this being a medicolegal case.

Autopsy Findings

It was a female fetus with a crown heel length of 42 cm and a weight of 1.74 kg. The fetus showed an avulsed lacerated wound of 7 cm x 4 cm x 3 cm involving buttocks in a flap like manner [Table/Fig-1]. Multiple superficial lacerated wounds were present over the perineum which was communicating with the avulsed laceration. Muscles and the underlying bones were visible over the base of the avulsed laceration and there was complete detachment of anus from the surrounding muscles [Table/Fig-2]. The opinion was given



[Table/Fig-2]: Avulsed laceration with complete detachment of anus

as intrauterine fetal death consequent to rupture of uterus in a case of gunshot injury to the mother.

DISCUSSION

The first case of gunshot injury to the fetus was reported from United States in 1845. Now there are numerous published cases worldwide regarding gunshot injuries to the pregnant women [1-7].

Gunshot injury to a full term pregnant female is a tricky situation particularly when it involves the abdomen. They can result in direct fetal injury, placental injury with abruption as well as uterine damage with preterm delivery. Fetal survival depends upon gestational age and type of injury sustained [1,6,8].

Traumatic uterine rupture is one of the rarest causes for Intra uterine fetal death and only few cases were reported worldwide [6,9]. The present case showed a highly atypical injury which could have been caused due to the blast effect created by the passage of a high velocity projectile in a closed fluid filled compartment. The high pressure caused by mass movement of displaced fluid could have resulted in sudden rupture of the uterus. Cavity formation and compression during bullet entry displaces the surrounding tissues, thereby causing damage. Another mechanism is creation of shock wave ahead of the projectile, which has a concussive effect. These shock waves causes tremendous damage in air and fluid filled spaces. The obvious injury is caused by compression and shearing force. The extent of damage also depends on the type of projectile, tissue and the cavity involved [10,11].



[Table/Fig-1]: A butterfly shaped avulsed lacerated wound involving buttocks

Other unusual patterns of fetal injuries in such cases were also reported in the literature [4,6]. Catanese CA et al., suggested factors such as, presence of interposed targets, the shoring of the fetus against itself and the uterine corpus, for the unusual fetal wound patterns [4].

Abdominal wall gunshot injuries in near full term pregnant women are associated with high fetal mortality whereas maternal deaths are rare. Lower abdominal gunshot wounds nearly exclusively involve the uterus and its contents. The enlarged uterus displaces the visceral organs and thus acts as a shield for the mother thus in most instances mother escapes, as seen in the present case [1,3,5,6,12].

CONCLUSION

High mechanical and kinetic energy of the projectile in a gravid uterus could result in varied ballistic injury patterns. In the present case a blast effect created by the projectile resulted in avulsed laceration with complete anal detachment of the fetus, an unusual phenomenon.

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