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Case Report

Obstructed Labor Due to Undiagnosed Acardiac Twin: A Case Report and Literature Review from a Resource-Limited Setting

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Received: March 28, 2026; **Published:** May 01, 2026

Abstract

Introduction: Monochorionic monoamniotic (MCMA) twin pregnancies are uncommon and carry the highest risk of perinatal complications due to their shared placenta and amniotic sac. This case illustrates the significant consequences of delayed evaluation and missed antenatal diagnosis of twin reversed arterial perfusion (TRAP) sequence, ultimately leading to obstructed labor and an emergency caesarean section. It emphasizes the critical importance of early determination of chorionicity, vigilant monitoring, and the timely recognition of cephalopelvic disproportion (CPD) during labor.

Case Summary: A 25-year-old woman with a history of multiple pregnancies was referred at 29 weeks due to suspected twin anomalies. Ultrasound confirmed the diagnosis of MCMA twin pregnancy, revealing intrauterine demise of twin B along with multiple anomalies. At 39 weeks, she went into spontaneous labor, resulting in the vaginal delivery of twin A, a live neonate weighing 2670g. However, labor for twin B did not progress, presenting with a high station of the presenting part, ultimately leading to obstructed labor. An emergency cesarean section was performed, delivering a 2000g anomalous acardiac twin without a head or extremities. Both the mother and the surviving neonate recovered well postoperatively, though the antenatal diagnosis of TRAP sequence and early identification of CPD were overlooked.

Conclusion: MCMA pregnancies are particularly susceptible to complications, including congenital anomalies, intrauterine demise, TRAP sequence, and obstructed labor. In this case, the critical failures were the failure to evaluate chorionicity early and the absence of antenatal detection of anomalies, which limited opportunities for fetal therapy and appropriate counseling. Additionally, the delayed recognition of CPD contributed to maternal morbidity. Early diagnosis, vigilant monitoring, and proactive delivery planning are essential for improving outcomes in MCMA pregnancies, especially in resource-limited settings.

Keywords: *Acardiac Twin; Intrauterine Demise; Monochorionic Monoamniotic Twins; Obstructed Labor; TRAP Sequence*

Abbreviations

ANC: Antenatal Care; BG/RH: Blood Group and Rhesus Factor; BP: Blood Pressure; CBC: Complete Blood Count; CPD: Cephalopelvic Disproportion; C/S: Caesarean Section; CVS: Cardiovascular System; FHB: Fetal Heartbeat; GA: Gestational Age; GUS: Genitourinary System; Hb: Hemoglobin; HBsAg: Hepatitis B Surface Antigen; HCT: Hematocrit; HEENT: Head, Eyes, Ears, Nose, Throat; ISUOG: International Society of Ultrasound in Obstetrics and Gynecology; IV: Intravenous; MCMA: Monochorionic Monoamniotic; MG: Multigravida; NICU: Neonatal Intensive Care Unit; NTD: Neural Tube Defect; PLT: Platelet Count; PNC: Postnatal Care; PR: Pulse Rate; RBS: Random Blood Sugar; RR: Respiratory Rate; sIUGR: Selective Intrauterine Growth Restriction; T: Temperature; TRAP: Twin Reversed Arterial Perfusion; TTTS: Twin to Twin Transfusion Syndrome; VDRL: Venereal Disease Research Laboratory Test (For Syphilis); WBC: White Blood Cell Count

Background

Twin Reversed Arterial Perfusion (TRAP) sequence is a rare condition that occurs in monochorionic twin pregnancies, affecting about 1 in 35,000 pregnancies and approximately 1% of monochorionic twins [1]. This anomaly is characterized by the presence of an acardiac twin a severely malformed fetus that does not have a functioning heart, being supplied with blood in reverse by the pump twin through arterio-arterial connections in the placenta. The acardiac twin may exhibit signs such as missing head structures (acephalus), significant physical deformities, and nonviable bodily functions. Meanwhile, the pump twin is under considerable strain, facing risks such as heart failure, excess amniotic fluid (polyhydramnios), and even the possibility of intrauterine death [2,3].

The TRAP sequence is most commonly linked to monochorionic monoamniotic (MCMA) pregnancies, but there have also been reports of it occurring in monochorionic diamniotic twins [4,5]. The lack of a dividing membrane in MCMA twins heightens the risk of complications such as cord entanglement, congenital anomalies, and sudden fetal death [6,7]. Therefore, early diagnosis is crucial and can typically be achieved between 11 and 14 weeks of gestation through high-resolution ultrasound and Doppler imaging. These techniques allow for the detection of reversed blood flow in the acardiac twin while also assessing the cardiac strain on the pump twin [2,8].

Despite significant advancements in fetal imaging, the TRAP sequence often goes undiagnosed, especially in low-resource settings. Numerous case reports from countries like India [9], Morocco [10], Ethiopia [11], Nepal [12], and Kenya [13] reveal the challenges of diagnostic delays and limited access to fetal therapy. In these situations, the acardiac twin may not be identified until labor, where its malformed size can obstruct the birth canal. This obstruction can lead to mechanical dystocia, often necessitating an emergency caesarean section [14,15].

The obstetric complications that arise from missing an antenatal diagnosis of the TRAP sequence can be quite serious. If these issues aren't caught early on, the chance for fetal therapies-such as radiofrequency ablation, bipolar cord coagulation, or laser photocoagulation-diminishes. This oversight can lead to a higher risk of the pump twin's demise and increased maternal health problems [13,16,17]. In numerous cases reported from countries like Ethiopia, India, and Morocco, the acardiac twin was only discovered during labor or a caesarean section, often after attempts at vaginal delivery failed due to obstructed labor caused by the malformed fetus [9-11].

Obstructed labor in this situation is primarily mechanical, often due to the bulk, rigidity, or abnormal positioning of the acardiac twin. In some instances, the acardiac twin may appear as a fixed, non-mouldable mass within the birth canal, which can lead to prolonged labor, uterine rupture, or fetal distress [11,15]. In such cases, an emergency caesarean section becomes the only feasible option, frequently performed under urgent or less-than-ideal conditions. The risks to the mother are further exacerbated for women with previous cesarean scars or those who have limited access to surgical care, as highlighted in cases from Kenya, Nigeria, and South Asia [5,13,18].

The literature also emphasizes the psychological and emotional strain that families and healthcare providers experience when such anomalies are discovered during labor. Reports from Nicolì., *et al*. (2023) [7] and Adamou and Yakasai (2023) [19] reveal that the shock of

facing a nonviable, severely malformed fetus at delivery is often intensified by the absence of prenatal counseling and preparation. These cases highlight the urgent need for comprehensive antenatal screening protocols, particularly for monochorionic pregnancies, as well as the importance of enhancing diagnostic capabilities in resource-limited settings.

The International Society of Ultrasound in Obstetrics and Gynecology (ISUOG) emphasizes the importance of determining chorionicity in the first trimester and recommends ongoing growth and Doppler monitoring for all monochorionic twins, paying close attention to any signs of TRAP sequence [8]. However, as highlighted in several studies by Pathak and Raj (2023) [3], Batoy., *et al*. (2023) [4], and Thapa., *et al.* (2023) [12]. Implementing these guidelines can be quite challenging in low-resource settings. In these environments, there is often limited access to trained sonographers, Doppler equipment, and effective referral pathways, making it difficult to provide the necessary monitoring and care.

In this section, we share a case of a monochorionic monoamniotic twin pregnancy that faced complications due to an undiagnosed TRAP sequence. This case emphasizes the diagnostic and obstetric challenges experienced in a resource-limited setting.

Case Presentation

A 25-year-old woman, who is pregnant for the fourth time and has two living children from vaginal deliveries, as well as one spontaneous first-trimester abortion, was referred to our hospital at 29 weeks and 2 days of gestation. This gestational age was determined from an early ultrasound conducted at 10 weeks and 2 days. Initially, during her antenatal follow-up at a nearby health center, she was diagnosed with a vanishing twin at 10 weeks of pregnancy. However, an anatomical scan at 16 weeks revealed a twin pregnancy, with one fetus exhibiting a neural tube defect, which warranted her referral to our facility.

Upon ultrasound evaluation at our hospital, we confirmed the presence of a monochorionic monoamniotic twin pregnancy in the third trimester. Unfortunately, twin B was discovered to have undergone intrauterine demise and had multiple associated anomalies. During this time, the patient reported no history of vaginal fluid leakage, contractions, abnormal movements, loss of consciousness, cough, shortness of breath, decreased fetal movement, or substance use during her pregnancy. She also denied any personal or family history of chronic health issues, such as diabetes, renal disease, or heart problems.

Her physical examination showed stable vital signs: blood pressure was 100/60 mmHg, pulse rate was 90 beats per minute, respiratory rate was 22 breaths per minute, and temperature was 36°C. While there was slight pallor in her conjunctivae, her head and neck examination was otherwise normal. Breath sounds were clear bilaterally upon chest auscultation, and her cardiovascular examination revealed normal heart sounds without any murmurs or gallops. Abdominal examination revealed a gravid uterus consistent with approximately 32 weeks of gestation, with multiple fetal poles appreciated, though fetal parts were indistinct. Fetal heart activity was present for one twin, but absent for the other. At this time, there were no signs of uterine contractions. A genitourinary examination showed no vaginal bleeding or abnormal discharge, and musculoskeletal, skin, and neurological examinations were unremarkable.

The assessment indicated early preterm pregnancy with a monochorionic monoamniotic twin gestation, a vanishing twin (twin B) with intrauterine demise and abnormalities, mild iron deficiency anemia, and a multigravida status. Laboratory investigations, including a complete blood count, blood group and Rh typing, VDRL, HBsAg, and random blood sugar tests, were ordered. The patient was transferred to the high-risk pregnancy follow-up unit for monitoring and was prescribed ferrous fumarate 152 mg orally twice daily for three months. Weekly biophysical profile scans were conducted, during which both maternal and fetal conditions remained reassuring.

At 39 weeks of gestation, she began experiencing spontaneous labor. After six hours, she delivered twin A, a live male neonate weighing 2670 grams, with APGAR scores of 7 and 9 at one and five minutes, respectively. Labor continued for twin B for an additional two hours

without any descent of the presenting part. Augmentation of labor was avoided due to the high station of the presenting part, along with difficulties in assessing cephalopelvic disproportion. As labor progressed, signs of obstructed labor emerged, including vulvar edema and discoloration, a tense abdomen, and increasing maternal anxiety. Broad-spectrum antibiotics, ceftriaxone 1g IV, metronidazole 500 mg IV, and gentamicin 80 mg IV were administered, and bladder catheterization was performed. Ultimately, a caesarean section was necessary for obstructed labor due to the retained anomalous twin B.

Preoperative investigations indicated a white blood cell count of 4.12 × 10^3/μL, hemoglobin of 9.5 g/dL, hematocrit of 32.7%, and a platelet count of 150 × 10^3/μL. The urine dipstick did not show albumin, and serological tests for HBsAg and VDRL were negative. Random blood sugar measured at 143 mg/dL, and her blood type was A positive.

During the surgery, she was under general anesthesia, and the abdomen was accessed through an infra-umbilical midline incision. Upon entering the peritoneal cavity, the intact gravid uterus was observed, with a thinned, bluish lower uterine segment (Figure 1). The bilateral tubes and ovaries appeared healthy, and there was minimal serosanguineous fluid in the peritoneal cavity along with congested parametria.

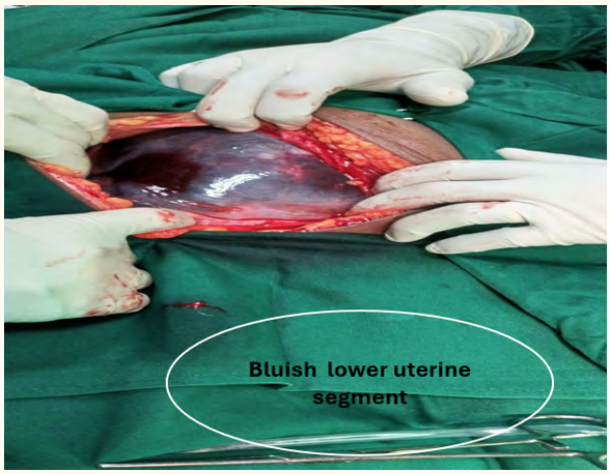

Figure 1: *A thinned, bluish lower segment of the uterus seen on infraumbilical midline abdominal incision.*

The urinary bladder was retracted downward, and a transverse hysterotomy was created approximately 3 cm above the vesico-uterine junction, allowing for the delivery of a 2000 g anomalous male neonate without a head or extremities (Figure 2). Following delivery, a Pitocin drip was started, and the placenta was delivered through continuous cord traction. Examination revealed a single placenta with two thin dividing membranes and no visible morphological abnormalities. The uterus was exteriorized, cleaned with sterile gauze, and monitored until the lower segment regained a pinkish hue after about 10 minutes. Closure was performed continuously using vicryl no.1, starting at the upper edge of the hysterotomy, ensuring hemostasis. After confirming the correct count of instruments and sponges, the abdomen was closed layer by layer, and the mother was transferred to the recovery unit in stable condition.

Postoperatively, she was started on ceftriaxone 1g IV twice daily, metronidazole 500 mg IV three times daily, and gentamicin 80 mg IV three times daily. Laboratory evaluation revealed a WBC count of 8.2 × 10^3/μL, hemoglobin of 9 g/dL, hematocrit of 30.8%, and platelet count of 178 × 10^3/μL.

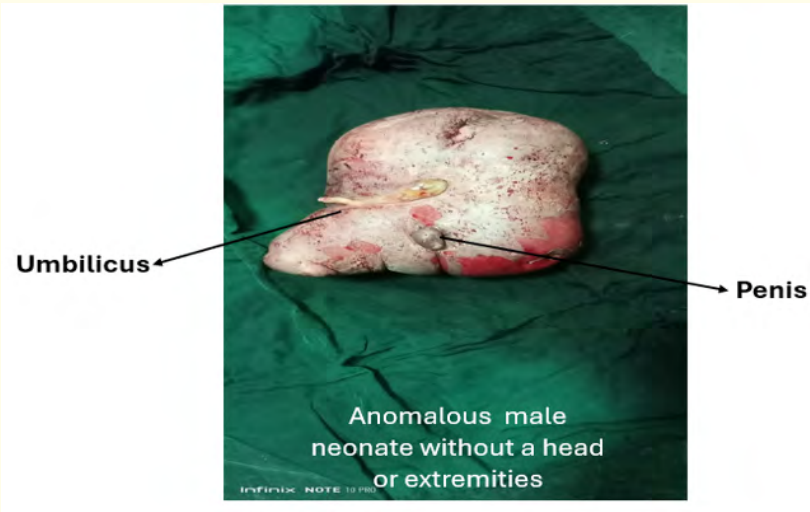

Figure 2: *An anomalous male neonate without a head or extremities delivered by caesarean section.*

After delivery, both the mother and her surviving neonate were monitored in the hospital for eight days, during which they had an uncomplicated course. Antibiotics were continued for one week, and the urinary catheter remained in place for the same duration. The neonate was evaluated and closely monitored by the NICU team for a week and remained stable throughout. Both mother and child were discharged in good condition and continued with regular follow-up at the postnatal care unit. They were finally cleared from follow-up after one month, both in good health.

Discussion

Monochorionic monoamniotic (MCMA) twin pregnancies are quite rare, accounting for less than 1% of all twin pregnancies. However, they come with the highest risk of perinatal complications and mortality due to their unique situation, where both twins share a placenta and an amniotic sac [8,20]. This shared environment increases the likelihood of various complications, including cord entanglement, congenital anomalies, intrauterine demise, and conditions like twin reversed arterial perfusion (TRAP) sequence [6]. In the case we are discussing, several complications specific to MCMA pregnancies were clearly evident. Initially, the phenomenon of the vanishing twin and the subsequent identification of severe anomalies in twin B highlighted how vulnerable MCMA twins are to congenital malformations. The intrauterine demise of twin B further illustrated the dangers of shared circulation; when one twin dies, it can adversely affect the surviving twin through sudden hemodynamic changes or blood clots [1]. Although close monitoring allowed twin A to survive until delivery, the risk of the surviving twin's demise remained high throughout the pregnancy, emphasizing the need for careful observation through serial ultrasounds and Doppler studies [2]. A significant issue in this case was the failure to assess chorionicity and identify anomalies early on. Ideally, chorionicity should be evaluated during the first trimester, between 11 and 14 weeks, using high-resolution ultrasound and Doppler imaging. Early detection of complications such as TRAP sequence can open up opportunities for fetal interventions, including radiofrequency ablation or cord coagulation, which may improve outcomes for the so-called pump twin [8]. Unfortunately, the acardiac twin was not identified until labor, demonstrating a missed opportunity for antenatal diagnosis. Such delays are often seen in low-resource settings where access to advanced imaging and skilled sonographers is limited [9,11]. The labor process revealed another complication: the failure to recognize early signs of cephalopelvic disproportion (CPD). After the vaginal delivery of twin A, labor for twin B did not progress, with the presenting part remaining at a high position. These were early signs of CPD, yet intervention was postponed until obstructed labor set in. Mechanical difficulties caused by the malformed acardiac twin led to maternal distress, vulvar edema, and a

tense abdomen, which ultimately required an emergency cesarean section. Timely recognition of CPD and a planned cesarean delivery could have potentially reduced maternal morbidity [14]. Lastly, the lack of prenatal counseling worsened the psychological impact on the mother and family. Facing a severely malformed, nonviable fetus at delivery without any prior preparation is a profoundly traumatic experience, as other reports have also noted [7,19]. This situation underscores the necessity for comprehensive antenatal screening and counseling in MCMA pregnancies.

Conclusion

In conclusion, this case highlights the various complications associated with MCMA pregnancies, including congenital anomalies, intrauterine demise, CPD, TRAP sequence, and obstructed labor. A common theme throughout these complications was the failure to promptly assess chorionicity and detect anomalies during pregnancy, which limited opportunities for intervention and support. Improving antenatal screening protocols, enhancing access to specialized imaging, and ensuring timely recognition of labor complications are essential for reducing maternal and neonatal morbidity in MCMA pregnancies.

Conflict of Interest

No competing interest.

Bibliography

1. Moore TR., *et al*. "Perinatal outcome of pregnancies complicated by acardiac twinning". *American Journal of Obstetrics and Gynecology* 192.3 (2013): 684-689.

2. Sepulveda W., *et al*. "Twin reversed arterial perfusion sequence: pathophysiology, diagnostic approach and management". *Prenatal Diagnosis* 25.9 (2015): 796-802.

3. Pathak S and Raj G. "Vanishing acardiac twin with TRAP syndrome: A case report". *Radiology Case Reports* 18.8 (2023): 2735-2737.

4. Batoy A., *et al*. "Twin reversed arterial perfusion sequence in monochorionic diamniotic pregnancy: A rare occurrence". *Indian Journal of Case Reports* 10.5 (2024): 136-139.

5. Thirupathi K and Nathan JM. "A rare case report of twin reversed arterial perfusion sequence in monochorionic diamniotic twin and outcome of Dr. Pump and Mr. Acardiac acephalus in a tertiary care centre". *International Journal of Reproduction, Contraception, Obstetrics and Gynecology* 14.6 (2025): 2025-2029.

6. Quintero RA., *et al*. "Management of monochorionic monoamniotic twins: current perspectives". *Clinical Obstetrics and Gynecology* 59.3 (2016): 509-517.

7. Nicolì F., *et al*. "Psychological impact of unexpected fetal anomalies at delivery: lessons from TRAP sequence". *European Journal of Obstetrics and Gynecology and Reproductive Biology* 285 (2023): 45-52.

8. Khalil A., *et al*. "ISUOG practice guidelines: role of ultrasound in twin pregnancy". *Ultrasound in Obstetrics and Gynecology* 57.5 (2021): 715-726.

9. Patel R., *et al*. "TRAP sequence diagnosed intrapartum: case report from India". *International Journal of Reproduction, Contraception, Obstetrics and Gynecology* 12.4 (2023): 1120-1123.

10. Siati A., *et al*. "Uncommon case report of an acephalic-acardiac twin and review of the literature". *PAMJ Clinical Medicine* 1 (2019): 6.

11. Muleta M., *et al*. "TRAP sequence presenting as obstructed labor in Ethiopia: case report". *Ethiopian Journal of Reproductive Health* 15.2 (2023): 88-93.

12. Thapa B., *et al*. "Acardiac twin: A case report". *Journal of Kathmandu Medical College* 3.1 (2023): 34-37.

13. Omondi Otieno P., *et al*. "Acardiac twin: The overlooked diagnosis. A recent case report and review of literature". *Gynecology and Obstetrics Case Report* 6.2 (2023): 90.

14. Hinkosa L., *et al*. "Obstructed labor secondary to TRAP sequence: case report from Ethiopia". *International Journal of Gynecology and Obstetrics* 160.1 (2025): 120-124.

15. Dejene T., *et al*. "Twin reversed arterial perfusion sequence diagnosed late in the third trimester: a case report and literature review". *Clinical Case Reports* 13.1 (2025): e70052.

16. Olutoye AS., *et al*. "Case report on twin reversal arterial perfusion sequence in a resource poor setting - diagnostic and management challenges". *Annals of Clinical and Medical Case Reports* 13.20 (2023).

17. Quaas P and Markfeld-Erol F. "'TRAP-ped with an Acardius': Case series of twin reversed arterial perfusion (TRAP) sequence and review of literature". *Journal of Fetal Medicine* 8.2 (2021): 27-33.

18. Jombo SE., *et al*. "Undiagnosed acardiac anceps twins: a case report". *International Journal of Obstetrics and Gynaecology Research (IJOGR)* 4.1 (2017): 534-541.

19. Adamou A and Yakasai I. "Emotional impact of intrapartum diagnosis of TRAP sequence: case series from Nigeria". *Nigerian Journal of Clinical Practice* 26.9 (2023): 1205-1210.

20. Cunningham FG., *et al*. "Williams Obstetrics". 25th edition. McGraw-Hill Education (2018).

Volume 15 Issue 5 May 2026