

Monoamniotic twin pregnancy – A case report and review of literature.

P Gubbala, P Sinha, J Zaidi, L De Silva

Citation

P Gubbala, P Sinha, J Zaidi, L De Silva. *Monoamniotic twin pregnancy – A case report and review of literature..* The Internet Journal of Gynecology and Obstetrics. 2009 Volume 13 Number 1.

Abstract

The incidence of monoamniotic twin pregnancy is estimated at 1 in 25,000 pregnancies. The Perinatal mortality rate in monoamniotic twin pregnancy (MATP) is about 28-70%. Ultrasound assessment should only be performed by skilled practitioners who are able to diagnose zygosity and chorionicity as there is a high mortality and morbidity rate inspite of early diagnosis and intense monitoring. Possible complications include, cord entanglement and knots, Twin-to-twin transfusion syndrome (TTTS) and premature birth. In the absence of TTTS, cord entanglement remains the main issue of concern and therefore current available evidence suggests early delivery by elective caesarean section between 32-34 weeks gestation after administering steroids. Women with monoamniotic twin pregnancy should be counselled regarding the increased risk of a poor perinatal outcome. However careful management throughout pregnancy using a multi-disciplinary team approach can achieve good outcome.

BACKGROUND

Twin pregnancy is associated with a five fold increased risk of neonatal and fetal death compared to a singleton pregnancy¹. Twin pregnancy is at increased risk of all Obstetric complications but monoamniotic twins are specifically associated with an increased risk of twin-to-twin transfusion syndrome (TTTS) and cord entanglement.

In monoamniotic twins, splitting of the embryo occurs at the late blastocyst stage, when the ectodermal plate and amniotic sac have developed such that, both embryos develop within the same amniotic sac. The incidence of monoamniotic twin pregnancy is estimated at 1 in 10,000 pregnancies and constitutes about 1% of all monozygotic twins². The Perinatal mortality rate in

Monoamniotic twin pregnancy (MATP) is about 28-70%.³

Chorionicity can be assessed by ultra sound examination at 10-14 weeks gestation. Monoamniotic twins are diagnosed by demonstrating no dividing membranes between fetuses and confirmed by placental pathology after delivery. In the early first trimester, the presence of a single yolk sac is diagnostic and the close approximation of two umbilical cords into a single placenta is also a typical feature throughout pregnancy.

CASE REPORT AND REVIEW OF LITERATURE

A 26 year old woman in her second pregnancy conceived spontaneously. In her previous pregnancy she had a full term normal vaginal delivery. Routine ultrasonography at 11 weeks gestation confirmed the diagnosis of a monoamniotic twin pregnancy. In view of the scan findings she was transferred to Consultant led Obstetric care. Ultrasound assessment at 20 weeks gestation confirmed normal fetal anatomy for both twins. She underwent serial ultrasound scans every two weeks after 22 weeks gestation with regular antenatal visits. At each scan, full assessment of fetal growth, amniotic fluid volume and fetal Doppler assessments were performed. In addition, colour Doppler assessment of the umbilical cord was performed in order to anticipate early signs of cord entanglement. The patient received steroids at around 32 weeks gestation in order to enhance fetal lung maturity and to reduce the risk of prematurity associated intraventricular haemorrhage.

The patient underwent an uncomplicated caesarean section at 34 weeks gestation and twins weighing 2085gms and 2025 grams with good APGAR scores were delivered. The single amniotic sac was confirmed at the caesarean section.

DISCUSSION

Monoamniotic twin pregnancy has a high mortality and morbidity rate in spite of early diagnosis and intense

monitoring. Ultrasound assessment should only be performed by skilled practitioners who are able to diagnose zygosity and Chorionicity. The literature regarding monoamniotic twins is somewhat conflicting and consists of few prospective and retrospective studies.

The Perinatal mortality rate previously has been reported to be as high as 42%, however current review suggests a lower rate of 17%, which is still high and occurs throughout the pregnancy.^{4,5} The incidence of congenital anomalies was reported at around 11%.⁶

Possible complications of monoamniotic twins include:

- Cord Entanglement and knots are one of the main complications and have been reported to be about 48%⁶. In the absence of an amniotic membrane, umbilical cords can easily become entangled hindering fetal movement and development. These complications occur mainly during the first two trimesters because of the easy and free movement of the fetuses causing cord compression and may lead to asphyxia and fetal death.

- Cord Compression: Cord compression is another life threatening condition preventing oxygenation and vital nutrients resulting in fetal death.

- Twin-to-Twin Transfusion Syndrome (TTTS): Twin-to-twin transfusion syndrome causes one twin to become undernourished with associated oligohydramnios whereas the other twin develops severe polyhydramnios, hyperdynamic circulation and resultant heart failure. The diagnosis rests on comparing the physical development of each twin during serial ultrasound scans.

Premature Birth: All monoamniotic twins are born prematurely because full-term pregnancy is deemed unsafe by most medical professionals. As the risk of cord entanglement and compression increases after 34 weeks delivery by caesarean section around 34 weeks is considered. Some authors advocate elective caesarean section delivery even at 32 weeks to avoid cord entanglement. However vaginal delivery has not been shown to increase perinatal complications, but the numbers studied are not sufficient.^{6,7}

Some authors admitted women with monoamniotic pregnancies from 25 weeks until delivery for close monitoring and to anticipate emergent events as most of the

antenatal fetal deaths occurred in non-hospitalised patients.⁴ In the absence of TTTS, sudden cord entanglement remains the main issue of concern and therefore current available evidence suggests early delivery by elective caesarean section between 32-34 weeks gestation after administration of steroids.⁷⁻¹⁰

Colour Doppler assessment of the umbilical cord was performed in order to anticipate early signs of cord entanglement.⁸

Conclusion: Women with monoamniotic twin pregnancy should be counselled regarding the increased risk of a poor perinatal outcome. However careful management throughout pregnancy using a multi-disciplinary team approach can achieve good outcome as was demonstrated in our case. As the incidence of monoamniotic twins is extremely low, obstetricians have limited experience in their management. All the published data is subject to individual practice and publication bias.

References

1. Botting BJ, Macdonald Davies I, Macfarlane AJ-. Recent trends in the incidence of multiple births and associated mortality. Arch dis child 1987;62;941-950
2. Monochorionic monoamniotic twins: neonatal outcome L Cordero1, A Franco2 and S D Joy2 Journal of Perinatology (2006) 26, 170–175. doi:10.1038/sj.jp.7211457
3. Alen V M, Windrim R, Barrett J, Ohlsson A, Management of Monoamniotic Twin pregnancies , A case series and systematic review of the literature.Br J Obstet Gynaecol 2001;108:931-936
4. Yosef Ezra, David Shveiky, Ella OphirMicael Nadjari et al.Intensive management and early delivery reduce antenatal mortality in monoamniotic twin pregnancies. Acta Obstet Gynecol Scand 2005;84; 432-435
5. Obstetrics & Gynecology: February 2009 - Volume 113 - Issue 2, Part 1 - pp 353-360 Perinatal Outcome of Monoamniotic Twin Pregnancies.
6. Fabien Demaria, Francois Goffinet et al- Monoamniotic twin pregnancies: antenatal management and perinatal results of 19 consecutive cases Br J Obstet Gynaecol 2004;111; 22-26.
7. Aisenbrey GA, catanzarite VA. Monoamniotic and pseudo- monoamniotic twins: sonographic diagnosis, detection of cord entanglement and obstetric management. Obstet gynecol 1995; 86:218-22
8. Beasley E, Megerian G, Gerson A, Roberts NS.Monoamniotic twins: case series and proposal for antenatal management.Obstet gynecol 1999; 93:130-4.
9. American college of Obstetricians and Gynecologists .Antenatal cortico steroid therapy for fetal maturation. ACOG committee Opinion 273.Washington DC: ACOG, 1999.
10. Victoria M.Allen, Rory Windrim, Jon Barret, Arne Ohlson Management of monoamniotic twin pregnancies: a case series and systematic review of the literature.Br J Obstet Gynaecol 2001; 108:931-936

Author Information

Phanendra Kumar Gubbala, MBBS

Department of Obstetrics and Gynaecology. Conquest Hospital, St. Leonards on Sea, East Sussex, United Kingdom. TN37 0RD

Prabha Sinha, MRCPI, FRCOG

Department of Obstetrics and Gynaecology. Conquest Hospital, St. Leonards on Sea, East Sussex, United Kingdom. TN37 0RD

Jamal Zaidi, MD

Department of Obstetrics and Gynaecology. Conquest Hospital, St. Leonards on Sea, East Sussex, United Kingdom. TN37 0RD

Lester De Silva, MBBS

Department of Obstetrics and Gynaecology. Conquest Hospital, St. Leonards on Sea, East Sussex, United Kingdom. TN37 0RD