Death of One Fetus in Twin Pregnancy: Report of Four Cases

Semih Mun, Tolga Mızrak, Cüneyt Eftal Taner, Gülşen Derin, Cem Büyüktosun

SSK Ege Maternity Hospital, İzmir

Abstract

Objectives: Twin pregnancies are the pregnacies that intrauterine and perinatal morbidity and mortaliy is higher when compared to monozygotic pregnancies.

Cases: 10% of all perinatal deaths are related with dizygotic twins. In this study we reported four twin pregnancies that had intrauterine death of one twin at 20 th week or later. We analyzed the cases according to maternal age, ultrasonographic findings, results of biochemical tests, birth weeks and perinatal outcomes. One case was monochorionic - monoamniotic and the other three were dichorionic - diamniotic. In two cases other twins died at 9 th and 13 th days after the diagnosis. The other two that were dichorionic - diamniotic reached term without any complications.

Conclusion: In case of monofetal death of twin pregnancies, the type of placenta should be analyzed and then follow up and treatment modalities of these cases should be choosen.

Keywords: Twin pregnancy, single fetal death.

İkiz eşinin intrauterin ölümü: dört olgu sunumu

Amaç: Çoğul gebelikler, intrauterin ve perinatal morbidite ve mortalitenin daha fazla görüldüğü gebeliklerdir. Tüm perinatal ölümlerin ortalama %10'unu ikiz gebelikler ile ilgilidir.

Olgular: Bu çalışmada ikiz eşinin 20. gebelik haftasında veya daha sonra intrauterin exitus olduğu saptanan 4 olgu sunularak olguların maternal yaş, gebelik sayıları, ultrasonografik bulguları, biyokimyasal testleri, doğum haftaları ve perinatal sonuçları incelendi. Bir olgu monokoryonik - monoamniyotik ve diğer üç olgu ise dikoryonik - diamniotik idi. İki olguda ikiz eşleri tanı konduktan 9 ve 13 gün sonra exitus oldu. Dikoryonik - diamniyotik olan 2 olgu terme kadar ulaştı ve herhangi bir komplikasyon izlenmedi.

Sonuç: Monofetal ölüm ile komplike olmuş ikiz gebeliklerde plasenta yapıları tespit edilmeli, tedavi ve takip seçeneği ona göre belirlenmelidir.

Anahtar Sözcükler: İkiz eşinin ölümü, gebelik.

Background

Twin pregnancies are the pregnancies that intrauterine and perinatal morbidity and mortality is higher when compared to monozygotic pregnancies.[1] In multiple pregnancies, the frequency of complications including preterm birth, preeclamp-

Correspondence: Dr. Semih Mun, SSK Ege Doğumevi, İzmir
e-mail: semihmun@yahoo.com

sia, intrauterine growth retardation, and twin-to-twin transfusion syndrome is increased.[2,3] 10% of all perinatal deaths are related with dizygotic twins. The rate of intrauterine fetal demise in multiple pregnancies is higher three times of monozygotic pregnancies. Perinatal morbidity and mortality are seen in dizygotic pregnancies frequently three times to monozygotic pregnancies.[1]

The demise of one of the twins in first trimester is relatively seen in general and it doesn't harm the mother and the other fetus in following weeks and doesn't affect the maternal prognosis.[4,5] However, the demise of one of the twins may cause serious problems for both mother and the fetus in second or third trimester.[6] Major maternal and another fetal problems are intravenous coagulation, neurological and nefrologic damage, premature birth.

In this case study four twin pregnancies that had intrauterine death of one twin at 20th week or later are analyzed and discussed. Four twin fetus are diagnosed in 20th week or later intrauterine exitus. The cases were analyzed in regard the age, pregnancy, ultrasonic findings, biochemical tests, maternal weeks, and perinatal results.

Case

Four twin fetuses which are monitored within Perinatology Unit of SSK Ege Maternity and Gynecology Training Hospital, are diagnosed in 20th week or later intrauterine exitus. The cases were analyzed in regard the age, pregnancy, ultrasonic findings, biochemical tests, maternal weeks, and perinatal results.

In four cases constituting research group, both fetuses were alive, proven by the first trimester ultrasonography. Average maternal age of four cases was 27 (between 23-31). Pregnancy week average where one of the twin fetuses was demised 24 (between 20-28th weeks). Ultrasonographic tests showed that one case was monochorionic monoamniotic and the other three cases are dichorionic diamniotic. The other fetus was demised 13 days later once monochorionic monoamniotic case twin was exitus. In another case, the other fetus was exitus 9 days later than the first one. In other two cases that reach the term, pregnancy week average was 37 weeks and 3 days (between 37-38th weeks). Prenatal ultrasonographic monitoring was consistent with the latest tests and biophysical profiles were normal. In Doppler blood flow tests, umbilical artery, uterine artery and middle cerebral artery flow patterns were in normal limits. Average values of the current blood analysis for 4 cases: fibrinogen; 224 (193248 mg/dl), prothrombin time; 13.4 second (12.114.8 second), thrombocyte counts; 166.000/mm^3 (119.000209.000 trombosit/mm^3), hemoglobin; 12.8 g/dl (14.2-11.6 g/l), leukocyte; 11.250/mm^3, FDP (Fibrin decomposition products); 1.000 ng/dl. All four cases were monitored during their hospitalization and two of them were monitored on monthly basis by ultrasonography and laboratory tests. In two cases where the twin fetuses were intrauterine demised and pregnancies terminated by inducing by misoprostol abortion. These cases were discharged without any complication on the first day of postpartum. In the other two cases that reach the term, delivered by cesarean. In one case, a male fetus with 3000 g weight and 9 Apgar, and a male exitus fetus with 1400 g, in the second case a male fetus with 3000 g weight and 7 Apgar, and a male exitus fetus with 700 g weight were delivered. No neonatal morbidity has been diagnosed for both fetuses. Mothers were discharged without any complication on the second day of postoperative period. Macroscopic placenta examinations and ultrasonographic monitoring in postpartum period showed that one of the cases was monochorionic monoamniotic and the other three were dichorionic diamniotic. As per fetal mortality etiology, the ultrasonographic monitoring in the monochorionic monoamniotic case, as there was oligohydramnios in demised fetus, and polihydramnios, acid, hydrops findings in other case, Twin-to-Twin transfusion was planned, the exact etiology couldn't be clarified in other three diamniotic dichorionic cases.

Discussion

The mortality through the exitus of one twin, and major morbidity rate was reported 46%.[7]

Though the etiology cannot be strictly detected in numerous cases; twin-to-twin transfusion syndrome, preeclampsia, rhesus immunization, chromosomal or congenital anomalies, single umbilical artery, placental and umbilical chord placement anomalies, umbilical venous thrombosis and uterine malformations are major causes.[7] As the etiology of fetal mortality in our cases, by the ultrasonographic monitoring in the monochorionic monoamniotic case, as there was oligohydramnios in demised fetus, and polihydramnios, ascites, hydrops findings in other case, twin-to-twin transfusion syndrome was deciced; the exact etiology couldn't be clarified in other three diamniotic dichorionic cases.

Major factors determining the treatment and follow-up approach in multiple pregnancies complicated with intrauterine monofetal death are the risks that mother and living fetus take. Most frequently used and suggested method is follow-up of the maternal coagulation system by a series of lab test. Pitchard et al[8] proved that there is coagulation disorder at various levels in mono pregnancies left in uterus after the exitus. When one of the twins dies, the pregnancy is terminated by cesarean because of the coagulopathy development and this increases the prematurity related morbidity.[9] In our study, the lab test results for coagulation system were within the normal limits.

There are various studies that indicate that the living fetus is under high morbidity and mortality risk. After the first fetus demised, there is an intrauterine mortality risk at 7.8 - 20% for living fetus.[4,10] In addition, in 28-50% of live-born fetuses, central neural system damage at various levels occur.[5,10] The amount of blood transfused to demised fetus from the living one, the type, the density and the placement of the anastomosis in monochorionic placenta, and this determines the anemia and organ damage in living fetus. No complication has been developed in the living fetuses that complete the term.

In monochorionic monoamniotic twin pregnancies, in case where one of the fetuses demises in antenatal period, termination of the pregnancy is preferred.[11] However, because the cerebral and nephrologic complications developed in living fetus started once the other fetus demises, a close follow-up is suggested as a conservative treatment.[6] But as there is no such a problem in diamniotic dichorionic twin pregnancies, conservative approach is preferred, and ultrasonographic follow-up of the fetus development and amnion fluid is suggested.[12] Non stress test and Doppler ultrasonography monitoring are important for detecting fetal distress development, twice in a week.[6] In the same time, the maternal coagulation system should be monitored by a series of lab test. Most important factor to determine the mode of delivery is general obstetric situation of the mother. Twin pregnancy and the demise of one fetus cannot constitute indication for the cesarean. When one of the twins dies, the pregnancy is terminated by cesarean because of the coagulopathy development and this increases the prematurity related morbidity.[9]

In conclusion, in case of monofetal death of twin pregnancies, the amnion and placenta structures should be detected and then follow up and treatment modalities of these cases should be chosen. If placenta and amnion are diamniotic dichorionic, a conservative approach including close follow-up may be adopted until the lung maturation of the fetus is ensured. In cases that term or viability limit are reached, emergency delivery is generally accepted. While determining the birth modality, the obstetric indications should be considered and the prematurity should be avoided.

References

1. Lumme R,Saarikoski S. Antepartum death of one twin. *Int J Gynaecol Obstet* 1987; 5: 331-6.
2. D'Alton ME, Simpson LL. Syndromes in twins. *Semin Perinatol* 1995,19: 375-86.
3. Newman RB, Ellings JM. Antepartum management of the multiple gestation: the case for specialized care. *Semin Perinatol* 1997; 19: 387-403.
4. Peterson IR, Nyholm HCJ. Multiple pregnancies with single intrauterine demise: description of twenty – eight pregnancies. *Acta Ostet Gynecol Scand* 1999; 78: 202-6.
5. Axt R, Mink D, Hendrik J, Ertan K, Vonn Blohm M, Schmidt W. Maternal and neonatal outcome of twin pregnancies complicated by single fetal death. *J Perinat Med* 1999; 27: 221-7.

6. Fusi L, Gordon H. Twin pregnancy complicated by single intrauterine death: Problems and outcome with conservative management. *Br J Obstet Gynaecol* 1990; 97: 511-6.
7. Baxi LV, Daftary A, Loucopoulos a. Single fetal demise in a twin gestation: umbilical vein thrombosis. *Gynecol Obstet Invest* 1998; 46(4): 266-7.
8. Cattanach SA, Wedel M, White S, Young M. Single intrauterine fetal death in a suspected monozygotic twin pregnancy. *Aust NZJ Obstet Gynaecol* 1990; 30: 137-40.
9. Wong DJ, Kirz DS. Outcome of twin gestations complicated by antepartum fetal demise. *Am J Obstet Gynecol* 1991; 164(SPO Abst.603): 411.
10. Liu S, Benirschke K, Scioscia AL, Mannino FL. Intrauterine death in multiple gestation. *Acta Genet Med Gemellol* 1992; 41(1): 5-26.
11. Tawanattanacharoen S, Taylor MJO, Letsk EA, Cox PM, Cowan FM, Fisk NM. Intrauterine rescue transfusion in monochorionic multiple pregnancies with recent single intrauterine death. *Perinat Diagn* 2001; 21: 274-8.
12. Cunningham FG, Gant NF, Leveno KJ, Gilstrap LC, Hauth JC, Wenstrom KD (eds): Multifetal Pregnancy. In: Williams Obstetrics. *Mc Graw Hill 21st Edition* 2001; 765-810.