SINGLE FETAL ABORTION IN TWIN PREGNANCY WITH THE PRESENCE OF A PAPYRACEOUS FETUS: CASE REPORT AND CLINICAL IMPLICATIONS

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ABSTRACT

Objectives: To present and analyze a clinical case of fetal abortion in a twin pregnancy with the presence of a papyraceous fetus, with an emphasis on diagnostic evaluation, clinical management and consequences for the coexisting fetus and maternal health. Methods: Work carried out retrospectively and descriptively of a patient's clinical condition. The data were obtained with the patient's consent through medical records, in addition to exams and the pregnant woman's notebook. The remaining information was acquired through a bibliographic search on the Google Scholar, PubMed and Scielo platforms with the descriptors twin pregnancy, papyraceous fetus, fetal abortion, intrauterine death, twins. Discussion: Twin pregnancies are considered risk factors for fetal and maternal deaths. The occurrence of death of only one of the fetuses at the beginning of twin pregnancy, allows the occurrence of a rare event called papyraceous fetus, characterized by intrauterine retention of the deceased fetus, generating its mummification. This situation can generate serious complications for the mother and the viable fetus. Conclusions: It is a rare condition that can pose risks to the health of the mother and the viable fetus. However, in the clinical case described, there was no maternal compromise and the viable fetus showed good viability.

KEYWORDS: TWIN PREGNANCY, FETAL ABORTION, PAPYRACEOUS FETUS, INTRAUTERINE DEATH, TWINS.

INTRODUCTION

The term "fetus papyraceus" is used to describe a degenerated ovum that does not progress beyond the early stages of embryogenesis. The phenomenon involves the fetal demise of one of the twins in early pregnancy, with the deceased fetus likely compressed due to the growth of the healthy fetus, followed by the intrauterine retention of the deceased fetus for at least 10 weeks[1-3].

This phenomenon is a rare event that occurs in 0.018-0.02% of multifetal pregnancies. It occurs more specifically in monochorionic twin pregnancies, resulting in the abortion of one of the fetuses. The cause is usually idiopathic but may be related to twin-to-twin transfusion syndrome, inadequate umbilical cord insertion, velamentous insertion, or genetic and chromosomal anomalies[3-5].

In the context of twin pregnancies, we can predominantly categorize them into two types: monochorionic and dichorionic. Monochorionic pregnancies are notably associated with a significantly higher risk of malformations. Among the most common complications in this clinical scenario is fetal death due to inadequate vascular connections in the shared placenta[2,6].

The prognosis of pregnancy after the death of one of the twins is mainly influenced by the gestational age at the time of fetal demise and by chorionicity, regardless of amnionicity. When loss occurs in the first trimester, the death of one fetus does not seem to be associated with adverse effects on the development of the survivor, especially in diamniotic dichorionic pregnancies[4].

It is observed that the later the occurrence of twin fetal death, the greater the complications for both the surviving fetus and the mother. These complications include neural tube disorders, which can result in cerebral palsy, as well as cerebral hypoxia due to the diversion of blood from the healthy fetus to the non-surviving fetus through the placenta, causing ischemic brain damage. Additionally, other areas of the body may also be affected, such as the digestive system, with the occurrence of gastrointestinal tract atresia, and the renal system, with renal agenesis[1,2].

These complications require careful medical monitoring and appropriate treatment to ensure the safety of both the mother and the healthy fetus being carried. It is

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essential for pregnant women to receive adequate medical care during pregnancy to monitor the health of the fetus and the mother and to take preventive measures when necessary[2]. In this regard, the authors reported a clinical case of a dichorionic and diamniotic pregnancy with the presence of a papyraceous fetus resulting from a 12-week abortion.

CASE REPORT

Patient, 24 years old, female, G2P0A, without morbid antecedents, started prenatal care at a Basic Health Unit on January 12, 2023, with an approximate gestational age of 7 weeks.

The patient underwent the first ultrasound (1st trimester) on February 10, 2023, showing a twin pregnancy of 11 weeks and 5 days, dichorionic and diamniotic with the presence of amniotic membrane, yolk sac, embryo in both gestational sacs, normal amount of amniotic fluid in both cavities, and apparently normal fetal anatomies (Figure 1).

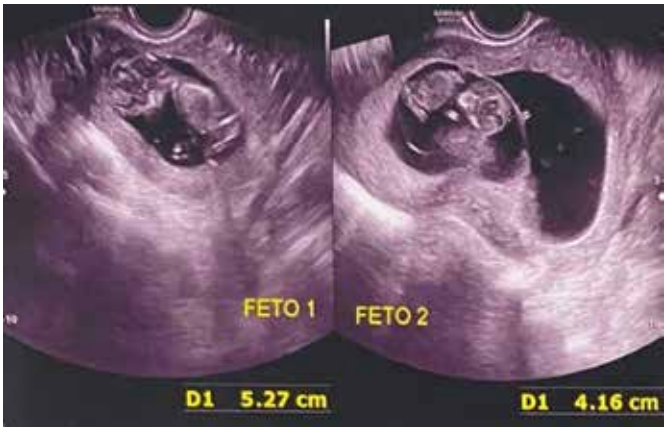

Figure 1: 1st-trimester morphological ultrasound at 11 weeks and 5 days showing dichorionic and diamniotic twin pregnancy, with an embryo in both gestational sacs
Source: Shiokawa Clinic

In the second ultrasound performed on March 6, 2023, a twin pregnancy was evident, with fetus 1 showing present, rhythmic heartbeats with good vitality and biometrics compatible with 14 weeks and 3 days (Figure 2). The ultrasound evaluation of fetus 2 showed a present embryo, with a crown-rump length measuring 55.6 cm, absence of fetal movements and heartbeats, irregular gestational sac, signs of fetal resorption, and biometrics compatible with 12 weeks and 1 day (Figure 3).

Figure 2: Obstetric ultrasound showing a living fetus of 14 weeks and 3 days
Source: Diagnose Clínica de Ultrassom

Figure 3: Obstetric ultrasound showing a dead fetus, signs of fetal resorption, and biometrics compatible with 12 weeks and 1 day
Source: Diagnose Clínica de Ultrassom

The pregnancy was followed up with routine prenatal exams, including serologies, all of which were normal, as well as monthly Doppler ultrasound exams, which showed a normal pattern for the surviving fetus, with no evidence of maternal or fetal risks, allowing for a total of 11 prenatal visits.

At 39 weeks of gestation, on August 22, 2023, an elective cesarean section was performed at Hospital São Silvestre in Goiânia-GO. The procedure was uneventful, with a good final outcome and a male newborn weighing 3590g with Apgar scores of 8/9. After the birth of the viable twin, the dead fetus, with a papyraceous, macerated appearance and undefined sex, was extracted and sent to the pathology department (Figure 4). The newborn and the mother progressed without complications and were discharged from the ward in 2 days.

Figure 4: Papyraceous, macerated fetus with placenta
Source: Author's files

DISCUSSION

The term "fetus papyraceus" is based on the analogy between the fetus and an inanimate substance, attributing to it a solid texture resembling the consistency of stone. This terminology is used to describe a degenerated ovum that does not progress beyond the early stages of embryogenesis. The phenomenon involves the fetal demise of one of the twins in early pregnancy, followed by the intrauterine retention of the deceased fetus for at least 10 weeks. Compression of the deceased fetus occurs due to the growth of the healthy fetus, resulting in a flat and thin appearance, similar to paper[1-3].

This phenomenon is a rare event that occurs in 0.018-0.02% of multifetal pregnancies. It occurs more specifically in monochorionic twin pregnancies, resulting in the abortion of one of the fetuses. The cause is usually idiopathic; however, it may be related to twin-to-twin transfusion syndrome, which results from discrepancies in blood circulation between the fetuses, or to inadequate umbilical cord insertion, usually occurring in the center of the placental mass, as well as genetic and chromosomal anomalies. An anomalous variant known as velamentous insertion, characterized by blood vessels that connect to the membranes surrounding the placenta instead of inserting directly into its center. These factors can exacerbate fetal loss and contribute to congenital anomalies[3-5].

In the context of twin pregnancies, we can predominantly categorize them into two types: monochorionic and dichorionic. Monochorionic pregnancies are notably associated with a significantly higher risk of malformations due to intense competition for nutrients and oxygen between fetuses sharing a single placenta. When this competition reaches severe levels, the risks of perinatal mortality and morbidity increase considerably. Among the most common complications in this clinical scenario is fetal death due to inadequate vascular connections in the shared placenta[2,6].

The prognosis of a pregnancy after the death of one of the twins is influenced mainly by the gestational age at the time of fetal death and by chorionicity, regardless of amnionicity. When loss occurs in the first trimester, the death of one fetus does not seem to be associated with adverse effects on the development of the survivor, especially in diamniotic dichorionic pregnancies. In this case, patients may be asymptomatic or may present with abdominal pain and mild genital bleeding. However, the death of a single fetus after 14 weeks, and especially after the 20th week of gestation, is associated with adverse effects on the surviving fetus, with a higher risk of prematurity (spontaneous or iatrogenic), intrauterine growth restriction, neurological morbidity, preeclampsia, hemorrhage, and sepsis[4].

The process of fetal death can lead to serious complications for the mother, such as complications during delivery, for example, dystocia. Additionally, fetal death can lead to disorders in intravascular coagulation due to the significant release of thromboplastin from the deceased fetal tissue. This released thromboplastin can enter the maternal circulation, resulting in changes in the coagulation cascade, a critical process in hemostasis[1]. In the described clinical case, there were no complications, most likely due to the gestational age of fetal death being below the 14th week of gestation and because it was a diamniotic dichorionic pregnancy.

Furthermore, it is important to highlight another point regarding the surviving twin. It is observed that the later the occurrence of twin fetal death, the greater the complications for both the surviving fetus and the mother. These complications include neural tube disorders, which can result in cerebral palsy, as well as cerebral hypoxia due to the diversion of blood from the healthy fetus to the non-surviving fetus through the placenta, causing ischemic brain damage. Additionally, other areas of the body may also be affected, such as the digestive system, with the occurrence of gastrointestinal tract atresia, and the renal system, with renal agenesis[1, 2].

In dichorionic pregnancies, the management is for the pregnancy to continue until at least 38 weeks, as long as both maternal health and fetal well-being are assured, unless there is another obstetric indication for pregnancy termination. In the case of monochorionic pregnancies, conservative management is a viable option, especially before 34 weeks, due to the higher neonatal risks associated with prematurity. In this context, the administration of prenatal corticosteroids should be considered. The patient in question gave birth at 39 weeks through an elective cesarean section without complications, with the birth of a viable twin.

For pregnancies managed conservatively, attention should be provided with equipment for monitoring fetal well-being through serial ultrasound scans to monitor fetal growth and amniotic fluid volume. The evaluation of fetal anemia through measurement of the maximum systolic velocity in the middle cerebral artery using Doppler ultrasound is an effective parameter for monitoring the fetal health. For maternal monitoring, blood coagulation tests are recommended.[3,4].

Additionally, special attention should be given to blood pressure and proteinuria levels. This is due to the higher risk of hypertensive disorders associated with twin pregnancies, especially those in which one fetus dies[3,4]. In the case of the clinical case patient, complementary exams such as Doppler ultrasound were performed monthly to check the viability of the fetus, as well as laboratory tests (all without alterations) every trimester, as recommended by the Ministry of Health. These complications require careful medical monitoring and appropriate treatment to ensure the safety of both the mother and the healthy fetus being carried. It is essential for pregnant women to receive adequate medical care during pregnancy to monitor the health of the fetus and the mother and take preventive measures when necessary[2].

CONCLUSION

The present case report illustrates a dichorionic and diamniotic twin pregnancy, with the occurrence of a fetus papyraceus, a rare event that occurs in a small percentage of multifetal pregnancies. A patient underwent specific prenatal monitoring, including regular ultrasounds and laboratory tests, which allowed for a comprehensive assessment of fetal and maternal well-being. Early detection of fetal death and appropriate management were crucial to ensuring the safety of both the mother and the surviving fetus. The performance of an elective cesarean section at 39 weeks of gestation resulted in a positive outcome, with the birth of a healthy newborn.

The case underscores the importance of careful monitoring and timely medical intervention in twin pregnancies, especially when complications such as fetus papyraceus occur. Understanding risk factors and implementing monitoring protocols are essential to ensuring a progressive outcome for both mother and child. Additionally, the report highlights the importance of knowledge and the ability to identify less common clinical conditions, such as fetus papyraceus, to ensure the delivery of high-quality healthcare and informed decision-making during twin pregnancies.

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