

# Spontaneous Monochorionic Triamniotic Triplet Pregnancy: A Case Report

Al Hussain Al Hazmi, Ola Tayeb, Afrah Al Mutairi, Mufareh Asiri\* 

Maternity Hospital, King Saud Medical City, Riyadh, KSA

Email: \*Mufa9002@gmail.com, \*m.asiri@ksmc.med.sa

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## Abstract

**Background:** Monochorionic triamniotic (MCTA) triplet pregnancy is a rare entity associated with a high risk of complications. In most previously reported cases, the pregnancy was conceived with the use of assisted reproductive technologies, and these cases were associated with complications. **Case Presentation:** We report a 28-year-old woman with a spontaneously conceived MCTA triplet pregnancy diagnosed at the gestational age of 26 weeks. All fetuses had normal amniotic fluid and umbilical artery Doppler findings were normal. The estimated weight of fetuses was 848 g, 891 g, and 1 kg, respectively. The patient was managed conservatively with a plan to monitor fetal growth every two weeks and a Doppler study twice weekly. On the 8<sup>th</sup> day of admission, the patient developed labor pains. Per vaginal examination revealed 1 - 2 cm cervical dilatation. Cesarean section was performed, and three girls were delivered with a single placenta (birth weight: 820, 925, and 960 g, respectively). **Conclusion:** Monochorionic triplet pregnancy is associated with a higher risk of fetal morbidity and mortality. Therefore, awareness of its complications can facilitate better management of such cases.

## Keywords

Monochorionic Triamniotic, Triplet Pregnancy, Case Report

## 1. Introduction

Monochorionic triamniotic (MCTA) triplet pregnancy is a rare entity (estimated incidence: 1 per 100,000 births) [1]. Monozygotic triplets occur when a fertilized ovum splits into two or more genetically identical embryos. The chorionicity of monozygotic triplets is determined by the timing of division of the fertilized ovum [2]. Most previously reported monochorionic triplet pregnancy cases were conceived through assisted reproductive techniques [3].

To the best of our knowledge, seven reported cases of spontaneously conceived MCTA triplet pregnancy were associated with complications such as fetofetal transfusion syndrome, congenital anomalies, or acardiac fetuses [4] [5] [6] [7].

There is no clinical guidance for the management of MCTA triplet pregnancy in which the only main complication is selective intrauterine growth restriction (sIUGR) [8]. Monochorionic multiples are at increased risk, mainly due to associated vascular communications in the placenta [9]. An imbalance in the net blood flow across the placental vascular communications from one fetus to another results in fetal transfusion syndrome [10]. This syndrome is a serious complication of monochorionic multiple gestations. Our case is one of the rare pregnancies with Spontaneous Monochorionic Triamniotic Triplet Pregnancy.

## 2. Case Report

A 28-year-old Saudi pregnant woman un-booked (obstetric history: para one) presented to the emergency room at 26 weeks of gestation with symptoms of anemia. She had no significant medical history. Her first child was a baby girl delivered one year ago per vaginally. Her past gynecological history was unremarkable. There was no history of medication use before pregnancy. She had conceived spontaneously. Physical examination revealed no abnormality. Her body mass index was 22 kg/m<sup>2</sup>, and her blood group was O positive. Hemoglobin was 7.8 g/dL. A vaginal swab showed normal flora. All other laboratory parameters were within the normal range. The patient was admitted to the antenatal ward. She received one unit of packed red blood cells. Ultrasound examination revealed MCTA triplet pregnancy. All fetuses showed normal amniotic fluid and normal umbilical artery Doppler findings. The estimated fetal weight was 848 g, 891 g, and 1 kg, respectively. The patient was managed conservatively with a plan to monitor fetal growth every two weeks and Doppler twice weekly as an inpatient. She completed dexamethasone doses for lung maturity. On the 8<sup>th</sup> day of admission, the patient complained of labor pain. The patient was evaluated immediately by the obstetrician on call. Per abdomen, examination revealed palpable contractions. Per vaginal examination, she was revealed to have 2 cm cervical dilatation. The patient explained that she was in labor and emergency cesarean section should be done. The patient consented and agreed. Emergency Cesarean section was performed, and three girls were delivered with a single placenta (birth weight: 820, 925, and 960 grams, respectively).

## 3. Postnatal Follow-Up

Triplet 1 was born with an Apgar score of 7, 8, and 8 at 1, 5, and 10 minutes, respectively. She was admitted to the neonatal intensive care unit (NICU) for 64 days because of several complications. She developed respiratory distress syndrome, hyperbilirubinemia, and mild retinopathy of prematurity.

Triplet 2 was born with an Apgar score of 4, 6, and 7 at 1, 5, and 10 minutes,

respectively. She died after 61 days of NICU admission due to cardiovascular arrest. In addition, she developed gram-negative sepsis, infective endocarditis, necrotizing enterocolitis, and thrombocytopenia.

Triplet 3 was born with an Apgar score of 3, 6, and 6 at 1, 5, and 10 minutes, respectively. She was admitted to NICU for 71 days. During her stay, she developed hyperbilirubinemia, moderate retinopathy of prematurity, seizure, and sepsis.

#### 4. Discussion

Monochorionic triplet pregnancy is a rare entity. Most reported cases were achieved by assisted reproductive technologies [1].

Type of chorionicity is a well-known determinant of perinatal outcomes. Monochorionic type is associated with a higher risk of perinatal complications.

Complications such as selective intrauterine growth restriction (sIUGR), twin-to-twin transfusion syndrome (TTTS), and twin anemia polycythemia sequence (TAPS) are reasonable indications for selective fetal reduction, as they can relieve the complications and alleviate the burden of higher-order multiple fetal gestations [8].

In a study, dichorionic triamniotic triplets were shown to have a 5.5-fold higher risk of mortality than trichorionic triamniotic gestation and a higher risk of delivery at gestational age of <30 weeks and birth weight of <1000 g than those of trichorionic triamniotic pregnancies [11]. Furthermore, monochorionic triamniotic triplets were at a significantly higher risk of intrauterine death and neonatal death than trichorionic triamniotic triplets. Moreover, dichorionic triamniotic triplets showed five-fold higher odds of neurological morbidity in comparison to trichorionic triamniotic triplets [12].

In a case series wherein three MCTA triplets underwent cord occlusion for twin reversed arterial perfusion (TRAP), laser photocoagulation was found to be superior to expectant management for MCTA complicated with TTTS [13].

Early antenatal registration and close monitoring of such cases can help improve the outcomes; however, our patient was not booked for antenatal care. Close monitoring with serial ultrasound can allow the physician to notice any fetal deterioration, even in more unpredictable sIUGR, such as Type III [8].

According to a study, abnormal ductus venosus Doppler findings are associated with adverse outcomes in monochorionic-diamniotic twins, which may be equally applicable to a case of MCTA [14].

The data showed that the overall perinatal mortality rate was 151.5 per 1000 births [15]. Another report showed even higher than the figures (51.5 - 97/1000) reported by other investigators [16].

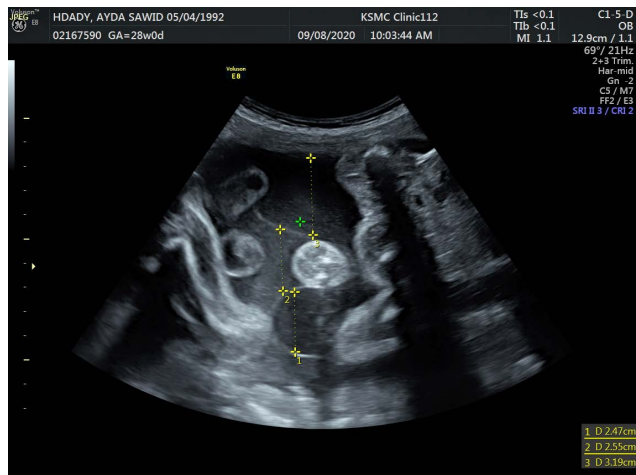
This data is consistent with the observation that perinatal mortality rates for multiple pregnancies increased with increasing prematurity. But unlike the studies on triplet and twin pregnancies [17] [18] (Figures 1-3).



**Figure 1.** Photograph of the placenta after delivery.



**Figure 2.** Ultrasound image showing three fetal parts with three membranes.



**Figure 3.** Ultrasound image showing the deepest pocket for the three fetuses.

## 5. Conclusion

MCTA triplet pregnancy is a rare condition. Monochorionic pregnancy is associated with a higher risk of fetal morbidity and mortality. Greater awareness of these complications will facilitate better management. Early antenatal booking and serial ultrasound can help improve the outcomes.

## Authors' Contributions

All authors made equal contributions in preparing, writing, and editing the manuscript.

## Conflicts of Interest

The authors have no conflicts of interest to declare.

## References

- [1] Wohlmuth, C. (2019) Placental Anastomoses in a Spontaneous Monochorionic-Triamniotic Triplet Pregnancy. *American Journal of Obstetrics & Gynecology*, **221**, 280. <https://doi.org/10.1016/j.ajog.2019.01.207>
- [2] Pan, P., Luo, G., Tang, L., Rolle, J., Qin, Y., Zeng, Q., *et al.* (2017) Monochorionic-Triamniotic Triplet Pregnancy Complicated by Twin Reversed Arterial Perfusion Sequence: Case Report and Literature Review. *American Journal of Perinatology Reports*, **7**, e106-e110. <https://doi.org/10.1055/s-0037-1603917>
- [3] Iwamoto, H., Yoshida, A., Suzuki, H., Tanaka, M., Takeuchi, T., Nakamura, T., Watanabe, N., Suzuki, Y. and Sugimura, K. (2010) Monochorionic Triamniotic Triplet Pregnancies with Assisted Reproductive Technology: Two Case Reports. *Journal of Obstetrics and Gynaecology Research*, **36**, 872-875. <https://doi.org/10.1111/j.1447-0756.2010.01235.x>
- [4] So, P.L., Li, K.W., Yeung, T.W. and Sin, W.K. (2019) Multicystic Encephalomalacia and Gastrointestinal Injury Following Single Fetal Death in First Trimester and Subsequent Fetofetal Transfusion Syndrome in a Monochorionic Triplet Pregnancy: A Case Report. *BMC Pregnancy Childbirth*, **19**, Article No. 311. <https://doi.org/10.1186/s12884-019-2459-4>
- [5] Gul, A., Aslan, H., Cebeci, A., Ceylan, Y. and Tekirdag, A.I. (2005) Monochorionic Triamniotic Triplet Pregnancy with a Co-Triplet Fetus Discordant for Congenital Cystic Adenomatoid Malformation of the Lung. *Reproductive Health*, **2**, Article No. 2. <https://doi.org/10.1186/1742-4755-2-2>
- [6] Sepulveda, W., Wong, A.E., Bustos, J.C., Flores, X. and Alcalde, J.L. (2009) Acardiac Fetus Complicating a Triplet Pregnancy: Management and Outcome. *Obstetrics and Gynecology*, **29**, 794-799. <https://doi.org/10.1002/pd.2291>
- [7] Entezami, M., Runkel, S., Becker, R., Weitzel, H.K. and Arabin, B. (1997) Feto-Feto-Fetal Triplet Transfusion Syndrome (FFFTS). *The Journal of Maternal-Fetal Medicine*, **6**, 327-334. [https://doi.org/10.1002/\(SICI\)1520-6661\(199711/12\)6:6<334::AID-MFM7>3.0.CO;2-P](https://doi.org/10.1002/(SICI)1520-6661(199711/12)6:6<334::AID-MFM7>3.0.CO;2-P)
- [8] Carmant, L., Wavrant, S. and Codsí, E. (2020) Expectant Management of Monochorionic-Triamniotic Triplets Complicated by Selective In Utero Growth Restriction: Report of 2 Cases. *Case Reports in Obstetrics and Gynecology*, **2020**, Article ID: 2979261. <https://doi.org/10.1155/2020/2979261>

- [9] Hayashi, A., Kikuchi, A., Joshita, N., Matsumoto, Y., Tatematsu, M., Horikoshi, T., Ogiso, Y. and Unno, N. (2005) Monochorionic Triplet Pregnancy Complicated by Severe Fetofetal Transfusion. *The Journal of Obstetrics and Gynaecology Research*, **31**, 414-420. <https://doi.org/10.1111/j.1447-0756.2005.00312.x>
- [10] Rehan, V.K., Menticoglou, S.M., Seshia, M.M. and Bowman, J.M. (1995) Fetofetal transfusion in Triplets. *Archives of Disease in Childhood-Fetal and Neonatal Edition*, **73**, F41-F43. <https://doi.org/10.1136/fn.73.1.F41>
- [11] Adegbite, A.L., Ward, S.B. and Bajoria, R. (2005) Perinatal Outcome of Spontaneously Conceived Triplet Pregnancies in Relation to Chorionicity. *American Journal of Obstetrics & Gynecology*, **193**, 1463-1471. <https://doi.org/10.1016/j.ajog.2005.02.098>
- [12] Kawaguchi, H., Ishii, K., Yamamoto, R., Hayashi, S. and Mitsuda, N. (2013) Perinatal Death of Triplet Pregnancies by Chorionicity. *American Journal of Obstetrics & Gynecology*, **209**, 36.E1-36.E7. <https://doi.org/10.1016/j.ajog.2013.03.003>
- [13] Van Schoubroeck, D., Lewi, L., Ryan, G., Carreras, E., Jani, J., Higuera, T., Deprest, J. and Gratacos, E. (2004) Fetoscopic Surgery in Triplet Pregnancies: A Multicenter Case Series. *American Journal of Obstetrics and Gynecology*, **191**, 1529-1532. <https://doi.org/10.1016/j.ajog.2004.06.039>
- [14] Monaghan, C., Kalafat, E., Binder, J., Thilaganathan, B. and Khalil, A. (2019) Prediction of Adverse Pregnancy Outcome in Monochorionic Diamniotic Twin Pregnancy Complicated by Selective Fetal Growth Restriction. *Ultrasound in Obstetrics & Gynecology*, **53**, 200-207. <https://doi.org/10.1002/uog.19078>
- [15] Adegbite, A.L., Ward, S.B. and Bajoria, R. (2005) Perinatal Outcome of Spontaneously Conceived Triplet Pregnancies in Relation to Chorionicity. *American Journal of Obstetrics and Gynecology*, **193**, 1463-1471. <https://doi.org/10.1016/j.ajog.2005.02.098>
- [16] Senat, M.V., Deprest, J., Boulvain, M., Paupe, A., Winer, N. and Ville, Y. (2004) Endoscopic Laser Surgery versus Serial Amnioreduction for Severe Twin-to-Twin Transfusion Syndrome. *The New England Journal of Medicine*, **351**, 136-144. <https://doi.org/10.1056/NEJMoa032597>
- [17] Jacobs, A.R., Demissie, K., Jain, N.J. and Kinzler, W.L. (2003) Birth Weight Discordance and Adverse Fetal and Neonatal Outcomes among Triplets in the United States. *Obstetrics & Gynecology*, **101**, 909-914. [https://doi.org/10.1016/S0029-7844\(02\)03080-6](https://doi.org/10.1016/S0029-7844(02)03080-6)
- [18] Demissie, K., Ananth, C.V., Martin, J., Hanley, M.L., Mac Dorman, M.F. and Rhoads, G.G. (2002) Fetal and Neonatal Mortality among Twin Gestations in the United States: The Role of Intrapair Birth Weight Discordance. *Obstetrics & Gynecology*, **100**, 474-480. <https://doi.org/10.1097/00006250-200209000-00013>