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CASE REPORT

PATHOLOGY/BIOLOGY

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Spontaneous Rupture of Unscarred Gravid Uterus

ABSTRACT: Rupture of gravid uterus during pregnancy is a rare entity. Overall incidence of rupture of uterus during pregnancy is 0.07%. The maternal and fetal prognoses are bad especially when the rupture occurs in an unscarred uterus. Fortunately, the sole major risk factor of spontaneous rupture of unscarred uterus is preventable, which is "multiparity." In this article, we report the death of a pregnant woman and her unborn child because of spontaneous rupture of unscarred uterus.

KEYWORDS: forensic science, death, gravid unscarred uterus, spontaneous rupture, multiparity

Rupture of the gravid uterus is a potentially disastrous event. This obstetrical emergency is almost always associated with high maternal and fetal mortality and morbidity (1). The Uterus ruptures usually during delivery, although it can also occur during pregnancy (2). Overall incidence of rupture of uterus during pregnancy is 0.07%. The normal, unscarred uterus is least susceptible to rupture, the rate being 0.013%. The incidence is significantly higher in developing countries than developed countries (3). The maternal and fetal prognoses are bad especially when the rupture occurs in an unscarred uterus. We report a case of spontaneous rupture of an unscarred gravid uterus with no previous risk factors leading to the death of both mother and fetus.

Case History

A 33-year-old pregnant lady with gestational age of 36 weeks was brought to the Emergency Department with complaints of severe abdominal pain and vaginal bleeding since 2 h. On examination, the patient was gasping, pulse and blood pressure were not recordable, and expired immediately. As per the law of the land, body was subjected for medico-legal autopsy.

According to the history, the deceased had four living daughters and was pregnant for the fifth time. All the previous deliveries were full-term normal hospital deliveries with no history of uterine surgery, obstetrical maneuvers, abortion, or anything which are known risk factors for uterine rupture. One day she suddenly developed abdominal pain with vaginal bleeding and was brought to the hospital.

Autopsy Findings

Medico-legal autopsy was conducted on the same day. The deceased was moderately built but poorly nourished. The physical changes observed during external examination were consistent with grand multiparous state. Body was pale. Undergarment was soaked with blood. No external injury was present. Internal examination revealed peritoneal cavity filled with liquid and clotted blood, placenta outside the uterus, ruptured membrane, bleeding in the left adnexa uteri, hard contracted uterus with intact anterior surface (Fig. 1), dead female fetus outside the uterus (Fig. 2), vertical irregular rupture 12 cm long with blood clot along its edges in the posterior surface of uterus near the left margin involving body and cervix (Fig. 3), and irregular tear of myometrial vasculature. There was no demonstrable congenital uterine anomaly. Uterine adnexa on right side were intact. All other viscera were intact and pale. Histopathologic examination of uterus, adnexa, placenta, and membranes was normal.

External and internal examination of the fetus revealed no signs of maceration, fetal length 46 cm, weight 2300 g, head circumference 29 cm, black scalp hair, nails at the level of finger tips, labia majora dark and approximated. Ossification center for calcaneum, talus, cuboid, manubrium sterni, first, second and third segments of body of sternum were present. Fetus did not show any demonstrable congenital anomaly.

Cause of death was opined as "hemorrhagic shock following spontaneous rupture of uterus."

Discussion

In many instances, sudden unexpected death of an individual is viewed by the police in suspicious way and is made as medico-legal case, and the present case is an example of such instance. However, in this case the natural reason for the death of the woman has been proved beyond doubt by autopsy. Spontaneous uterine rupture is one of the causes for sudden death of a pregnant woman. This is an unnatural sequel (rupture) of a natural event (pregnancy).

Literature says that in grand multipara (pregnant woman who had four or more viable births), weakening of the uterine walls occurs as a consequence of repeated births (4). However, for a rupture to occur in grand multipara, there should be some other

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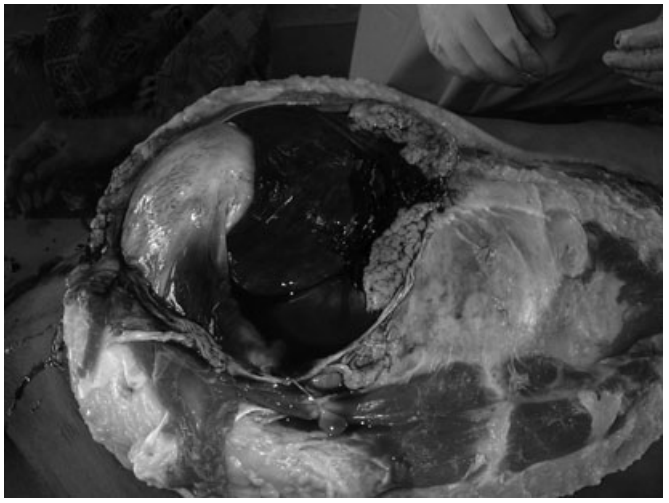

FIG. 1—*Intact anterior surface of uterus.*

FIG. 3—*Uterus showing rupture.*

FIG. 2—*Fetus with placenta and blood clot.*

associated risk factors. In this case, neither there was any significant history nor risk factors for rupture; and furthermore, histopathologic examination of uterus was also normal. Therefore, this rare event of spontaneous rupture may be attributed to the weakening of uterine walls.

Spontaneous rupture of uterus during pregnancy is usually involves the upper segment and generally occurs in later months of pregnancy. The rupture is more common in the multiparous women, and onset is usually acute but sometimes insidious (4).

Rupture of a gravid uterus is one of the worst obstetric emergencies in which the life of both the mother and the child are in danger. The incidence ranges from 0.2 to 0.6%. Factors that can predispose to uterine rupture are multiparity, advanced maternal age, scarred uterus, big fetus, obstetrical maneuvers like external cephalic or internal podalic version, instrumental deliveries, etc. Uterine rupture can also occur in the absence of these factors (2). Although there are several known factors that increase the risk of uterine rupture, the overall incidence of uterine rupture is low even in high-risk subgroups.

A 10-year Irish study by Gardeil et al. (5) showed that the overall rate of unscarred uterine rupture during pregnancy was one per 30,764 deliveries (0.0033%) and rupture was not observed in primigravida. A meta-analysis of seven modern studies revealed that in developed countries the rate of unscarred uterine rupture during pregnancy is 0.013% and an eightfold-increased incidence (0.11%) in developing countries (3).

Many authors have considered multiparity as a risk factor for uterine rupture. Golan et al. (6) noted that in 31% of cases, the uterine rupture occurred in women with a parity of more than five. Schrinsky and Benson (7) found that 32% of women who had unscarred uterine rupture had a parity of greater than four. In a study by Mokgokong and Marivate (8), the mean parity for women who had pregnancy-related uterine rupture was four. Miller and Paul found that the spontaneous uterine rupture more likely to occur in women of high parity (9).

Schrinsky and Benson (7) reported 22 cases of uterine rupture in gravidas with unscarred uteri. Nineteen (86%) ruptures occurred during labor, and 3 (14%) occurred before labor.

In United States, more than 85% of cases of uterine rupture are traumatic or happen in a scarred uterus, but in developing countries, ruptures are primarily spontaneous and occur in an unscarred uterus (10).

Conclusion

Multiparity is the sole major preventable risk factor of spontaneous rupture of unscarred uterus. In India and most of the developing countries, undue desire for a male child and illiteracy are the main reasons for multiparity. Way to change the basic attitude of people to possess a male child is bifold—one, legally by imposing strict rules of family planning, and another by public awareness of the risks involved with multiparity.

In this case, sudden death of a pregnant woman has made the investigating police officer to register the case as medico-legal and opinion of the autopsy surgeon as to the cause of death was a natural one. This opinion will definitely be of enough help in the investigation into the case.

Conflict of interest: The authors have no relevant conflicts of interest to declare.

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