



Fetus in Fetus in a Term Pregnancy: Case Report

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Abstract

Introduction: Fetus in Fetus (FIF) is a very rare anomaly in which a single fetus develops in a living fetus. This case report aims to present the maternal and intrapartum findings, neonatal presentation, and surgical outcomes of a rare fetus-in-fetus diagnosed at term gestation.

Case Presentation: A 21-year-old primigravid woman (G1P0) at a gestational age of 39 weeks and 5 days presented to Bent-Al-Huda Hospital (A medical center) in Bojnurd with complaints of labor pain. In the fetal ultrasound examination, an abdominal mass with a spine was observed inside the abdomen, suggesting Fetus in Fetus. The diagnosis of fetus-in-fetus was made at birth, at 39 weeks and 5 days of gestation. After a normal vaginal delivery, the baby underwent surgery 7 days later and was discharged from the hospital in good general condition.

Conclusions: Fetus-in-fetus is considered a rare congenital condition resulting from aberrant embryonic division in monozygotic twin pregnancies, leading to the presence of a parasitic twin within the host. The clinical presentation varies depending on the size, location, and degree of organ differentiation of the mass, with most cases presenting as an abdominal mass in neonates. Consistent with previously reported cases in the literature, complete surgical excision remains the treatment of choice and generally leads to excellent outcomes when the mass is fully removed. The findings in our case align with prior reports emphasizing early recognition, careful imaging evaluation, and timely surgical management to prevent compressive complications and ensure a favorable neonatal prognosis.

INTRODUCTION

Fetus-in-fetus (FIF) is an extremely rare anomaly involving diamniotic monozygotic or parasitic twins, where one fetus develops abnormally within the body of its living twin [1]. This condition has an estimated incidence of 1 in 500,000 births [2].

Two theories regarding the etiopathogenesis of a fetus within another fetal body include the "included twin" and teratoma theories. The first theory suggests abnormal embryogenesis in diamniotic and monozygotic pregnancies, where one vertebrate fetus develops inside the body of another fetus. The second theory proposes that it could be a differentiated teratoma [3].

The diagnosis of a fetus-in-fetus is typically based on ultrasound, MRI, and histopathology [4], often appearing as echogenic foci in the fetal abdomen [5, 6]. The primary treatment involves surgical intervention to

remove the fetus from the body of the other fetus [7]. This study documents the presence of a fetus-in-fetus at term.

CASE PERSONATION

This is a Case report of a rare fetus-in-fetus presentation. A 21-year-old primigravid woman (G1P0) at a gestational age of 39 weeks and 5 days was referred to Bent Al-Hoda hospital (a medical center) in Bojnurd with an unknown last menstrual period (LMP) and an estimated date of confinement (EDC) of 2023/1/29, with complaints of labor pain. According to the only prenatal ultrasound available in the patient's medical records, the amniotic fluid volume, estimated fetal weight, and anatomical survey were all within normal limits, and no abnormalities or suspicious findings were reported. On vaginal examination, she was 6 cm dilated,

with 70% effacement, a station of -2. Her pelvic examination was normal. Cephalic presentation, an intact and healthy amniotic sac, and no signs of vaginal bleeding or watery discharge. Fetal movements were satisfactory, with a fetal heart rate (FHR) of 145 beats per minute. At the time of admission, uterine contractions demonstrated moderate force and intensity, occurred every 5 minutes, and the uterus exhibited an appropriate resting tone between contractions. Her vital signs were stable: blood pressure at 120/80 mmHg, pulse rate at 83 bpm, respiratory rate at 20 breaths per minute, axillary temperature at 36.2°C, and oxygen saturation at 99%. Her body mass index (BMI) was measured at 20.5.

During the client's medical history intake, it was noted that she had no history of illness, surgery, or medication use (aside from folic acid and vitamin D supplements), her past medical history (PMH) was unremarkable, and there were no hospitalizations during her pregnancy. The pregnancy was spontaneous. She reported a consanguineous relationship with her husband (they were first cousins). Additionally, she mentioned a family history of twin births, specifically noting that her mother had experienced a twin pregnancy. In terms of laboratory results, her hemoglobin level was 11.6 g/dL, hematocrit was 33.6%, platelet count was 140,000 per microliter, red blood cell count was 3.98 million per microliter, white blood cell count was 10.7 thousand per microliter, and her blood type was A positive.

Fetal Ultrasound Examination at 18–19 Weeks of Pregnancy

The ultrasound showed a single female fetus with variable fetal heart rate (FHR) patterns. The placenta was positioned anteriorly. No subchorionic or retroplacental hematoma was detected. The calvarium (skull cap) was intact, and the brain tissue appeared normal. There was no indication of anencephaly or exencephaly. The volume of amniotic fluid was normal. No signs of gastroschisis or omphalocele were observed, and the abdominal wall was intact. Notably, an abdominal mass containing a spine was identified within the fetus's abdomen, suggesting a fetus-in-fetu anomaly (Figure 1).

Following the labor process, a baby girl weighing 3000 grams was born via a natural vaginal delivery, with a normal length and a normal head circumference for gestational age, with an episiotomy. She had an Apgar score of 9/10, indicating excellent health. The baby was discharged from the hospital after 24 hours in satisfactory clinical condition. She was referred to Mashhad Children's Hospital (a tertiary pediatric center) for surgical removal of the fetus-in-fetu. During follow-up, the baby underwent surgery seven days later and was subsequently discharged from the hospital in good general health.

DISCUSSION

This study reports a rare case of a fetus-in-fetu at term. Fetus-in-fetu (FIF) is a congenital anomaly characterized by the presence of an abdominal mass. This anomaly involves the formation of a mass of fetal-like tissue within the body of another fetus [8].

In the present case report, a fetus was identified within the abdomen. Typically, FIF is found in the abdominal cavity and retroperitoneum, although cases have also been documented in other locations, including intracranial, oral, dorsal, sacrococcygeal, and scrotal sites [9–11].

This report pertains to a fetus-in-fetu case identified at term and near term in pregnancy. Previous studies have documented a wide range of presentation ages, from prenatal detection to as late as 47 years of age [9, 10, 12]. Clinically, symptoms of fetus-in-fetu typically manifest in infancy, often within the first 18 months of life. The clinical presentation is primarily due to the mass effect of the anomaly, which can cause symptoms such as abdominal distension, jaundice, vomiting, and respiratory complications due to pressure on the respiratory system [13].

In this case report, ultrasound imaging revealed a round abdominal mass containing a spinal structure. The diagnosis of fetus-in-fetu (FIF) is established through clinical, radiological, and histological evaluation. Characteristic CT findings typically show a rounded mass with fatty tissue enveloping the vertebral column [13]. The presence of a spine and an organized arrangement of organs strongly support FIF. However, research indicates that spinal structures may be absent in some FIF cases [14]. The number and location of echogenic foci in the fetal abdomen play a critical role in differentiating FIF from other conditions, such as fetal meconium peritonitis, hyperechoic bowel, TORCH infections, tumors, or thromboembolism [10, 15, 16].

In this case report, the infant was referred to a specialized pediatric hospital for surgical intervention 24 hours after delivery. The fetus-in-fetu was surgically removed seven days later. The preferred treatment for fetus-in-fetu involves surgical removal of the mass, which can be performed either openly or laparoscopically, depending on the mass's location, size, and degree of adhesion to surrounding tissues. This surgery is typically performed promptly; however, due to the benign nature of the tumor, delaying the procedure does not pose significant risks [17].

Some experts suggest that the presence of any fetal structure with evidence of organogenesis or the presence of a vertebral axis is indicative of a fetus-in-fetu [18].

CONCLUSION

Fetus-in-fetu (FIF) is a rare condition often identified as an abdominal mass during fetal development, which can

be diagnosed using ultrasound and prenatal screening. Although FIF is benign, it is crucial to consider the differential diagnosis of abdominal masses and rule out the possibility of malignancy.

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ETHICAL CONSIDERATION

Written informed consent was obtained from the patient's parents for publication of this case report and any accompanying images. Ethical approval was granted by the Ethics Committee of North Khorasan University of Medical Sciences (IR.NKUMS.REC.1404.101).

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AUTHORS' CONTRIBUTIONS

The authors accept full responsibility for the content of this manuscript and have approved its submission for publication.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interests

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