



Twin Pregnancy with Single Fetal Demise – Review of Fetal, Maternal Outcome and Management

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ABSTRACT	<p>Aim – Aim of this study is to analyze the twin pregnancies with single fetal demise from the time of diagnosis of demise till delivery from the time of diagnosis of demise till delivery. The maternal, fetal complications and management are studied, co twin babies are followed up for a period of 18 months.</p> <p>Materials and method – This study is a retrospective and prospective study conducted at a government tertiary care hospital. During the study period out of 676 twin pregnancies 55 pregnancies were complicated by single fetal demise. All the cases were analyzed for incidence of maternal complications like preeclampsia, disseminated intravascular coagulation (DIC), Abruptio placenta, neonatal complications like low birth weight, preterm birth and neurological deficits.</p> <p>Results – Among the 55 cases studied, 12 had fetal demise at first trimester, 25 had fetal demise in second trimester and 18 had fetal demise third demise. Incidence of single fetal demise was similar in both chorionicity. No case of coagulopathy was observed. 1 case of abruptio placenta which caused death of the other twin also. There was significant association between the chorionicity, parity and neonatal survival.</p>
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KEYWORDS	Twin Gestation, Single fetal demise, Chorionicity, Survival of Co- Twin
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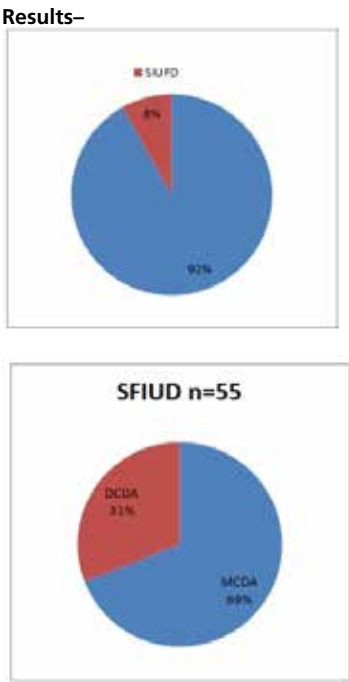
Introduction –

Twin gestation is double joy for the pregnant women and double burden for the managing obstetrician. The monozygotic twins incidence is almost constant at 3.5 – 5 per 1000 Whereas the incidence of dizygotic twins varies with different parts of the world.¹ Recent advances in ultrasonography facilitates the early detection of twin pregnancy and shows disappearance of one of the twin in 10 – 30% (vanishing twin)². Monochorionic placentation provides less favorable environment for the fetus. The vascular communications are responsible for the twin to twin transfusion and twin reversed arterial perfusion (TRAP) and accounts for 15 – 17 % of the perinatal mortality of twins³. Fetuses of multifetal gestation are more likely to die in utero than singletons.⁴ Prognosis of single intrauterine fetal demise (SIUFD) for the surviving twin depends mostly on the chorionicity. Color Doppler should be done to exclude TRAP when SIUFD occurs in monochorionic twin pregnancy⁵. Outcome of SIUFD in first trimester in dichorionic twins is usually favorable. SIUFD in dichorionic twins during second and third trimester leads to co-twin demise or neurological abnormality (4%) or preterm delivery ⁶. Incidence of preterm delivery, hypertensive disorders, gestational diabetes in multifetal gestation is significantly increased compared to singleton pregnancies. Neurological sequelae for the fetus is more common with SIUFD with monochorionic placentation. In our study we analyzed the maternal, fetal and neonatal outcome and management of twin pregnancy with single fetal demise.

Material and Methods –

Study design both retrospective and prospective study conducted at a government tertiary hospital Chennai from July 2012 to June 2015 (2 years retrospective and 1 year prospective). Women with Twin gestation with single fetal demise were included in the study. During the study period out of 676 twin pregnancies 55 pregnancies were complicated by single fetal demise. The gestational age of the death of the

twin, Chorionicity, identifiable cause of death, maternal complications were studied. The medical records were analysed for retrospective study. All the cases were analysed for incidence of maternal complications like preeclampsia, disseminated intravascular coagulation (DIC), Abruptio placenta, neonatal complications like low birth weight, preterm birth and neurological deficits.



A total of 676 twin pregnancies were studied. There were 55 cases of single fetal demise (8.13%). In these 55 twin pregnancy with single fetal demise 17 (30.9%) were DCDA twins and 38 (69.1%) were MCDA twins (Fig 1). Among the 55 cases 12 (21.8) had demise at first trimester, 25 (45.5%) at 2nd trimester and 18 (32.7%) had demise at third trimester.

Table 1								
Chorionicity	Pre – eclampsia		Prematurity		Neurological Sequelae		Status of baby	
	No	Yes	No	Yes	No	Yes	Alive	Death
DCDA	16 (94.1%)	1 (5.9%)	9 (52.9%)	8 (42.1%)	16 (94.1%)	1 (5.9%)	17 (100%)	0
MCDA	33 (86.8%)	5 (13.2%)	11 (32.4%)	23 (67.6%)	33 (97.1%)	1 (2.9%)	24 (70.6%)	10 (29.4%)
	P value >0.05		P value > 0.05		P value > 0.05		P value < 0.05	

When pre eclampsia was analysed out of 17 cases of DCDA , 1 case (5.9%) of DCDA developed pre eclampsia and 38 cases of MCDA 5 cases (13%) developed preeclampsia. (Table 1) In these 5 cases 3 cases had double fetal demise in 2nd trimester and pregnancy terminated. No single case of DIC was detected in our study. One case of abruptio placenta in a DCDA twin resulted in Co- twin demise, pregnancy was terminated by caesarean section.

Table 2		
Parity	Status of baby	
	Alive	Dead
Primi	28 (73.7%)	10 (26.3%)
Multi	13 (100%)	0
	P value < 0.05	

31 (56%) women had normal delivery, 19 (34%) had emergency LSCS and 5 (9%) had elective LSCS. There was no significant association when mode of delivery is analysed with chorionicity and perinatal outcome. Incidence of preterm birth, LBW was high in both chorionicity. On followup 2 cases had cerebral palsy (Table 1).

Among 51 babies delivered 10 cases (19.6%) had postnatal death and all belong to MCDA group. Among the 10 cases of postnatal death, 3 had fetal demise of the co-twin in the 1st trimester, 2 cases in second trimester and 5 cases in third trimester. All the death was observed in primigravida. (Table 2)

Fetal Outcome		
	DCDA	MCDA
Death of co twin	1 (1.82%)	3 (5.46%)
Prematurity	8 (15.7%)	23 (45.1%)
LBW	14 (19.6%)	10 (27.5%)
SGA	2 (4%)	2 (4%)
Post natal death	0	10 (19.6%)
Neurological Sequelae	1 (2%)	1 (2%)

Occurrence of Pre eclampsia, prematurity and neurological sequelae has no statistical significance with single fetal demise.

The death of the baby is statistically significant with relation to chorionicity and parity of the women.

Discussion –

Our study showed that single fetal death in twin pregnancy is not an uncommon problem with about 8.1 % incidence in our study, much higher than NCCP England (3.7 %) [7]. Another study by Enbom has reported that the incidence of twin pregnancy with a single fetal death ranges from 3.5 to 7.8 % [8].

The cause of morbidity is most commonly due to vascular anastomosis. Vascular anastomosis is more common in monochorionic placenta and can lead to TTS, affecting the other twin in single fetal death adversely, but this complication

is rare in dichorionic placenta. In our study, 10 neonates had postnatal death and all had monochorionic placenta. In dichorionic twins, the prognosis for the surviving twin is relatively good and immaturity is the main risk factor. In the case of monochorionic twins, the prognosis is poor and associated with neurological damage in the survivor [9].

Incidence of single fetal demise in high (75%) in primigravida when compared with multi gravida (25%).

D’Alton et al in 1984 studied 15 cases of twins with single fetal demise all neonates delivered upon confirmation of IUD. Only two surviving infants had neurological deficits 4. Sante-ma et al 1995 studied 29 cases of twin with single fetal demise, all are managed conservatively. 45% were MCDA 23% were DCDA 2 infants had neurological deficits. 2 cases had double fetal demise. 5 cases were reported neonatal death. The main cause of neonatal demise was pre maturity. No maternal coagulopathy observed 6. In our study on follow up 2 cases had neurological sequelae which is in concurrence with other reports.

Rarely, single fetal death causes release of fibrin and tissue thromboplastins in circulation, causing DIC. Though it is a very uncommon complication, it can be fatal both for the mother and the fetus. Another adverse effect of death of one fetus is transchorionic embolization, leading to death of the other fetus also. This complication of DIC did not occur in our study. Recent studies showed that close monitoring for maternal coagulopathy in pregnancies complicated with single fetal death is not compulsory.

Conclusion

The sequelae of a single fetal death in a twin pregnancy depend on the gestation and placentation. Death in the late second or third trimester is associated with significant morbidity and mortality in the surviving twin. Therefore, all twin pregnancies with one dead fetus should be managed in tertiary referral centers with sufficient neonatal support. The death of one twin in utero should not be the only indication for pre-term delivery, and in case of severe prematurity with a stable intrauterine environment; expectant management maybe advisable until fetal lung maturation ensues. A management plan should be individualized. Intensive fetal surveillance is required and the determination of chorionicity should be done early in the pregnancy. Proper care and management can salvage a good number of babies.

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