

An intrauterine fetal death alleged as medical negligence: an autopsy-based case report

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How to cite this article: Kumar ESN, SathishK, Das S, Gupta A, Pan AK. An intrauterine fetal death alleged as medical negligence: an autopsy-based case report. 2023;23(4):40-46.

ABSTRACT

Adverse events during the pregnancy deter the mother's health and raise questions regarding the country's existent healthcare. India is among the few nations responsible for two-thirds of all intrauterine fatalities worldwide. Intrauterine deaths risk medical negligence lawsuits by the aggrieved family members against the treating doctors and the hospital authorities. Fetal autopsy forms a valuable audit of clinical care, enables learning about such adverse pregnancy outcomes, and assists in administering justice in medical lawsuits. We discuss a case of a 30-year-old pregnant female at 38 weeks +1 day of gestation. She was reported to a hospital with lower abdominal pain. Per abdomen examination, fetal heart sound was reported to be present, and she was sent home. She presented with complaints of lower abdominal pain, rupture of membrane, and loss of fetal movements the next day and was diagnosed as intrauterine fetal death. The family members alleged it as medical negligence, and the fetus was sent for a medicolegal autopsy. During the autopsy, skin desquamation of about 75% of the total body surface area was present. The umbilical cord stump was dark reddish brown colored. Overriding of the cranial bones was noted. The diaphragm was present at the level of the 4th rib. The lungs were non-crepitant and had liver-like consistency. Hydrostatic and stomach-bowel tests were negative. Cut sections of the lower end of the femur, the upper end of the tibia, and the body of the sternum, calcaneum, and talus showed the appearance of the ossification centers. Medicolegal autopsy helped answer the investigating officer's questions and establish fetal age, time since intrauterine death, and whether the fetus was live or dead born.

Key Words: Fetal death; intrauterine death; fetal autopsy; maceration; medical negligence

INTRODUCTION

The term fetus is used from eight weeks after conception until delivery while in the uterus.¹ Intrauterine death (IUD) is used to describe the death of a fetus that occurs before it is fully

expelled or extracted from its mother and in which the fetus does not respire or display any signs of life, such as a beating heart, a cry, or movement of the limbs. It applies regardless of how long a pregnancy lasts.² According

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to the World Health Organization (WHO), a stillborn baby is born after the 28th week of pregnancy and does not respire or exhibit any signs of life.² IUDs and stillbirths are the most significant reasons for less developed countries' perinatal mortality.¹ Ten countries, including India, is responsible for two-thirds of the global intrauterine fatalities.²

IUDs pose a risk for medical negligence suits against the treating doctors. Medical negligence suits and the outcry by the aggrieved family members give rise to the need for an autopsy. Factors contributing to intrauterine death include maternal, fetal, umbilical cord, placental, and amniotic fluid pathologies.¹ Fetal autopsy is a valuable audit of clinical care and facilitates the learning of adverse events leading to unfavorable pregnancy outcomes. Autopsies also help in the administration of justice in medical negligence claims.^{1,3,4}

Maceration features indicate that the fetus was retained in utero, and the death occurred before the initiation of labor. The skin and soft tissues of a macerated fetus exhibit many alterations.² Determining the precise etiology and time since death in an IUD is essential for an autopsy surgeon, especially in allegations of medical negligence. Establishing an accurate time since death in fetal deaths is tricky for forensic experts due to the absence of validated methods.⁵ Pre-autopsy evaluation of maternal history, clinical documents, team discussion combined with detailed postmortem examination, ancillary investigations, and a multidisciplinary approach will help exclude foul play.⁶ We discuss a case of a 30-year-old pregnant female with a history of childbirth four years back and spontaneous abortion two years back. She presented with complaints of the lower abdominal pain, rupture of membrane, and loss of fetal movements and was diagnosed as intrauterine fetal death, resulting in a medical negligence claim against the hospital and treating doctors.

CASE REPORT

We discuss a case of a 30-year-old pregnant female of Gravida 3 Para 1 Abortion 1 Live 1 in

38 weeks +1 day of gestation. She has no known medical co-morbidities. The first live childbirth was four years back, with a normal vaginal delivery weighing 2.51 kg. Two years back, there was a history of spontaneous abortion at two and a half months of gestation. According to the hospital records, no abnormal findings were detected during the routine antenatal check-ups in the present pregnancy.

The patient presented to the hospital complaining of lower abdominal pain since 10 PM. According to clinical records, the uterus was term size, cephalic in presentation, and fetal heart sound (FHS) was present per abdomen examination. After the examination, the patient returned home. The following day, at 8.30 AM, she again presented to the same hospital with lower abdominal pain and loss of fetal movement since the previous night with membrane rupture. Per abdomen, examination revealed uterus was term size, cephalic in presentation, and FHS was absent. Per vaginal examination showed cervix was 50% dilated, and Os was 1 cm with drainage of tobacco-colored fluid. On ultrasonography also FHS was absent, and the Spalding sign was present. After one and a half hours, under local anesthesia with left mediolateral episiotomy, the patient delivered a dead female fetus weighing 2.2 kg and a placenta weighing 290 grams.

Patient relatives alleged the fetus was alive when the mother was brought to the hospital; delay in attending to the patient and conducting the delivery on the part of the hospital and treating doctors resulted in the death of the fetus. Hence, they filed a negligence suit. The fetus was handed over to police personnel and brought for postmortem examination to our hospital.

- Autopsy findings

External examination (Fig. 1)

- Crown-Heel length (CHL) was 51cm, Crown-Rump length (CRL) was 31cm, and body weight was 2.2 kg.
- Inner canthal distance - 2.3 cm, length of philtrum - 0.8 cm.



Fig. 1 (A) Front of fetus showing skin slippage, umbilical cord, blisters, and lanugo hair. (B) The back of the fetus shows vernix caseosa, skin slippage, and lanugo hairs.

- Head circumference - 29 cm, Chest circumference - 29 cm, Abdominal circumference - 24 cm.
- Scalp hair - dark, 3 cm in length.
- Vernix caseosa was present on the trunk, lower limbs, and buttocks.
- Slippage and skin desquamation involving 75% of the total body surface area was present.
- Multiple small blisters were present on the right side of the chest.
- Nails crossed beyond the tip of fingers.
- Lanugo hairs were present over the chest and shoulders.
- The umbilical cord stump was dark reddish brown, Length 20.5 cm, and ligated. The cut section showed three vessels with obliteration of the right umbilical vein.
- No gross features of congenital anomalies were present.
- Internal examination
 - The scalp was edematous, and blood-stained fluid oozed out on the incision. There was an overriding of both frontals, both parietal and occipital bones. **(Fig. 2)** The brain was softened and congested.
 - The diaphragm was present at the level of the 4th rib.
 - Lungs were collapsed, weighing 30 grams together, reddish brown, smooth surface with a sharp border, liver-like consistency, and were non-crepitant. The hydrostatic test was negative. **(Fig. 3)**
 - The stomach and intestines were empty and unremarkable. Breslau's second life test, or Stomach-bowel test, was negative. **(Figure-3)**

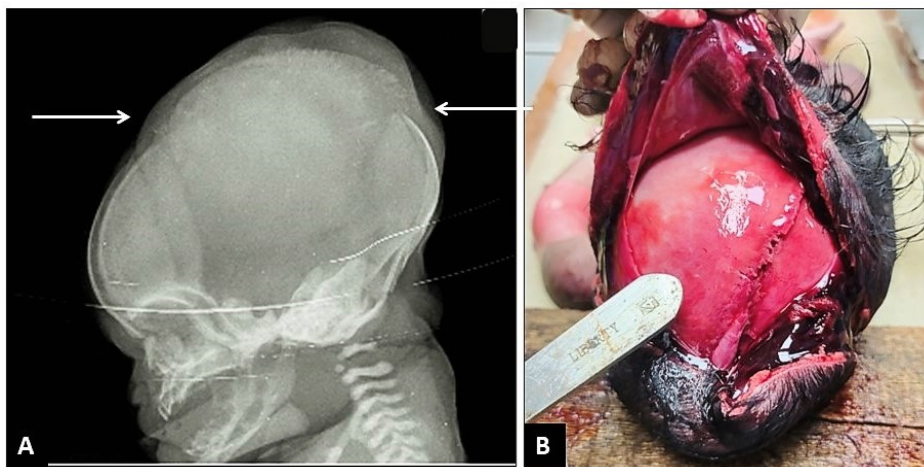


Fig. 2 (A) Postmortem x-ray of skull showing overriding of cranial bones and edema of the scalp. (B) Gross image showing overriding of cranial bones and edema of the scalp

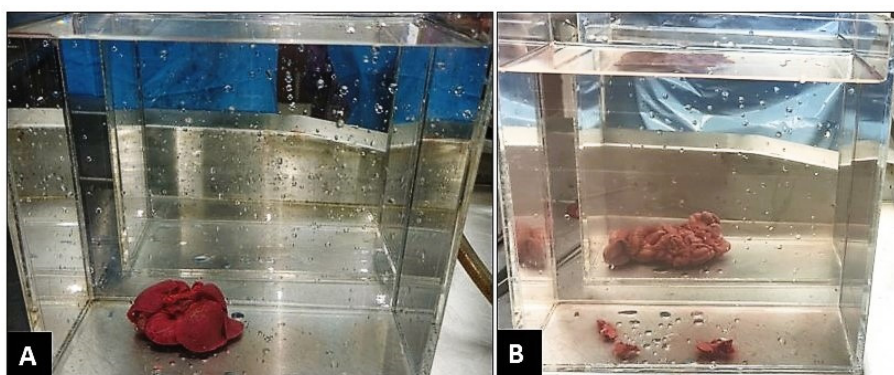


Fig. 3 (A) Heart along with both lungs sunk during the hydrostatic test. (B) Bits from both lungs and stomach with intestine sunk in hydrostatic and Breslau's second life test.

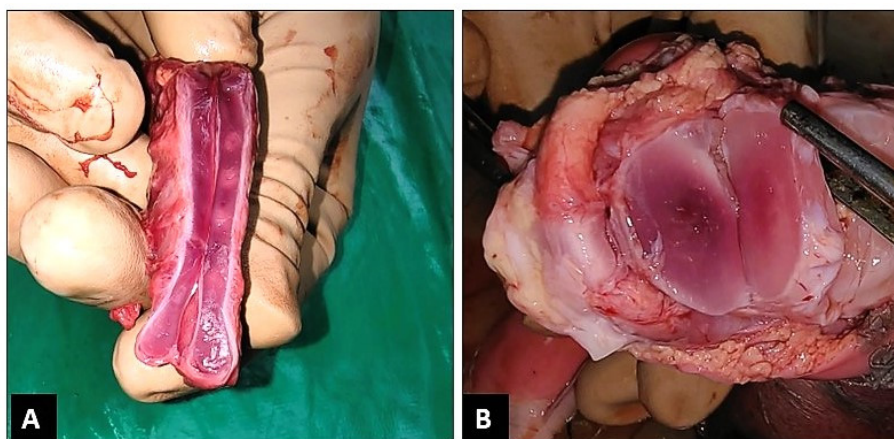


Fig. 4 (A) Shows the appearance of ossification centers in the sternum. (B) Shows the appearance of ossification centers in the lower end of the femur.

- Other internal organs were unremarkable, and no gross congenital anomalies.
- The cut section of the lower end of the femur, the upper end of the tibia, the body of the sternum, the calcaneum, and the talus showed the appearance of the ossification centers. (Fig. 4)

DISCUSSION

This case illustrates the importance of an autopsy where medical negligence claims were made against the doctors for fetal mortality. The role of postmortem examination was to determine whether the fetal death occurred before or after the mother was taken to the

hospital and also to ascertain the cause of death. In a dead born, maceration is a process of skin and tissue changes and stops once the fetus is delivered.^{7,8} The precise dating of fetal maceration is of utmost importance, and ideally, the fetuses should always be examined with the placenta.⁸ Time interval between IUD and delivery of fetus has been described based on skin color, desquamation, and collapse of skull bones.^{8,9}

Genest et al. showed high accuracy in estimating the time interval between death and the fetus's expulsion based on gross and histological evaluation of organs and placenta.⁹⁻¹¹ The earliest maceration changes are the dark discoloration of a normal yellow-tan umbilical cord with skin changes.¹² Loss of basophilia in internal organs is a histological marker for estimating the time since death in intrauterine fetal deaths.^{10,13,14} In our case, extensive skin slippage (>75% of the body) was present. The umbilical cord showed red-brown discoloration with softening. Blebs are present over the skin on the right side of the neck. Edema of the scalp with blood-stained subscalpal region, as found during early maceration stage.¹⁵ Overriding cranial bones were present, establishing a time interval between death to the expulsion of the fetus of at least four days. No meconium leak was present, establishing the fetal death time of fewer than seven days. The position of the diaphragm at the 4th rib and the findings of lungs were consistent with that of unrespired lungs.^{7,13}

The ossification centers appear as red coloration on the cut surface of the bones.⁸ In this present case, four ossification centers in the sternum's body, the femur's lower end, and the upper end of the tibia had appeared, suggesting a term fetus.⁷ Patil et al. studied CRL and CHL in dead-born fetuses. For 36-39 weeks of gestation, CRL was found to be 32 cm to 38.5 cm and CHL 46 cm to 52 cm.¹⁶ In our case, CRL was 31 cm, and CHL was 51 cm.

Bonetti et al. discussed pathologies related to IUDs and stillbirths.³ The Fetal-associated pathologies contributed to 18.55% of deaths,

while a study by Bhale et al. identified fetal cause in 42.42% of cases.^{3,17} Among fetal causes, congenital malformation accounted for 21.7% to 71.42%. Infection, fetal growth restriction, twin-twin transfusion, and other fetal causes are also present.^{3,17,18} Placenta contributes to a significant number of IUDs and stillbirths. Bonetti et al. and Bhale et al. identified placental pathologies in 21.77% and 27.27% of cases studied for IUDs.^{3,17} The major placental causes include abruption and insufficiency [3,17]. Bhale et al. observed gross placental abnormalities in 7 (21%) cases out of 33, including infarction in most cases, and other gross features were nodular masses and bulky and edematous placenta [17]. Recent infarct appears red and old infarct is pale and hard. Placenta disc usually weighs 500 grams near term, if <350 grams or >700 grams is indicative of pathology. The standard dimension is 18 cm, oval, round, and thickness of 2 to 2.5 cm; the thickness of <1 cm or >3 cm indicates a pathology.¹³ According to hospital records, in our case placenta, weighed only 290 grams pointing towards a pathology. Definite placental pathology could not be commented upon in this case due to the unavailability of the placenta.

The opinion given in our case is as follows:

1. The age of the fetus was a term fetus (9 to 10 months of intra-uterine life).
2. No definite cause of death could be ascertained due to extensive maceration changes and non-availability of the placenta. Histopathological examination of the viscera showed extensive autolytic changes.
3. The time from IUD to delivery was around four to seven days.
4. Dead born fetus.

Our postmortem examination contradicted the allegations that the fetus died of delay in attending to the patient and conducting the delivery.

CONCLUSIONS

Whenever an intrauterine fetal death happens, the prospect of facing a litigation claim poses a

dreadful situation to obstetricians or treating doctors. The question arises

1. Why has the death occurred?
2. Did the mother timely attend her antenatal clinic and follow the advice?
3. Whether proper antenatal and hospital care was provided?

Intrauterine fetal compromise in late pregnancy should be detected on time, and proper investigation and intervention to prevent such a misadventure. In India, there is no system for routine autopsies on fetal fatalities. Thus, the cause of intrauterine fetal deaths remains 'undetermined' in many cases, making doctors vulnerable to protect themselves in future lawsuits. Ensuring proper storage of all the evidence in fetal deaths, such as health records and the fetus with umbilical cord and placenta, will shield the treating doctor against any medical negligence suits in the future. It will enable the forensic pathologist to conduct a thorough autopsy with all the tools and give a more accurate opinion on the case.

Declarations

Conflict of Interest: There is no conflict of interest.

Source of Funding: Nil.

Ethical Clearance: Not required.

Informed consent: Informed consent is taken for scientific publication from the family member of the deceased.

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