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This page should only include the title of the manuscript, which should be carefully chosen to better reflect the contents of the study. No unusual abbreviations should be used in the title of the manuscript. A short title as running heading not exceeding 40 characters should be given which is desired to appear on top part of continuing pages when journal is published.

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— **Book:** Jones KL. *Practical perinatology*. New York: Springer; 1990. p. 112-9.

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All illustrations (photographs, graphics, and drawings) accompanying the manuscript should be referred to as "figure". All figures should be numbered consecutively and mentioned in the text. Figure legends should be added at the end of the text as a separate section. Each figure should be prepared as a separate digital file in "jpeg" format, with a minimum 300 dpi or better resolution. All illustrations should be original. Illustrations published elsewhere should be submitted with the written permission of the original copyright holder. For recognizable photographs of human subjects, written permission signed by the patient or his/her legal representative should be submitted; otherwise, patient names or eyes must be blocked out to prevent identification. Microscopic photographs should include information on staining and magnification.

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The following list will be useful during the final check of a manuscript before submission:

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4. Abstracts (max. 250 words for research articles)
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11. Conflicts of Interest Disclosure Statement (if necessary)

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Single Fetal Death in Twin Pregnancies

Mahmut Erdemođlu, Ahmet Kale, Ali İrfan Güzel, Umur Kuyumcuođlu, Nurten Akdeniz

Dicle Üniversitesi Tıp Fakültesi Kadın Hastalıkları ve Doğum Anabilim Dalı, Diyarbakır

Abstract

Objective: To evaluate the cases that followed and treated at current clinic with single fetal death in twin pregnancies and preterm labor diagnose.

Methods: The cases applied to our clinic with single fetal death in twin pregnancies. Three (37.5%) out of the eight cases were nulliparous, 5 (62.5 %) multiparous. All of the cases followed up with preterm labor diagnose. On ultrasound examination (4D Voluson 730 Pro ultrasound device), the live fetus of 4 cases were 34 weeks, 2 33 weeks and the others were 28 weeks.

Results: This retrospective study was performed at Dicle University, Department of Obstetrics and Gynecology, from January 2005 to December 2007. The obstetric history, age, diagnosis, fetal obstetric ultrasound findings, biochemical values, delivery types, birth weights and APGAR scores of 8 cases who diagnosed as single fetal death in twin pregnancies were evaluated.

Conclusion: Single fetal death in twin pregnancies, causes more preterm labor and prematurity when compared normal twin pregnancies and may affect the prognosis of the living fetus. Therefore, in these pregnancies, multidisciplinary approach, closer monitoring are very important for maternal and fetal prognosis.

Keywords: Twin pregnancy, single fetal death of one twin.

İkiz eşlerinden birinin ölümü: Sekiz olgu analizi

Amaç: Kliniğimize preterm eylem tanısı ile başvuran ve ikiz eşinin intrauterin ölümü ile komplike olmuş olguların değerlendirilmesi.

Yöntem: Bu retrospektif çalışma, Ocak 2005 ile Aralık 2007 tarihleri arasında Dicle Üniversitesi Tıp Fakültesi, Kadın Hastalıkları ve Doğum Anabilim Dalı'nda yapılmıştır. İkiz eşinin intrauterin ölümü tanısı almış olan 8 olguda; obstetrik öykü, yaş, yatış tanısı, obstetrik ultrasonografi bulguları, biyokimyasal testler, doğum şekli, bebek doğum kiloları ve APGAR skorları incelendi.

Bulgular: İkiz eşinin intrauterin ölümü tanısı ile başvuran 8 olgunun ortalama yaşı 28.75 idi (22-39). Olgulardan 3'ü (%37.5) nullipar, 5'i (%62.5) multipar idi. 4 olgunun yaşayan fetüslerinin 34 haftalık, ikisinin 33 haftalık ve diğer ikisinin ise 28 haftalık oldukları saptandı. Olguların altı tanesi erken gebelik haftalarından itibaren kliniğimizde takip edilmekte idi. Diğer ikisi ise dış merkezde takip edilmiş ve doğum eylemlerinin başlaması sonrasında kliniğimize refere edilmişti. Olgulardan 2'si (%25) mükerrer sezaryen, 4'ü (%50) fetal distress endikasyonu ile sezaryen operasyonu ile doğurtuldu. Diğer iki olgu (%25) ise spontan vaginal yol ile doğum yaptı. Yeni doğanların doğum ağırlıkları, ortalama 1987.5 (1100 - 2600 g) arasında idi. Ortalama 1 ve 5. dakika APGAR skorları 6.3 ve 8.7 idi.

Sonuç: İkiz gebeliklerde ikiz eşinin intrauterin ölümü; normal bir ikiz gebeliğe oranla daha komplikasyona neden olabilir, ayrıca yaşayan fetusun da prognozunu etkileyebilir. Bu gebeliklerde yakın takip ile oluşabilecek komplikasyonlar azaltılabilir.

Anahtar Sözcükler: İkiz gebelik, ikiz eşinin ölümü.

Introduction

In the recent years, with the increase of artificial reproduction techniques, the incidence of multiple gestations has increased. In United States of America (USA), in the last 20 years, the

incidence and complications related with multiple gestations have been increased.^{1,2} Single fetal death in twin pregnancies, is a rare complication of twin pregnancies. It is generally seen in the second trimester, and the incidence

has been reported as 0.5-6.8%.³ The single fetal death in twin pregnancy is a risky situation for both live fetus and the mother. These risky situations are; disseminate intravascular coagulation (DIC), renal injury, preterm labor and prematurity. For this reason, in these pregnancies, multidisciplinary approach, and closer follow up are very important for the fetus and mother. We aimed to evaluate 8 cases of single fetal death in twin pregnancies that followed and delivered in our clinic.

Methods

This retrospective study was performed at Dicle University, Department of Obstetrics and Gynecology, from January 2005 to December 2007. The obstetric history, age, diagnosis, fetal obstetric ultrasound findings, biochemical values, delivery types, birth weights and APGAR scores of 8 cases who diagnosed as single fetal death in twin pregnancies were evaluated.

Results

This retrospective study was conducted at Dicle University, Department of Obstetrics and Gynecology Department from January 2005 to December 2007. The mean age of the cases was 28.75 (22-39). The cases applied to our clinic with single fetal death in twin pregnancies. 3 (37.5%) of the cases were nulliparous, 5 (62.5%) multiparous. All of the cases followed up with preterm labor diagnose. On ultrasound examination (Voluson 730 Pro GE Healthcare, Milwaukee, WI, USA), the live fetus of 4 cases were 34 weeks, 2 33 weeks and the others were 28 weeks. The mean gestational weeks of the death fetuses were 24.5 (22-27) weeks. Six of our cases had been followed up from the early gestational weeks of gestation. Two of them were followed at outside centers and referred to our clinic when labor began. All of the cases

were dichorionic and diamniotic. The routine laboratory values of all cases were evaluated and international normalized ratio (INR) were studied. The coagulation parameters were all normal. 2 (25%) of the cases had cesarean with repeat cesarean indication, and 4 (50%) with fetal distress indication. The other 2 (25%) of the cases had delivered vaginally. The mean birth of the newborns were 1987.5 g (1100-2600). The mean 0 and 5. Minute APGAR scores were 6.3 and 8.7. Three of the babies followed up in the intensive care department and had phototherapy for jaundice.

Discussion

Single fetal death in twin pregnancies, is a rare complication of twin pregnancies. It is generally seen in the second trimester, and the incidence has been reported as 0.5-6.8%.³ The etiology is unknown exactly, but the major causes are; twin to twin transfusion syndrome, chromosomal anomalies, preeclampsia, Rh isoimmunisation, single umbilical artery and placental anomalies.⁴ Mesbah et al., studied 35 single fetal death in twin pregnancies, and reported the maternal complications as; preeclampsia, gestational diabetes, postpartum hemorrhage, and the fetal complications; prematurity, twin to twin transfusion syndrome, and sepsis.⁵ We had not any complication and we think that this is related to regular follow up of our cases. But three of the babies followed up in the intensive care department and had phototherapy for jaundice. The most important factor affecting the prognosis of single fetal death in twin pregnancies are; chorionicity and placentation. The perinatal mortality of monochorionic twin pregnancies is reported as double that of dichorionic twin pregnancies.⁶ Our clinical approach is to detect the chorion and placenta carefully. All of our cases was dichorionic and diamniotic, for that reason we had no com-

plication. The other important point is, delivery type and time. Cattanaah et al, favour conservative management until 37 weeks' gestation, if foetal movements, cardiotocography, and ultrasonography show no abnormalities.⁷ Santema et al have advocated treating impending preterm labour before 34 weeks with intravenous tocolytics.⁸ Yayla et al., reported 93% of their cases delivered vaginally.⁹ Our clinical approach is follow up the cases until term, but in this study all of the cases were followed up with preterm labor diagnosis and delivered preterm. Coagulopathy and DIC are the probable complications in single fetal death in twin pregnancies.^{9,10} There was not any failure about coagulopathy values of the case in our study.

Conclusion

In conclusion, single fetal death in twin pregnancies, causes more preterm labor and prematurity when compared normal twin pregnancies and may affect the prognosis of the living fetus. Therefore, in these pregnancies, multidisciplinary approach, closer monitorisation are very important for maternal and fetal prognosis.

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The Fetal Nose Bone Nomogram According to Gestational Weeks

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Abstract

Objective: To identify the fetal nasal bone length nomogram in normal pregnancy.

Methods: 607 pregnant woman were taken to the study prospectively. The mean ages of the cases were 29.58±5.57 (16-45). A linear relationship were detected between nasal bone length and pregnancy weeks. Nasal Bone = $-6.8656+0.8119*GW+(-.008723)* (GW)^2$ was formulated as quadratic regression equations. Between nasal bone and pregnancy weeks a $r=0.948631$ relationship was detected. This relationship was positively and as the pregnancy week increased, the fetal nasal bone value increases. ($F=2715.5212$; $P<0.001$). The change in nasal bone length is related to pregnancy week as ($R^2=0.8999$). As the weeks of pregnancy progresses, the nasal bone curve's opening was minimally downward. Each week of pregnancy corresponds to a mean and standard deviation of the nasal bone were determined.

Results: The fetal nasal bone length measured in 654 pregnant woman who applied to our polyclinic at 11-14. weeks for routine obstetric follow up. Completely normal pregnancies were studied. The fetus that anomaly detected ($n=32$) in ultrasound examination and high risk for karyotype anomalies ($n=15$) were excluded from the study and with 607 women the study had done. The measurements were made on Toshiba 140 A and Voluson 730 Pro ultrasound device by an experienced professional. SPSS.13 ve MEDCALC computer programme were used for the statistical analysis.

Conclusion: There was a positive and linear relationship between nasal bone length and gestational weeks. We have developed our center's nomogram and found the ability to compare it with other centers nomogram.

Keywords: Nasal bone, nomograms.

Gebelik haftalarına göre fetal nazal kemik uzunluğu nomogramı

Amaç: Normal gebeliklerde fetal burun kemiği uzunluğunun nomogramını belirlemektir.

Yöntem: Polikliniğimize obstetrik muayenesi için başvuran 652 gebe kadın, gebeliklerinin 11- 41. haftaları arasında fetal burun kemik uzunlukları ölçüldü. Tamamen normal seyreden gebelikler çalışmaya alındı. Ultrasonda anomali saptanan fetuslar ($n=32$) ve karyotip anomalisi riski yüksek olan ($n=15$) olgular çalışmadan çıkarıldı ve 607 olgu ile çalışma yapıldı. Ölçümler, deneyimli tek uzman tarafından Toshiba 140A ve GE Voluson 730 Pro cihazları ile yapıldı. İstatistiksel analizlerde SPSS.13 ve MEDCALC bilgisayar programı uygulandı.

Bulgular: Çalışmaya prospektif olarak toplam 607 gebe kadın alındı. Gebelerin ortalama yaşı 29.58±5.57 (16-45) bulundu. Burun kemiği uzunluğu ölçümleri ile gebelik haftaları arasında pozitif doğrusal bir ilişki saptandı. Nazal Kemik = $-6.8656+0.8119*GH+(-.008723)* (GH)^2$ kuadratik regresyon denklemi şeklinde formülize edildi. Gebelik haftası ile nazal kemik uzunlukları arasında $r=0.948631$ bir ilişki saptandı. Bu ilişki pozitif yöndedir ve gebelik haftası arttıkça nazal kemik değeri artmaktadır ($F=2715.5212$; $P<0.001$). Nazal kemik uzunluğundaki değişim ($R^2=0.8999$) olacak şekilde gebelik haftasına bağlı olduğu gözlenmiştir. Gebelik haftaları ilerledikçe nazal kemik eğrisi, açıklığı hafif aşağı bakan parabol şeklinde izlendi. Her gebelik haftasına karşılık gelen nazal kemik ortalamaları ve standart sapma değerleri belirlendi.

Sonuç: Nazal kemik uzunluğu ile gebelik haftaları arasında pozitif doğrusal bir ilişki saptandı. Kendi merkezimizin nomogramını çıkararak diğer merkezlerin çalışmaları ile karşılaştırma olanağını bulduk.

Anahtar Sözcükler: Nazal kemik, nomogram.

Introduction

The nasal bone can be visualised after the tenth week of pregnancy by ultrasound examination. Whenever not measured in the appropriate plan can it causes misinterpretation. The quality of the ultrasound device, oligohydramnios, obesity, the position of the fetus and the quality of the image can be affect the success result. In recent years, the measurement of nasal bone , has been a parameter in the sonographic evaluation of chromosome abnormalities. The risk of karyotype anomaly is increasing, when nasal bone is aplasic in the first trimester, aplasic or hipoplastic in the second and third trimester.¹ The lenght of the nasal bone has been suggested to vary between the races .In the chorosome anomalies, especially in the Down syndrome, the development of the nasal bone canbe slow and smaller. Many measurements nomograms are being used in chromosome anomalies. In recent years, nasal bone measurement began to be used. We aimed to compose our nomogram and datas of nasal bone lenght of our population in this study.

Methods

The fetal nasal bone lenght measured in 652 pregnant woman who applied to our policlinic at 11-14. weeks for routine obstetric follow up.In some women the fetal lenght were measured again during the follow up. The fetusus that anomaly detected (n=32) in ultrasound examination and high risk for karyotype anomalies (n=15) were excluded from the study and with 607 women the study had done. Completely normal pregnancies were studied. The measurements were made on Toshiba 140 A and Voluson 730 Pro ultrasound device by an experienced Professional in Perinatology. Mostly, by using transabdominal ultrasound, in the mid-saggital

Table 1. The mean, min, max and SD values of nasal bone according to GW.

GH	n=607	Mean	Min	Max	SD
11	3	1.30	1.2	1.4	0.10
12	25	1.58	1.22	1.94	0.36
13	21	1.85	1.55	2.15	0.30
14	11	2.22	1.74	2.66	0.44
15	13	3.31	2.69	3.93	0.62
16	38	4.14	3.54	4.74	0.60
17	70	4.59	4.09	5.09	0.50
18	68	5.00	4.48	5.52	0.52
19	40	5.37	4.52	6.37	0.85
20	23	5.86	4.12	6.60	0.74
21	33	6.41	5.68	7.14	0.73
22	30	6.63	5.48	7.78	1.15
23	19	7.01	6.09	7.93	0.92
24	17	7.36	6.52	8.40	0.84
25	27	7.48	6.85	8.11	0.63
26	16	8.13	6.94	10.32	1.19
27	17	9.21	8.31	10.11	0.90
28	16	9.00	8.13	9.87	0.87
29	15	9.46	8.35	10.57	1.11
30	15	10.02	9.46	11.40	1.38
31	15	10.10	8.87	11.33	1.23
32	12	10.17	9.72	12.62	1.45
33	14	10.59	9.21	12.79	1.38
34	13	10.49	9.39	11.59	1.10
35	12	10.27	9.25	11.29	1.02
36	6	10.81	10.28	11.34	0.53
37	8	11.28	9.86	13.70	1.42
38	7	11.65	9.06	14.24	2.59
39	2	13.10	12.86	13.24	0.14
40	1	10.80			-

face profile, the lateral view of nasal bone was played, and the limit of the frontal bone and nasal bone detected and nasal bone measured in the end of the nasal bone position. One or more the most accurate measurements were accepted. SPSS.13 ve MEDCALC computer programme were used for the statistical analysis.

Results

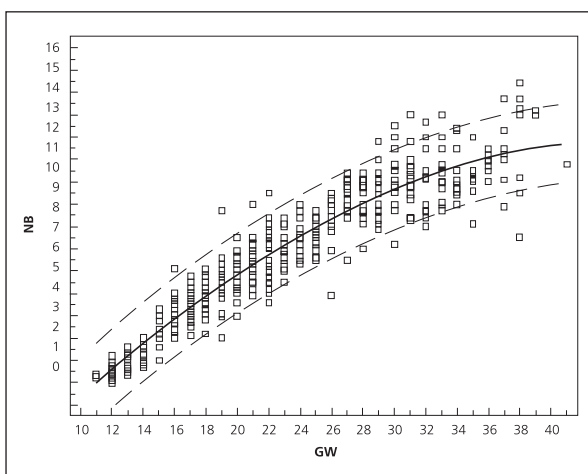
607 pregnant woman were taken to the study prospectively. The mean ages of the cases were 29.58 ± 5.57 (16-45). A linear relationship were

detected between nasal bone length and pregnancy weeks. Nasal Bone= $-6.8656+0.8119*GW+(-.008723)*(GW)^2$ was formulated as quadratic regression equations. This relationship is positive and as the pregnancy week increased, the fetal nasal bone value increases ($F=2715.5212$; $p<0.001$). The change in nasal bone length is related to pregnancy week as $R^2=0,8999$ and this relationship was positive. As the weeks of pregnancy progresses, the nasal bone curve's opening was minimally downward (Graphic 1). Each week of pregnancy corresponds to a mean and standard deviation of the nasal bone were determined (Graphic 2).

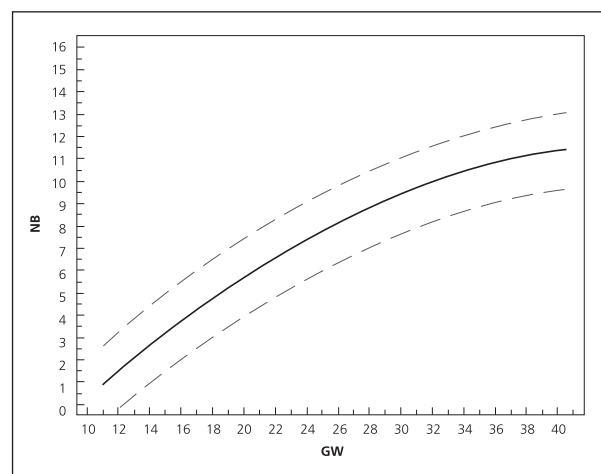
Discussion

The ossification points of the nose begins to develop from the gristle focus on the middle part after the 10 th week of pregnancy. The vomer bones previously seen like U shaped, then through the advanced weeks takes V shape by receive combined. In this period of review the gap between the bones can be accidentally considered as absence of the bone. In 1866 Langdon Down noted that a common

characteristic of patients with trisomy 21 is a small nose.⁹ Yayla et al., reported that work weeks of gestation in the nasal bone and while a linear curve, in our study of the nasal bone length with weeks of gestation showing an improvement with pregnancy in the last week of the nasal bone length has shown a slow-down. Gianferrari et al reported that absence of a nasal bone is a useful marker for Down syndrome, allowing for the identification of nearly half of all affected pregnancies with a very low false-positive rate.¹⁰ On ultrasound examination the nasal bone should be measured in neutral position and with an angle of nearly 45 degree. The quality of the ultrasound device is an important factor. The high resolution of the device reduces the error rate. The important parameters that roles on a right measurement are, the quality of the device, the experience of the doctor and causes related to mother and fetus. A good resolution 2D device is sufficient for the measurement. The differences between race or ethnicity should not be ignored. The nasal bone should not be visualized between 11-14 weeks of pregnancy in 0.5-1 % although it is normal, especially this ratio is higher in black



Graphic 1. The change of nasal bone mean and SD curve according to gestational week.



Graphic 2. The mean of nasal bone and the change and the data of the SD curve according to gestational week.

race. Sivri et al.,¹¹ reported that fetal nasal bone length increases by the growing of the fetus. Earliest in 10 weeks of gestation, when the CRL of 42 mm and nasal bone length was 0.8 mm can be measured. The nasal bone was measured as 1.3 ± 0.10 mm in the 11 the pregnancy week as earliest. In many recent studies, a positive linear increase have been showed between nasal bone length and pregnancy weeks. Similar results has been found in our study. In the first half of pregnancy while it showed a linear increase, this increase has slowed and drawn a parabole which opening was downward in the second half of pregnancy. In the trisomy cases the ossification of the nasal bones are delayed. Larose et al., reported that the nasal bone has not been visualised in Down syndrome cases with a rate of 52% in 11-14 th week of pregnancy and 43% 14-25 weeks. Cicero et al., reported the nasal bone as hypoplastic (<2.5 mm) in trisomy 21 cases with 61.8 % and normal fetusus 1.2 % in the 15-22 weeks of pregnancy. From this point , presence of nasal bone hypoplasia is related with approximately 50-fold increased risk trisomi 21.

Conclusion

As a result, the fetal bone can be measured from the 11 th week of the pregnancy up to term pregnancy. The risk of trisomies is increasing, in the presence of aplasia or hypoplasia of nasal bone. We found opportunity of comparison our nomogram with other centers nomogram. We think that it is more proper that to compare our measurements with our nomogram and for absolute results we need an increase in the number of the patients.

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Identifying the Women's Choice of Delivery Methods of and the Factors that Affect Them

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Abstract

Objective: This study aims to identify the women's choice of delivery methods of and the factors that affect their choice of delivery method.

Methods: The study has been conducted in Eskişehir Zübeyde Hanım Kadın Hastalıkları Doğum ve Çocuk Hastalıkları Hospital and Eskişehir Kadın Hastalıkları Doğum ve Çocuk Hastalıkları Hospital. In this descriptive study, a total of 500 women, the loğusa women in services and pregnant women applied to clinics on Wednesdays and Thursdays between July and August 2006 consisted the study group. A questionnaire including questions about demographic and obstetric histories and the choice of birth methods was used to collect the data.

Results: The rate of cesarean among the study participants is 24.4%. Age, education, income level, age of marriage, availability of information on the birth choices, number of living children in obstetric histories, number of previous births and experience of abortion are all found statistically significant on the choice of birth methods.

Conclusion: In the study, approximately one fifth of women prefer cesarean birth. With 47% the main factor towards the choice of cesarean is reported as the guidance of doctors. 35% of women who prefer natural birth reported that they think natural birth is healthier.

Keywords: Caesarean, section, delivery method.

Kadınların doğum şekli tercihlerini etkileyen faktörler

Amaç: Bu çalışma kadınların doğum şekli tercihlerini ve bunu etkileyen faktörleri belirlemek amacıyla yapılmıştır.

Yöntem: Araştırma; Eskişehir Zübeyde Hanım Kadın Hastalıkları Doğum ve Çocuk Hastalıkları Hastanesi ile Eskişehir Kadın Hastalıkları Doğum ve Çocuk Hastalıkları Hastanesi'nde gerçekleştirildi. Tanımlayıcı olarak yapılan bu çalışmada; Temmuz-Ağustos 2006 tarihleri arasında Çarşamba ve Perşembe günleri hastanelerin doğum servislerinde bulunan loğusalar ve hastane polikliniklerine başvuran gebelerden, araştırmayı kabul eden 500 kadın çalışma grubunu oluşturdu. Verilerin toplanmasında kişilerin demografik, obstetrik öykülerini ve doğum şekli tercihlerini belirleyen soruların yer aldığı veri toplama formu kullanıldı.

Bulgular: Katılımcıların sezaryen doğumu tercih oranı %24.4'tü. Kadınların doğum tercihleri ile yaş, eğitim durumu, gelir durumu, evlenme yaşı, tercihlerle ilgili bilgi alma durumu ve obstetrik öykülerinde yer alan yaşayan çocuk sayısı, önceki doğum sayısı ve abortus deneyimleri değerlendirildiğinde aralarında istatistiksel olarak anlamlı ilişki bulundu ($p < 0.05$).

Sonuç: Çalışmamızda kadınların yaklaşık beşte biri sezaryen doğumu tercih etmektedirler. Bu tercihin nedenlerinin başında %47 oranı ile hekim yönlendirmesi olduğunu ifade etmişlerdir. Kadınlar, normal doğumu tercih nedenlerinin başında da %35 oranı ile normal doğumun daha sağlıklı olduğunu düşündüklerini belirtmişlerdir.

Anahtar Sözcükler: Sezaryen, vaginal doğum, doğum yöntemi.

Introduction

The pregnant women worry about the birth type during the pregnancy period. Although pregnancy and birth is a physiological event, it is an important source of stress for a woman. While the prospective mother is waiting for the birth moment unknown for herself with fear and excitement, she feels both the maternity instincts and the pride of bringing a baby to the world. Especially during the first pregnancy, a woman has a lot of feelings together and she does not know what she will meet at birth. While the women are trying to determine the birth type, they cannot decide that the caesarean delivery or the normal birth will be better for them. The period of decision can be affected by a lot of factors. The women can make a better and healthier preference if they are given enough support and information during this period. The pregnant women must be well informed about the normal birth and the caesarean delivery especially during the last trimester. The caesarean section is a surgical procedure in which incisions are made through a mother's abdomen (laparotomy) and uterus (hysterotomy) to deliver the fetus over 500 gram.^{1,2} At first, caesarean was applied to a woman who was about to die to deliver the living fetus but later it had a wide range of indications after the discovery of the antibiotics and the development of the surgical techniques and the safe blood transfusion.² The caesarean indications includes malpresentation, placenta previa, antepartum bleeding, placenta accreta, prolonging birth, urgent caesarean section, uterine rupture, premature birth, low-birth weight, early age pregnancy and stillbirth borns in the second pregnancies; however, the caesarean sections performed due to the mother's desire take place as the first in the ranking of the caesarean indications.³ However, it is known that the caesare-

an section increases the maternal mortality and morbidity and the risk of perinatal morbidity.⁴ On the other hand, its high cost is also another difficulty for the economy of the country. It is noted that in the United States of America 50% more money is spent on caesarean sections compared to vaginal birth, and this costs the country more than a billion dollars per year.⁵ Despite its increasing cost and risks, an increase in caesarean sections from 5% to 20% has been observed in all developed countries in recent years.^{6,7} Among the reasons of the increase in the rates of caesarean are later age pregnancy, decline in the parity, developed imaging techniques, widespread use of electronic fetal monitor, common use of supportive reproduction techniques, malpractice, medico-legal problems and for these reasons the desire of abstaining from accouchement force complications and also some social factors.^{6,8,9} The increase of the caesarean prevalence is defined as an international health problem. While the rate of caesarean declared by the World Health Organisation in 2002 was 10-15%, this rate is 27.3% in America, 41% in India, 22.8% in Nigeria and 37% in Turkey.^{10,11} The midwives can play an important part in the birth policies of their countries in order to prevent pointless attempts and to decline the caesarean rates by emphasizing the normal birth process. It was proved by well quality studies that the women who took well midwifery care during the pregnancy lay in hospital less in the antenatal period, and they needed labour induction less, and they were applied less analgesia and narcosis during their birth, nonpharmacologic methods were used more to cope with the pain, and there was an increase in the spontaneous birth rates and a decrease in the caesarean rates.¹² The opinion the pregnant women can not be given the midwifery care effectively is accepted all over the world as one of the important reasons of the rapid increase in

the caesarean rates in the world. Today the main purpose of current midwifery practices is to make vaginal birth in which the pelvic floor is kept safe and the level of pain and anxiety is low or lacking. In this study, the birth preferences of the women and the factors affecting these preferences were assessed.

Methods

The research was conducted in Eskisehir Zubeyde Hanım Gynecology and Obstetrics and Children's Hospital and Eskisehir Gynecology and Obstetrics and Children's Hospital. In this descriptive study, the study group was formed of 500 women, accepting the research, who were the puerpera in the maternity wards of the hospitals and the pregnant women applying to the polyclinics of these hospitals on Wednesdays and Thursdays between July-August 2006. In the data collection process, a data collection form including the questions determining the women's demographic and obstetric characteristics and birth type preferences was used. The face-to-face discussion technique was used for the data and the necessary time to fill in the form was 10 minutes. The official authorization was got from the institutions for the research and after the participants were informed about the research the form was signed. The data were assessed by using Statistical Package for the Social Science (SPSS) 13.0 for Windows Programme. Percentage and chi-square techniques were used for the evaluation.

Results

The preference rate of caesarean delivery of those participating the study is 24.4%. 50.8% of the participants are high school graduate and over, 59.4% of them are not working and the income level of 76.8% of them is under 1000TL. The marital age of 20% of the women participat-

Table 1. The distribution of the socio-demographic characteristics of the participants.

Socio-demographic characteristics	Number (n)	Percentage (%)
Age		
19 and under	7	1.4
20-29	187	37.4
30-39	269	53.8
40 and over	37	7.4
Educational background		
Illiterate	27	5.4
Literate	30	6.0
Secondary Education	189	37.8
High School Education and Over	254	50.8
Working state		
Working	203	40.6
Not working	297	59.4
Income level		
0-999 TL	384	76.8
1000 TL and over	116	23.2
Marrigeable age		
18 and under	100	20.0
19 and over	400	80.0
Marital duration		
1-5 years	163	32.6
6-10 years	114	22.8
11 years and over	223	44.6
Birth preference		
Cesarean	122	24.4
Normal birth	378	75.6
Total	500	100.0

ing the study is 18 and under and the marital duration of 44.6% of them is 11 years and over (Table 1). Of the women joining the research, 62% of the group preferring the caesarean delivery and 51% of those preferring the normal birth were between 30-39. The more the age of giving birth raised the more the caesarean preference rate rose. There was a significantly difference in the statistical evaluation between the age groups of the participants and their birth preferences ($p < 0.05$). On the other hand, in the evaluation between the education levels of the women in the research group and their birth preferences, those who were high school graduate and over

formed of 60% of those preferring caesarean delivery, and it was determined that those who had higher education level preferred caesarean much more and in the statistical evaluation the difference between them was found significantly ($p<0.05$). It was stated that among the women participating the study the income level of 80% of the group preferring the normal birth was under 1000 TL. In the statistical evaluation

between the income level of the participants and their birth preferences, the difference between them was found significantly ($p<0.05$). 61% of the women preferring the normal birth were not working and the marital duration of 47% of them was 11 years and over. In the statistical evaluation between birth preferences and the participants' working states and their marital duration, a statistically significantly difference between them was

Table 2. The distribution of the participants' birth preferences according to their socio-demographic characteristics .

	Birth preferences			n %	n %	n %	p
	Cesarean	Vaginal	Total				
Age							
19 and under	0	0.0	7	2.0	7	1.4	P<0.05
20-29	44	36.0	143	38.0	187	37.4	
30-39	75	62.0	194	51.0	269	53.8	
40 and over	3	2.0	34	9.0	37	7.4	
Educational background							
Illiterate	0	0.0	27	7.0	27	5.4	P<0.05
Literate	8	6.0	22	6.0	30	6.0	
Secondary Education	41	34.0	148	39.0	189	37.8	
High School Education and Over	73	60.0	181	48.0	254	50.8	
Income level							
0-999 TL	82	67.0	302	80.0	384	76.8	P<0.05
1000 TL and over	40	33.0	76	20.0	116	23.2	
Working state							
Working	55	45.0	148	39.0	203	40.6	P>0.05
Not working	67	55.0	230	61.0	297	59.4	
Marrigeable age							
18 and under	10	8.0	90	24.0	100	20.0	P<0.001
19 and over	112	92.0	288	76.0	400	80.0	
Marital duration							
1-5 years	45	37.0	118	31.0	163	32.6	P>0.05
6-10 years	32	26.0	82	22.0	114	22.8	
11 years and over	45	37.0	178	47.0	223	44.6	
The place of birth							
Home	0	0.0	24	6.0	24	5.0	P>0.05
State Hospital	82	67.0	254	67.0	334	67.0	
Private Hospital	40	33.0	103	27.0	142	28.0	
Information state							
Uninformed	9	7.0	68	18.0	77	15.0	P<0.05
Health staff	96	79.0	246	65.0	342	69.0	
Friends, family	10	8.0	55	15.0	65	13.0	
Magazines, TV, etc.	7	6.0	9	2.0	16	3.0	
Total	122	100.0	378	100.0	500	100.0	

not found ($p < 0.05$) In the statistical evaluation between the marital age of the women and their birth preferences, the difference between them was highly significantly ($p < 0.001$); it was stated that the marital age of 92% of the group preferring the caesarean delivery was 19 and over. Among the participants, while 67% of the group preferring the caesarean delivery preferred the state hospitals, 33% of them preferred private hospitals. In the statistical evaluation between birth preferences of the participants and the place where they would deliver, it was determined that there was not a statistically significantly difference between them ($p < 0.05$). In the statistical evaluation between birth preferences of the women participating the research and their being informed about these preferences, the difference between them was found significantly ($p < 0.05$). In the evaluation, 65% of the women preferring normal birth and 79% of the women preferring caesarean delivery stated that they got information from the health staff, but it was stated that 15% of all participants did not get information about their birth preferences. In the statistical evaluation between birth preferences of the participants and the number of their living children and their previous birth types, the difference between them was found highly significantly ($p < 0.001$). While among the women preferring caesarean section the rate of those having no living children was 18%, among those preferring normal birth the rate of the same group was only 9%. While the next birth preference of the group whose previous birth type was normal birth was again normal birth with a rate of 63%, the normal birth preferences of the women whose previous birth type was caesarean section were found 18%. It was stated that the previous birth type of 43% of the participants preferring caesarean delivery was normal birth. When the women's having abortus in their obstetric histories and their birth preferences were compared,

the difference between them was found statistically significantly ($p < 0.05$). It was determined that 39% of those preferring caesarean delivery had abortus in their obstetric histories and this rate was 25% in those preferring normal birth. A statistically significantly difference was not found between birth preferences and pregnancy numbers of the women participating the study ($p < 0.05$). In this study, it was stated that the preference reasons of caesarean section of the women participating the research were 47% doctor demand, 19% their own demand, 18% the fear of normal birth, 11% late age, and 5% believing in caesarean section healthier. On the other hand, the preference reasons of those preferring normal birth were 35% believing in normal birth healthier, 18% doctor demand, 16% its being spontaneous in hospital, 14% the wish to get better soon, 10% to increase maternal instinct, and 7% economic reasons (Table 2).

Discussion

Although the increase of caesarean prevalence is defined as an international health problem, a rapid increase has been seen in the rates of caesarean delivery all over the world for the last 25 years.¹³ In our country the rate of caesarean delivery is 37% according to the data of Turkey Population Health Research (TPHR) 2008; and it has been declared that this rate is 42% in cities and 24% in the countryside. The rate of caesarean has highly increased compared to TPHR 2003 (21%). While the probability of caesarean delivery increases due to the age of the mother, it is declared that 45% of the first births are caesarean. The rate of caesarean increases together with the level of education and prosperity. The rate of caesarean is 60% or over in the highest level of education and prosperity, and it is determined that this rate is three times more than the caesarean sections in the

lowest level of education and prosperity.¹⁰ In our study, the preference rate of caesarean delivery of all participants is 24.4%. While caesarean preference rate of the women was 16% in the thesis study by Bektas in İstanbul,¹⁴ it was 22.6% in another study done in our country.¹³ In the studies abroad Taffel and Lydon determined the rate of caesarean as 23%.^{15,16} In our study, 62% of the group preferring caesarean was women between 30-39. Moreover, it was noted that the participants having high school training and over formed 60% of those preferring caesarean delivery and these results were found significantly in the statistical evaluation ($p < 0.05$). In the statistical evaluation between the marital age of the women and their birth preferences, the difference between them was found highly significantly ($p < 0.001$), and it was stated that the marital age of 92% of the group preferring caesarean delivery was 19 and over. In the studies, it was determined that the older and the higher education the mother had, the higher the caesarean section rate was.^{8,10,17,18} In the study done by Duman and his friends, it was stated that the higher education the women had the higher the caesarean rate was.¹⁹ Taffel stated in his study that rising the pregnancy age, delaying the age of becoming pregnant and increasing the socio-culture and education level increased the caesarean rate.¹⁵ In a study in our country, it was determined that the marital age became late for the reasons such as education and economic and social problems, and so the births at 35 and over increased. In the same study, it was drawn attention that total caesarean rates of the pregnant women who were at 35 and over formed 15% of the rates in them.²⁰ It was thought that these results paralleling with our study could result from increasing rates of pregnancy of 35 age and over, the developments on auxiliary reproduction techniques and more common use of these techniques. It

was stated that among the women participating the study the income level of 80% of the group preferring the normal birth was under 1000 TL and this result was found significantly in the statistical evaluation ($p < 0.05$). Moreover, in this study 61% of the women preferring the normal birth were not working. In the study of Hildingsson and his friends, it was stated that the women having low economic level preferred caesarean; however, in the study of Yasar and his friends it was stated that having high economic level increased the rate of caesarean.^{8,21} The caesarean section is associated with high morbidity and mortality risk and it increases the rate of danger for next births and also costs because of postnatal care services.^{10,18,22} Furthermore, it is stated by a lot of studies that the caesarean delivery is a serious difficulty for the economy of the countries. It is determined that at least 50% more money is spent on caesarean sections compared to normal birth.^{5,23} When compared to normal birth, the cost of hospital also increases since the period of staying at hospital for the caesarean delivery and additional treatment and applications which will be used as result of developing complications will be much more. It is thought that the people whose income is low or who do not have social security often prefer normal birth since the health expenses are higher for the caesarean delivery. In the studies, although it was stated that having private insurance and preferring a private hospital for the birth also increased the rate of caesarean, in this study in the statistical evaluation between the birth preferences and the place preferences where the birth would be given the difference between them was not found significantly ($p < 0.05$). Konakçı and Kılıç stated that the reasons affecting the caesarean section were both the increase of the women's education and socio-economic level and living in big cities and giv-

ing birth in private hospitals.⁷ It is thought that the increase in the caesarean section preference rates of the women preferring private hospitals can be related to their income level. In this study, it was stated that the caesarean delivery preference rate of the primipara women was two times more than normal one. Moreover, it was found that while the next birth preference of the group whose previous birth type was normal was again normal birth with the rate of 63%, the normal birth preferences of those whose previous birth type was caesarean were 18%. In the statistical evaluation between the birth preferences of the participants and the number of their living children and their previous birth types, the difference between them was found highly significantly ($p < 0.001$). In Yasar and his friends' study called "the birth preferences of primipara women and the factors affecting these" it was stated that the rate of normal birth in primipara women was 34% and caesarean rate was 65.9%. In the same study, it was determined that while 86.9% of the women having normal birth stated they wanted to have normal birth again, 45.4% of the women having caesarean delivery stated they wanted to have normal birth in their next births.⁸ In a study done abroad, when the next birth preference was searched, 90% of the women having normal birth stated they wanted to have normal birth again and 77% of the women having caesarean delivery wanted to have normal birth in their next births.²⁴ In a study done in our country, it was found that normal birth preference rate of the women having normal birth was 86.9% and normal birth preference rate of those having caesarean section for their next births was 45.4%.²⁵ Moreover, in our study, it was also determined that the previous birth type of 43% of the participants preferring caesarean section was normal birth. Another reason increasing the caesarean rates is that having one caesarean

section forms the caesarean indication for the next births. However, clinical applications recently have shown that 60-80% of the old caesareans could have vaginal birth.^{25,26} In our research, it was determined that 39% of those preferring caesarean section had abortus in their obstetric histories and this rate was 25% in those preferring normal birth and this result was found significantly statistically ($p < 0.05$). The doctors' studies about the birth preferences has shown that while 91% of the gynecologists prefer vaginal birth, about half of them believe the patients have the caesarean preference right, but at the decision stage they decide the birth type with their own preferences, not with the preferences of the phenomenon.^{26,27} According to TPHR, the doctors helped 64% of the births in the five years before 2008 and the midwives and / or nurses helped 27% of them. Furthermore, it has been stated that 92% of the mothers having birth in the five years' period before TPHR-2008 had antenatal nursing care from health staff during their last pregnancy. It has drawn attention that almost all antenatal nursing care was given by doctors. Moreover, in the report, it has been determined that the caesarean rate in the pregnant women followed by doctors is higher than the ones followed by midwives.^{10,28} All these results has shown how important the personal preferences are in the increasing caesarean rates recently. The women's caesarean delivery preference is an important subject. Low caesarean rates in developed countries like Holland are a result of the woman's in these countries getting quality and qualified care, monitoring, training and consulting services from preconceptional period to postnatal period.^{29,30} In another study done to investigate the doctor's effect on the woman's caesarean decision, it is stated that the mother's desire is in fact the doctor's guidance and mothers firstly want them to do the right thing for

their babies. In Sayın and his friends' studies, one of the first reasons why women prefer caesarean is that women are afraid of suffering from birth and the baby's having trauma and also social reasons and doctor's suggestion.²⁸ In a study done in Italy, while 65% of the midwives find the caesarean rates high, only 34% of the doctors find the rates high.²³ In this study, the caesarean delivery preference rate with the mothers' own desires is 19%. This rate differing among countries is 2% in Ireland, 7% in England, and 46% in America.²¹ In other studies in our country, the caesarean section preference rate with the mothers' own desires was found 26.8% by Gungor and his friends and 11.3% by Ozkaya.^{29,30} American College of Obstetricians and Gynecologists (ACOG), in a declaration on this matter on 9th May 2006, stated that caesareans must be applied for medical reasons, not for desire.³¹ The Health Ministry has started to research births and their results in public and private health institutions in the whole country in order to conserve mothers' health. In this respect, the caesarean indications and following the results are also important. The most important precautions to reach this target are following medical reasons and indications suggested by modern gynecology, keeping the patient records in a certain form and application unity, keeping the statistics correctly and obeying the ethical rules.³²

Conclusion

In this study, the caesarean section preference reasons of the women participating the research were stated as the doctor's demand, their own desire, fear of normal birth, late age, and thinking caesarean section healthier. It is notable that the doctor's demand is the premier among the reasons of the caesarean delivery preference. The normal birth preference reasons of them were also stated as believing normal

birth healthier, the doctor's demand, its being spontaneous in hospital, the wish to get better soon, increasing maternal instinct, and economic reasons. Encouraging the society to normal birth by declining the caesarean delivery rates is very important in terms of both women's health and its cost in the economy of the country. In this respect, the society must be made conscious by health professionals, and the scope of midwives and nurses must be extended in our country's health system based on health policies in which treatment services are given predominantly. Having the right preference of the woman about her own birth will be healthier by getting quality and qualified care from preconceptional period to postnatal period and by making good use of consulting services about alternative birth, relaxing techniques and coping with the travail.

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Method of Delivery in Multiparous Twin Pregnancy

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Abstract

Objective: Analyzing birth methods and comparing Apgar scores with respect to birth methods of the 64 multiparous twin pregnancies admitted to our clinic during labor between 2000-2004.

Methods: Sixty-four multiparous twin pregnancies admitted to our clinic during labor, with 32 to 41 weeks of gestation between 2000-2004 were analyzed. Presentations of the babies, birth methods, gestational weeks at birth, Apgar scores were compared retrospectively through patients' records. Logistic Regression Analysis, Mann Whitney U test and Kruskal Wallis test were used.

Results: Vaginal birth rate is 59.4%, cesarean section birth rate is 40.6%. Highest cesarean section rate is encountered in breech presentation of the first baby. For births given under 36 weeks of gestation, the rates of Apgar scores under seven in vaginal births for the first and second babies are both 23.8%. At 36 weeks and over, the rates are zero for the first baby, and 5.90% for the second baby. For cesarean section births, under 36 weeks of gestation, the rates of Apgar scores under seven are zero for the first baby, and 8.30% for the second baby. For 36 and over weeks, the rates are zero for the first baby and 21.43% for the second baby.

Conclusion: Cesarean rate is 40.6% in our sample space. Prematurity has high prevalence (51.56%). Disregarding gestational age at birth, when the rates of fifth minute Apgar scores under seven are compared with respect to birth methods; for the first baby, it is found high for vaginal birth at 5.6% significance level ($p=0.056$). There were no first babies with Apgar scores under seven in cesarean section births. There is no difference in birth methods for second babies. Fetal weight is found to be a significant risk factor for Apgar scores of the babies.

Keywords: Presentation, vaginal delivery, cesarean delivery, apgar score.

Multipar ikiz gebeliklerde doğum şekli

Amaç: 2000-2004 yılları arasında kliniğimize travayda başvuran 64 multipar ikiz gebenin, doğum şekillerinin incelenmesi, Apgar skorlarının doğum şekillerine göre karşılaştırılması.

Yöntem: 2000-2004 yılları arasında kliniğimize travayda başvuran, 32 ile 41 gebelik haftası arasında olan, 64 multipar ikiz gebe çalışmaya alınmıştır. Bebeklerin prezentasyonları, doğum yöntemleri, doğum haftaları, Apgar skorları, hasta kayıtları retrospektif olarak taranarak karşılaştırıldı. İstatistiksel yöntem olarak Lojistik Regresyon Analizi, Mann Whitney U test ve Kruskal Wallis testi kullanıldı.

Bulgular: Vaginal doğum oranı %59.4, sezaryen oranı %40.6 olarak saptanmıştır. Prezentasyonuna göre en yüksek sezaryen oranı (%46) birinci bebeğin makat prezentasyonunda geldiği durumda izlenmiştir. Vaginal doğumlarda Apgar skorunun yedinin altında olma oranı, gestasyonel haftası 36 haftanın altındaki doğumlarda birinci ve ikinci bebek için %23.8, gestasyonel haftası 36 hafta ve üstündeki doğumlarda bu oran birinci bebek için sıfır, ikinci bebek için ise %5.90'dır. Sezaryen doğumda ise Apgar skorunun yediden düşük olma oranı preterm doğumlarda birinci bebek için sıfır, ikinci bebek için %8.30, 36 hafta ve üstünde birinci bebek için sıfır, ikinci bebek için %21.43'dür.

Sonuç: Çalışma grubumuzda sezaryen %40.6 oranındadır. Prematürite yüksek prevalansa sahiptir (%51.56). Gebelik haftaları gözardı edilerek, bebeklerin beşinci dakika Apgar skorlarının yedinin altında olma oranları doğum yöntemlerine göre karşılaştırıldığında; birinci bebekte, Apgar skorunun yediden düşük olma oranları, normal doğumda %5.6 anlamlılık düzeyinde yüksek bulunmuştur ($p=0.056$). Sezaryen ile doğan birinci bebeklerde yedinin altında Apgar skorlu bebek izlenmemiştir. İkinci bebekler açısından doğum yöntemleri arasında fark yoktur. Fetal ağırlık, bebeklerin Apgar skoru için anlamlı risk faktörü olarak bulunmuştur.

Anahtar Sözcükler: Prezentasyon, vaginal doğum, sezaryen, apgar skoru.

Introduction

Twin fetuses are generally come into existence as a result of impregnation of two different eggs; they are fraternal twin, dizygotic twin or twin brothers/sisters. One third of them originate from a single fertilized egg which is called monozygotic twin. Since delivery complications are seen much more than dizygotic twins, delivery by cesarean is preferred frequently. As a result of assisted reproductive techniques, the incidence gradually increases. When 37 weeks are taken as a threshold value for preterm delivery, it increases up to 43.6%. Cord accidents, malpresentation, increase of operative delivery risk, uncontrolled bleeding from non-diagnosed vasa previa and postpartum bleeding are seen much more compared to single pregnancies. No consensus on the best delivery method for twin pregnancies has been achieved yet. Comorbidity of other complications such as gestational week, zygosity, time elapsed during labor, presentations of first and second babies, preeclampsia, intrauterine growth retardation affect delivery method. Delivery method of pregnancies with especially head-rectum representation is controversial. Careful intrapartum approach in twin pregnancies is compulsory to get optimal results. Such pregnancies should be monitored in centers with experienced obstetrician and pediatric teams.¹ In our study, 64 twin pregnancies without multipara and abdominal delivery histories who applied to Gynecology and Obstetrics Clinic of Haseki Training and Research Hospital in between 2000 and 2004 were examined for their gestational weeks, presentations of their babies, delivery methods and Apgar scores retrospectively. Delivery methods preferred by obstetrician according to gestational week, presentation type and clinical experience were compared by taking Apgar scores at fifth minute of babies into consideration.

Method

83 twin pregnant on 32nd-41st gestational week and without multipara, diamniotic

dichorionic, systemic disease and abdominal delivery history were found who applied to Haseki Training and Research Hospital in between January 2000 and December 2004 for delivery.

Monoamniotic twin pregnancies, pregnant without fetal anomaly scanning and those with problematic reference cardiotocography findings among these 83 pregnant were excluded from the study (n=3). Those who were taken into emergency cesarean (n=12) due to complications during normal delivery (cord prolapse, acute fetal distress, fetal loss), those with presentations except head-head, head-rectal, and rectal at first baby (transverse presentations, foot presentations for first and second babies) were excluded from the study (n=4).

43 of patients were being followed in our clinic beginning from the first trimester. Information of remaining 21 patients was accessed through records kept by patients.

Presentation types, delivery methods, delivery weeks and of these twin pregnant who delivered and Apgar scores of babies were examined by scanning delivery files retrospectively. Prematurity limit for twin pregnancies as delivery week was accepted as 36 weeks \pm 2 days. Apgar score evaluation was done as to <7 and \geq 7 for clinical significance.

When evaluating findings obtained from the study, SPSS (Statistical Package for Social Sciences) for Windows 15.0 was used for statistical analysis. When evaluating study data, Logistic Regression Analysis was used to evaluate the effect of risk factors on Apgar score. Mann Whitney U test was used to compare parameters among groups in case of two groups when comparing quantitative data. Kruskal Wallis test was used to compare parameters among groups in case of more than two groups when comparing quantitative data.

Results

Totally 64 twin pregnancies matching the criteria were delivered in Gynecology and

Obstetrics Clinic of Haseki Training and Research Hospital in between 2000 and 2004. Results were evaluated within 95% confidence interval and $p < 0.05$ significance level. By taking 64 observations into consideration, test capacity was found as $(1-\beta)$ 56.5% at 0.005 significance level. When presentation types of first and second babies in all twin pregnancies were evaluated, it was found that there were 22 cases with head-head presentation, 24 cases with head-rectal presentation and 18 cases with rectal presentation for first baby (Table 1). 38 (59.38%) of these twin pregnancies were delivered by vaginal way, 26 (40.63%) of them were delivered by cesarean. Delivery method according to presentation types in twin pregnancies are given in Table 2.

Delivery method in twin pregnancies according to pregnancy week is shown in Table 3. Delivery rates by cesarean for pregnancies with < 36 and ≥ 36 gestational week were found as 36.36% and 45.16%, respectively. The presentation where first baby comes from rectum is the presentation with the highest rate of cesarean in premature and term twin pregnant (50%, 43%). The lowest cesarean rate in premature was occurred in head-head presentation (17%).

When Apgar score evaluation in our study group is divided into two groups as < 7 and ≥ 7 , the rates of fifth minute Apgar scores below 7 in babies delivered by vaginally below 36th week were 23.8% and 23.8% for first and second babies, and they were higher than babies delivered by cesarean (0, 8.3%). The rates of fifth minute Apgar scores below 7 in babies delivered by cesarean at or above 36th week (0, 21.43%) were found higher than babies delivered vaginally (0, 5.9%). It was found that delivery method in all gestational weeks was not statistically a significant risk factor for Apgar scores of both babies ($p > 0.05$). It is considered that the case of statistical significance was caused by narrow sample size (Table 4).

In premature and in head-head presentation, Apgar score below seven was 25% in first and second babies at normal delivery, there is no

Apgar score below seven in cesarean. While Apgar score in head-rectal presentation is 30% in normal delivery, there is no Apgar score below seven in cesarean. While there is no Apgar score below seven at normal delivery in presentation where first baby is rectal, it was found as 17% in second baby delivered by cesarean (Tables 5, 6).

In term deliveries and head-head presentation, there is no Apgar score below seven in first and second babies at normal delivery, and

Table 1. Presentation types in twin pregnancies.

Presentation Type	Number	Percent
Head-head	22	34.0%
Head-rectal	24	38.0%
Rectal	18	28.0%
Total	64	100.0%

Table 2. Delivery methods in twin pregnancies according to presentation types.

Presentation Type	Vaginal Delivery	Cesarean
Head-head	16	6
Head-rectal	16	8
Rectal	6	12
Total	38 (59.375%)	26 (40.625%)

Table 3. Delivery methods in twin pregnancies according to gestational week.

Delivery method	Gestational week	
	< 36 Hafta	≥ 36 Hafta
Vaginal delivery	21 (63.64%)	17 (54.84%)
Cesarean	12 (36.36%)	14 (45.16%)
	n=33 (51.56%)	n=31 (48.44%)

Table 4. Comparison of Apgar score rates according to delivery method.

Apgar score	Delivery type	N	< 7 rate	P
1st baby 5th minute Apgar score	Vaginal	38	13.2%	0.056
	Cesarean	26	0.0%	
2nd baby 5th Apgar score	Vaginal	38	18.4%	0.754
	Cesarean	26	15.4%	

it is 25% in second baby at cesarean delivery. In head-rectal presentation, there is no Apgar score below seven in first baby at normal delivery, and it is 17% in second baby; Apgar score below seven does not exist in cesarean delivery while it is 50% in second baby. In presentations where first baby come as rectal presentation, Apgar score below seven does not exist at normal delivery and cesarean. These rational differences are not statistically significant ($p>0.05$) (Table 7).

In our study, fetal weight was found as a significant variable in premature for both babies ($p<0.05$) (Tables 5, 6). Below thirty-six weeks, rates of Apgar score being below seven was found significantly high for first baby ($p<0.05$) (Table 8).

Discussion

With the increase of using assisted reproductive techniques and ovulation induction applications, there has been an increase recently in multiple pregnancy incidence especially twin pregnancies. Despite the increase in incidence, no consensus has been reached yet for the best delivery method in twin pregnancies. In order to conclude a well-made antenatal follow-up successfully, a good intrapartum follow-up is needed to protect babies from fetal asphyxia and birth trauma. Delivery method of pregnancies especially with head-rectal presentation is controversial. Careful intrapartum approach in twin pregnancies is mandatory to obtain optimal results. In clinics where twin pregnancies will be delivered, there should be:

Table 5. Risk factors affecting Apgar score of 1st baby in deliveries under 36th gestational week.

		5th minute Apgar score of 1st baby				B	OR*	(%95CI)**	p	
		≥7		<7						
		n	%	n	%					
Presentation Type	HH	8	28.6%	2	40.00%				0.690	
	HR	11	39.3%	3	60.00%	2.7	15	0	7374.1	
	R -	9	32.1%	0	0.00%	2.2	8.6	0	2662.5	
Delivery Method	Vaginal	16	57.1%	5	100.00%					
	Cesarean	12	42.8%	0	0.00%					
Fetal Weight		2273±397		1554±736		-0.003	0.997	0.995	0.9995	0.018

* Odds Rate, ** Confidence Interval

Table 6. Risk factors affecting the Apgar score of 2nd baby in deliveries under 36th gestational week.

		5th minute Apgar score of 2nd baby				B	OR*	(%95CI)**	p	
		≥7		<7						
		n	%	n	%					
Presentation Type	HH	8	29.6%	2	33.3%				0.761	
	HR	11	40.70%	3	50.00%					
	R -	9	29.60%	1	16.70%	2.7	15.1	0	24777.4	
Delivery Method	Vaginal	16	59.30%	5	63.60%	1.6	8.7	0	9739.0	
	Cesarean	11	40.70%	1	36.40%					
Fetal Weight		2242±373		1123±269		-0.00300	0.99655	0.99379	0.99933	0.015

* Odds Rate, ** Confidence Interval

Table 7. Risk factors affecting Apgar score of 2nd baby in deliveries over 36th gestational week.

		5th minute Apgar score of 2nd baby				B	OR*	(%95CI)**		p
		≥7		<7						
		n	%	n	%					
Presentation Type	HH	10	38.5%	2	38.7%					0.431
	HR	7	26.9%	3	32.3%	14.9	3.00E+06	0	2.00E+16	0.196
	R -	9	34.6%	0	0.00%	17.5	4.00E+07	0	2.00E+19	0.207
Delivery Method	Vaginal	15	57.7%	2	54.8%					
	Cesarean	11	42.3%	3	45.2%					
Fetal Weight		2762±498		1730±789		0.000	0.994	1.000	1.003	0.182

* Odds Rate, ** Confidence Interval

- Experienced obstetrician
- Antenatal follow-up information
- Ultrasonography device
- Cardiotocography (with twin option)
- Blood transfusion facility
- Facility of opening I.V. way
- Anaesthetist
- Newborn resuscitation (team and equipment sufficient for two or more babies)
- Emergency cesarean facility.²

In increased morbidity and mortality in twin pregnancies, it is generally considered that early labor is caused by intrauterine growth retardation, twin-to-twin transfusion syndrome or monoamniocity.³ However, in epidemiological studies, increased perinatal death in twins above 2500gr was found 6 times more compared to single pregnancies. 10-12% of perinatal deaths are multiple pregnancies. Loss rate of single fetus is approximately 0.5-6.8%.⁴ In another study researching mortality according to birth weight in twin pregnancies where babies over 3000gr were compared, it was found that perinatal mortality increase was 70% more in twin pregnancies and intrapartum baby deaths were 3 times more than single pregnancies.⁵ As weight difference between twin pairs increases, perinatal morbidity and mortality also increase.⁶ However, it was found in a study that 15% weight difference between twin pairs did not increase presentation anomaly (except head-head) and cesarean rates.⁷

59.3% of twin pregnant women attended to the study was delivered by vaginally. Generally, vaginal delivery was the method mostly preferred than cesarean.

Prematurity in twin pregnancies is a significant problem. While preterm delivery is 43.6% in twin pregnancies when week 37 is taken as a threshold in the literature, it is 48.44% in this study since the threshold was taken as week 36. Preterm delivery rate is complied with the literature. Cesarean rates of twin pregnancies more than 36th gestational week was found higher than twin pregnancies less than 36th gestational week.

In all gestational weeks, it was seen that the variants of presentation type and delivery method were not statistically significant risk factor for Apgar score of 1st and 2nd babies.

Minimum delivery by cesarean in our clinic was observed in head-head presentation group. In this presentation, vaginal delivery was calculated as 72.7%. Although there is no consensus

Table 8. Comparison of Apgar score rates according to gestational week.

	Gestational week	N	<7 rate	P
1st baby 5th minute Apgar score	<36	33	15.20%	0.025**
	≥36	31	0.00%	
2nd baby 5th minute Apgar score	<36	33	18.20%	0.829
	≥36	31	16.10%	

* Odds Rate, ** Confidence Interval

in the literature for low-weighted babies below 1700 gr, vaginal delivery is suggested mostly (while some researchers suggest cesarean).⁸

When delivery methods are considered by evaluating fifth minute Apgar score below seven in head-head presentation, it is seen that cesarean is preferred in pregnancies below 36th gestational week while normal delivery is preferred in pregnancies at or above 36th gestational week. It was not found as statistically significant due to small sample size. It was stated in the literature that delivery could be waited in a safe way without regarding the time concept on its own by following continuous monitoring of second baby at normal deliveries.⁹ If fetal distress occurs, there is emergency cesarean indication. Internal podalic version and hard forceps maneuvers should be avoided since they cause additional risks for baby.¹⁰⁻¹³

Head-rectal presentation has the most prevalence in our study. Optimum delivery method in head-rectal presentation is controversial. Chervenak et al. defined a protocol where second baby is out of head presentation.¹⁴ According to this, in babies over 1800 g first baby is delivered by vaginally and rectal extraction is performed for second baby (if it has rectal presentation) by external version or help. There is no sufficient publication showing whether cesarean is preferred or not, or which method is the best for delivering twins below 1800 g with head-rectal presentation.⁸ During the external cephalic version, relaxation of abdominal wall by epidural anesthesia is suggested. While in our study the score of Apgar below seven for first and second babies in Head-Rectum presentation at normal delivery below 36th gestational week was 30%, there was no Apgar score below seven in cesarean. When morbidity rates in delivery methods were taken into consideration in pregnancies below 36th gestational week, it has been seen that cesarean is preferred more than vaginal delivery for Head-Rectal presentation. There is no first baby with Apgar score lower than seven in

vaginal delivery at Head-Rectum presentation at and above 36th gestational week while it is 17% in second baby; Apgar score below seven does not exist in first baby delivered by cesarean while it is 50% in second baby. If vaginal delivery conditions at and above 36th gestational week can be provided, it is seen that normal delivery is a suitable method in terms of second baby according to Apgar rates (if maternal complication, dystocia, fetal distress, weight difference among babies more than 15%, advanced intrauterine growth retardation etc. do not exist). These findings have been done according to differences between rates. Statistically no significant difference was found. This result is compatible with retrospective study results comparing Apgar scores of 141 rectally presented second babies according to delivery methods.¹⁵

The highest cesarean rate in our study was observed in the presentation where first baby came rectally. While cesarean rate in premature pregnancies was 50%, it was 43% in mature pregnancies. The presentation where first baby came rectally (rectal-head, rectal-rectal) forms 15-20% of all twins.¹⁶ In these presentations, vaginal delivery is always attempted in cases with more than 1800g fetal weight in France and in cases without cephalopelvic disproportion, intrauterine growth retardation and maternal complication (only if first baby is rectal; it is not valid if first baby is transverse). This approach should be performed only if obstetricians are experienced for twin deliveries. If second baby is 20% heavier than first baby, delivery method can be modified.¹⁷ In the metaanalysis published by Hogle et al. in 2003, it was concluded that planned cesarean may decrease the risk of low fifth minute Apgar score especially when first baby is rectally come.¹⁸ In the USA, cesarean is accepted as the best method; because there is no publication showing that vaginal delivery is safe in these cases. In this study, Apgar score was not observed below seven for both delivery methods in this presen-

tation in mature pregnancies. In premature pregnancies, the only case where Apgar score was seen below seven was observed at second baby in the cesarean delivery. Delivery methods do not have any superiority over each other in this presentation. However, this can be associated with the experience of obstetrician in rectal presentation and twin delivery.¹⁹ Fetal weight averages of first and second babies with Apgar score above seven born under 36th gestational week were found as 2273 ± 397 g and 2242 ± 373 g, respectively. It was found that Apgar scores increased as birth weights increased in both babies in premature twins. This is statistically significant ($p < 0.05$). This result corresponds with the literature considering that the Apgar score is a parameter contributing to the evaluation of newborn's condition. In the survey called "Multicentric Multiple Pregnancy Study II-Perinatal Mortality in Twins" performed by the data of 15 centers, it was found that the fetuses lost in approximately three fourth of twins were lighter ones.²⁰

In pregnancies at and above 36th gestational week, the relationship between fetal weight and Apgar score was not statistically significant. In the study comprising 1253 twin pregnancies whose weights and Apgar scores were examined, Apgar scores of babies with lower weights were found lower.⁴ The reason why some variables were not found statistically significant when it was researched if there is risk factor is the scarcity of pregnant included into our study. This study can be amplified by increasing the number of pregnant. By deciding the most proper delivery method, a careful intrapartum protocol should be followed. In cases where first baby is presented rectally, vaginal delivery is a suitable option if experienced obstetrician, midwife and anesthetist are present.²¹ In low weighted premature babies, postpartum period is also important as well as intrapartum period. The preparation of pediatric team as well as obstetric team and providing newborn care conditions are also should not be ignored.

Conclusion

When delivery methods are compared with Apgar scores generally, despite delivery by cesarean seems more preferable than vaginal delivery, no superiority of delivery by cesarean has been observed over vaginal delivery for first and second baby in all three presentation types at and above 36th gestational week. It is seen in premature cases that vaginal delivery has higher morbidity than delivery by cesarean. It is needed to perform this study with a wider sample group to reach a general conclusion. Many experienced obstetricians prefer vaginal delivery in Head-Rectal, Rectal-Head, Rectal-Rectal or Head-Transverse twins. Cesarean is suggested in cases except them. If physician does not have sufficient training about version-extraction, cesarean should be preferred. Knowing obstetric maneuvers well is quite important in preventing delivery traumas. In this case, vaginal delivery cannot be affiliated with increased risk for twins. It was found that Apgar score increased as delivery weights increased in both babies in premature twins.

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Early Diagnosed Meckel-Gruber Syndrome

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Abstract

Objective: The Meckel-Gruber syndrome is a rare autosomal recessive disorder that is characterised by typical sonographical findings: encephalocele, polydactyly and cystic dysplastic kidneys. Consecutive loss of pregnancies, appearing in the family history, emphasises the importance of early prenatal diagnoses in such cases.

Case: A 23-year-old woman, gravida 6, abortion 5, and having a consanguineous marriage was admitted to our clinic at 12th weeks of gestation according to the date of her last menstrual date. Obstetric history revealed that two of the previous pregnancies were affected with meningomyelocele and neural tube defects. In the sonographic evaluation, CRL was measured as 45 mm and NT 4.5 mm. The detailed sonographical examination of the fetus revealed encephalocele, and bilateral enlargement of the kidneys was noticed. Meckel-Gruber syndrome was suspected. After fetal karyotyping, termination of pregnancy is performed by the decision of perinatology council of our hospital. In the histopathological examination, encephalocele, polydactyly and bilateral dysplastic kidneys were diagnosed and Meckel-Gruber syndrome was established.

Conclusion: Meckel-Gruber syndrome is a syndrome which displays an autosomal recessive inheritance and is mostly confused with trisomy 13. In the cases with consecutive losses of pregnancy first trimester diagnosis is important. In countries with high rates of consanguineous marriage, as it is in our country, one should be careful and genetic counselling should be advised.

Keywords: Meckel-Gruber syndrome, encephalocele, dysplastic kidneys, polydactyly.

Erken tanı almış Meckel-Gruber sendromu

Amaç: Meckel-Gruber sendromu otozomal resesif geçiş gösteren, major triadı ensefalosel, polidaktili ve kistik displastik böbrekler olan bir sendromdur. Bu olgu tekrarlayan gebelik kaybı olan vakalarda erken tanının önemini vurgulamak için sunulmuştur.

Olgu: 23 yaşında G6P0A5 olan akraba evliliği mevcut hasta son adet tarihine göre 12. haftasının içinde kliniğimize başvurdu. Daha önceki gebelik kayıplarından ikisinde meningomyelose ve nöral tüp defekti öyküsü mevcuttu. Yapılan ilk ultrasonografik değerlendirmesinde CRL ölçümü 45 mm (11 hafta), NT 4 mm olarak ölçüldü. Hastanın yapılan ayrıntılı ultrasonografisinde ensefalosel ve böbreklerde bilateral büyüklük dikkati çekti. Meckel-Gruber sendromu ön tanısı konulan olguda hastanemiz perinataloji konseyinin kararı ile karyotip analizi sonrası gebelik sonlandırıldı. Yapılan histopatolojik incelemede ensefalosel, polidaktili ve bilateral olarak büyümüş böbreklerle Meckel-Gruber sendromu tanısı doğrulandı.

Sonuç: Meckel-Gruber sendromu otozomal resesif geçiş gösteren ve en çok trisomi 13 ile karışan bir sendromdur. Tekrarlayan gebelik kayıpları ve bu kayıplarda nöral tüp defekti öyküsü olan olgularda erken haftalarda tanı önemlidir. Akraba evliliği oranı yüksek olan ülkemizde bu açıdan dikkatli olunmalı ve genetik danışmanlık önerilmelidir.

Anhtar Sözcükler: Meckel-Gruber sendromu, ensefalosel, displastik böbrek, polidaktili.

Introduction

Some diagnoses of Meckel-Gruber Syndrome were first described by Meckel in 1898. Gruber defined it as a syndrome where posterior encephalocele, polydactyly and cystic dysplastic kidneys were together. Other anomalies that they may be together are heart, genital, facial and extremity defects.¹ It shows autosomal recessive transition. The recurrence risk is 25% if there is any affected child in family. In families affected before, it should be careful in terms of early prenatal diagnosis.

In this case presentation, it is aimed to emphasize the importance that Meckel-Gruber syndrome can be diagnosed early by transvaginal ultrasonography, and to review the literature accordingly.

Case

The case G6P0A5 was 23 years old and had been married for 6.5 years, and it was reported that there was a second degree of kinship with her husband (the son of her aunt). It was learnt that her first pregnancy was ended with encephalocele, second pregnancy was ended with missed abortus, third pregnancy was ended with meningocele, and fourth and fifth pregnancies were ended with missed abortus. The result of amniocentesis performed at her third pregnancy was found as normal karyo-

otype. No characteristic was observed in the history and family background of the patient. In the ultrasonography of patient when applied in her 12th gestational week according to her last period date, CRL was found as 45 mm (11 weeks and 3 days) and NT was found as 4.5 mm. Also encephalocele and kidneys were observed as big bilaterally and clearly (Fig. 1).

The patient was discussed in Weekly Council of Perinatology Department of Health Ministry Maternity Hospital. The decision was to end pregnancy and to give genetic consultancy to the family. To make clear the diagnoses, the pregnancy was ended by determining the fetal karyotype in the case observed up to 14th gestational week. Fetal karyotype was found as 46 XY. Encephalocele and polydactyly were found in macroscopic view of the fetus.

Six fingers were seen in hands and feet of fetus in the pathological examination. The face was observed as a cystic structure covered by encephalocele skin in occipital region in frog view. When abdomen was opened, both kidneys were 2-3 times bigger than their normal shapes and they were filling the whole abdomen. Many cystic structures were observed in cortex and medulla. Other organs were in regular condition macroscopically (Fig. 2). The diagnosis was expressed as histopathological diagnoses consistent with Meckel-Gruber Syndrome for male fetus at 14th week



Figure 1. Encephalocele.



Figure 2. Kidney view.



Figure 3. USG view of the fetus.

including encephalocele, polydactyly and polycystic kidneys.

Discussion

Meckel Gruber syndrome can be with neural tube defects (NTD), encephalocele (80%), polydactyly (75%), cystic and dysplastic kidney (95%).^{1,2} Other anomalies displaying association in USG are reported as micrognathia, cardiac anomalies, syndactylia, clinodactilia and pes equinovarus.¹ For certain diagnosis of the disease, at least two diagnoses forming the typical triad should be found among cystic kidney dysplasia, occipital encephalocele, postaxial polydactyly diagnoses.³ In the presented case, encephalocele and cystic growth in bilateral kidneys were detected in the ultrasonography performed in the first trimester. Meckel Gruber syndrome is one of the well known central nervous system syndromes with autosomal recessive transition accompanied by renal dysplasia.⁴

It was reported that Meckel-Gruber syndrome is observed as one 12,000th-140,000th in the general population.⁵ While NTD recurrence risk is 1-3%, it is 25% in Meckel-Gruber syndrome due to displaying autosomal recessive transition and therefore, perinatal follow-ups and early diagnosis are important in next pregnancies.⁶

		10:46:32	21-01-2006
Institution		Diag. Physician	
Ref. Physician		Sonographer	
ID		Heart Rate	bpm
Name		Birthday	23-04-1982
Gender	Female	Age	23y 8m
Height	158.00cm	Weight	56.00kg
BSA	1.56m ²	Indication	
Description		Custom Field1	
Custom Field2			
LMP	23-10-2005	Estab. Due Date	
GA(LMP)	12w6d	Average US GA	11w3d
EDD(LMP)	30-07-2006	EDD(Average US GA)	09-08-2006
EPW Hadlock3		GA(EFW)	
Percentile(EFW)		SD(EFW)	
Fetal Biometry		1	2
CRL	Hadlock	4.65	4.65 cm
		Last	G.A.
			Percentil
Fetal Cranium		1	2
NT		0.45	0.45 cm
		Last	G.A.
			Percentil

Figure 4. USG readings of the fetus.



Figure 5. Fetus.



Figure 6. Fetus kidneys.

Meckel-Gruber syndrome is seen only in 5% of all NTDs.¹⁷ Early diagnosis is important due to the high recurrence risk of the syndrome (25%) and the loss of those born with Meckel-Gruber syndrome at or after delivery. Sonographical examination can be performed towards the end of first trimester. In a study performed in England, Meckel-Gruber syndrome could be shown in high and low risk groups at 11th-14th gestational weeks by routine ultrasonographical examination.^{8,9} In a mother in Bulgaria of whom previous pregnancy was ended at second trimester due to Meckel-Gruber syndrome, Meckel-Gruber syndrome could be detected at 13th gestational week by transvaginal ultrasonography.¹⁰

Definitive diagnosis of Meckel-Gruber syndrome should be performed by trisomia 13 and Smith-Lemli-Opitz syndrome. Its definitive diag-

nosis sometimes may be hard since it has similar pathologies with trisomia 13. Because cystic kidneys accompany trisomia 13 at a rate of 15-30%. While mid-line central nervous system anomalies or holoprosencephaly are diagnostics for trisomia 13, bigger kidneys, oligohydramnios and the existence of occipital encephalocele are diagnostics for Meckel-Gruber syndrome.¹¹ Karyotyping should be done when these findings are found.¹² Karyotyping was also done in the presented case. 46 xy was found as normal karyotype as a result of karyotyping. In addition, holoprosencephaly, korpuz kollozum agenezisi, heart defects, renal anomalies, meningomyelocele, polydactyly, cystic hygromata are frequently seen in trisomia and they are sporadic. Meckel-Gruber syndrome is autosomal recessive transitive. In this regard, recurrence rates are differ-

Table 1. Comparison of Meckel-Gruber syndromes diagnosed at first trimester.

Case Presentation	Diagnosis Tool	GA	Fetal Anomaly	Familial	Sporadic
Pachi et al. 1989 ¹⁴	USG	13	OE, PB, HD	1	-
Quintero et al. 1993 ¹⁵	EF	11	OE, PB*, HD, BD	1	-
Dumez et al. 1994 ¹⁶	E	E 10+4	OE, HD, AN	1	-
Braithwaite et al. 1995 ¹⁷	USG	12+2	OE, PB, HD*	-	1
Sepulveda et al. 1997 ¹⁸	USG	11-14	OE, PB, HD	4	1
Den Hollander et al. 2002 ¹⁹	USG	13+4	OE, PB	1	-
Liu et al. 2006 ²⁰	USG	13	OE, PB	-	1
Our case	USG	11+3	OE, PB, HD	1	-

GA: Gestational age week/day; USG: Ultrasonography; E: Embryoscopy; EF: Embryofetoscopia; OE: Occipital encephalocele; PK: Polycystic kidney; HD: Hexadactyly; BD: Biliary disgenesis (found in pathological examination); AN: Abnormal nephrogenesis (found in pathological examination); HD*: Hexadactyly (found during delivery); PK*: Polycystic kidney (found in pathological examination).

ent. Family should be given genetic consultancy in terms of next pregnancies.^{1,2}

In Meckel-Gruber syndrome, renal cystic dysplasia exists in almost all cases.¹² Kidneys sometimes may be 10-20 times bigger than their normal dimensions. Cysts are seen macroscopically in autopsy examination. Other renal anomalies such as renal agenesis, renal hypoplasia and ureteral duplication may also accompany this syndrome.¹³

When encephalocele is found in the prenatal follow-up of pregnant, a wide examination including extremities and kidneys should certainly be performed. As it can be seen in this case who was diagnosed by the examination of nuchal opacity increase, the increase of nuchal opacity does not only inform us about trisomies but also enables to know other syndromes. Not only nuchal opacity increase but also whole fetus should be examined during 11th-14th week scanning (Table 1).

Conclusion

In conclusion, fetal anomalies can be diagnosed by ultrasonography and some invasive methods, and affected fetuses can be eliminated. Meckel-Gruber Syndrome which is fatal and autosomal recessive transitive can be detected even before 20th gestational week by ultrasonographic scannings. After informing such families with the risk of this syndrome, pregnancies can be ended by performing early prenatal diagnosis at 11th-14th weeks in perinatology clinics.

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Triple Autosomal Trisomy Detected in a Spontaneous Abortion Material

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Abstract

Objective: In this study, the abnormal cytogenetic report of the spontaneous abortion material was presented and it was discussed in the light of the related literature.

Case: A 30 yearold woman had spontaneous pregnancy after 5 years of infertility history and 2 unsuccessful IVF programme. When she was at her 9th gestational week the patient was diagnosed to have a blighted ovum. After surgical curettage, the abortus material was transferred to genetics laboratory in a sterile culture medium and long term tissue cultures were set up in three different flasks.

Conclusion: The cultivation of the abortion material revealed 49,XY,+8,+20,+21 karyotype. We here present the study, as this is the first triple aneuploidy case with this unique chromosomal combination and also aim to remind the probability of the occurrence of different aneuploidies in the same abortion material.

Keywords: Chromosomal abnormalities, spontaneous abortions, triple trisomy.

Spontan abortus materyalinde belirlenen üçlü otozomal trizomi

Amaç: Bu çalışmada spontan abortus ile sonlanan gebelik materyalinden yapılan sitogenetik çalışmada belirlenen anomali karyotip ve bunun literatür bilgileri ışığında tartışması sunulmaktadır.

Olgu: 30 yaşındaki olgunun 5 yıllık infertilite öyküsünün ardından, 2 başarısız IVF denemesi sonrası spontan gebeliği oluşmuştu. Gebelik 9. haftasında boş kese (blighted ovum) olarak değerlendirildi ve ailenin onamı ile kürete edildi. Gebelik materyali uygun doku kültürü medyumunda laboratuvarımıza ulaştırıldı ve üç ayrı flaskta uzun dönem doku kültürü yapıldı.

Sonuç: Uzun dönem doku kültürü sonrası fetüste 49,XY,+8,+20,+21 karyotipi belirlenmiştir. Bu olgu, üçlü (triple) anöploidide ilk defa bu üç kromozomal kombinasyonun birlikte olması ve abort materyalinden yapılan sitogenetik çalışmada birden fazla kromozomun anöploidisinin eşlik edebileceğini göstermesi açısından anlamlıdır.

Anahtar Sözcükler: Kromozomal anomaliler, spontan abortus, üçlü trizomi

Introduction

The majority of spontaneous abortions occur during the first trimester and over 50% of these miscarriages are chromosomally abnormal.¹⁻³ Single trisomies account for >50% of the chromosomal abnormalities.⁴ Double trisomies have

also been associated with early miscarriages. We have previously reported 2 cases of double trisomies, which comprises 0.49% of all products of conceptions karyotyped.⁵ Triple trisomy is a rare finding with a frequency of 0,05% in spontaneous abortions.⁶ To our knowledge only

eleven triple trisomy cases detected within spontaneous miscarriages have been reported so far.^{3,6-11} We here present a case of triple trisomy, with a unique combination of chromosomes 8, 20 and 21 (49,XY, +8,+20,+21); the first triple aneuploidy case with this specific karyotype reported in the literature.

Case Report

A 30 year-old, primigravid woman, married with a 35 year old man, was referred to our laboratory for karyotyping the products of conception of her miscarriage. Her past history revealed infertility for 5 years. Her husband had normal sperm concentration but low sperm motility in semen analyses. She had multiple unsuccessful intrauterine insemination cycles with gonadotropins and 2 cycles of IVF. The couples had a complete diagnostic workup for recurrent implantation failure including normal karyotype. This pregnancy occurred spontaneously 2 months after her last IVF attempt. She was at her 9th gestational week according to the last menstrual period at admission. Sonographic examination demonstrated a gestational sac with no fetus and

a yolk sac and the patient was diagnosed to have a blighted ovum. Once the couple was informed and informed consent was obtained, surgical curettage was performed under general anesthesia. Curettings of the abortus was collected into a sterile culture medium and transferred to genetics laboratory immediately. After getting material into a sterile petri dish (60 mm x 15 mm), it was examined microscopically to exclude the maternal decidua. Explants were transferred into three different flasks with a new sterile medium (Bio-Amf-1 medium, Biological Industries) and placed in a 5% CO2 incubator for long-term tissue culture. Two separate primer cell cultures were cultivated for a period shorter than two weeks and seven metaphase spreads were analysed, sixteen metaphase spreads were counted. Chromosome analysis of the abortion material revealed as 49,XY,+8,+20,+21 karyotype. Pathological examination of the placenta did not show any abnormality (Fig. 1).

Discussion

Triple trisomy detected in abortion materials is an exceedingly rare finding. Table 1 presents

Table 1. Triple trisomies in spontaneous abortion.

	2	5	8	11	12	14	15	16	18	20	21	22	X/Y
Kajii <i>et al.</i> (1980)	+	+	+										
Johnson <i>et al.</i> (1990)									+		+	+	
Petrella <i>et al.</i> (1991)	+		+	+									
Soukup (1992)		+						+		+			
Reddy (1999)									+		+		+
†Reddy (1999)							+			+			+
Reddy (1999)	+		+		+								
Reddy (1999)										+	+	+	
‡Hassold <i>et al.</i> (1984)						+	+						+
Our case			+							+	+		
Total	3	2	4	1	1	1	2	1	2	4	4	2	3

† For this case the gestational age 18 weeks, others less than 12 weeks. ‡ For this case the material not reported, others chorionic villus.
 *In the report by Dejmek(1992) no reported information for two triple trisomy cases, therefore not listed.

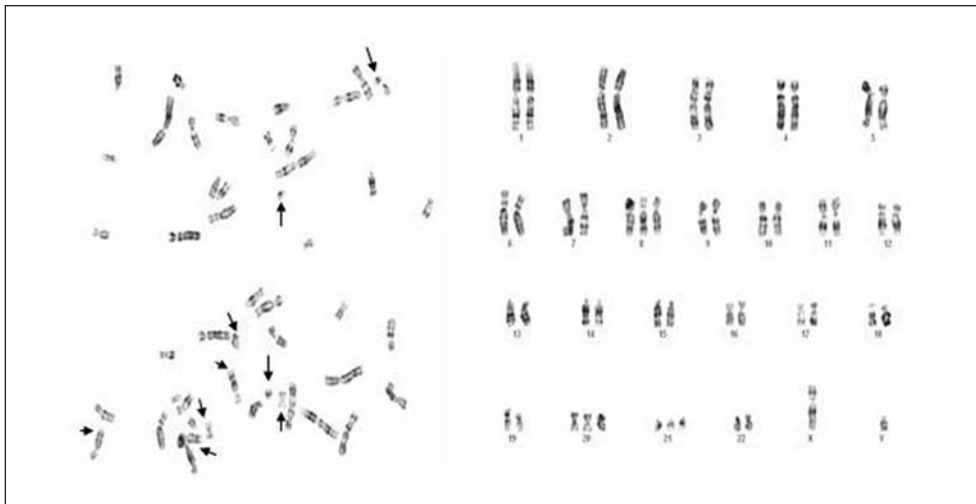


Figure 1. The karyotype of triple trisomy;49,XY,+8,+20,+21.

the chromosomal combinations of the triple trisomies studied from spontaneous abortions cultivated from villi reported so far, including our case.⁶⁻¹¹ The chromosomes involved in triple trisomies are 2, 5, 8, 11, 12, 14, 15, 16, 18, 20, 21, 22 and sex chromosomes. The present case was structured coincidentally from the union of the most reported trisomies.⁶⁻¹⁰ Nine out of ten cases were aborted in the first trimester period and the cytogenetic analyses of the all cases revealed nonmosaic aneuploidies, similar with the present case. The maternal ages of them are ranged from 29 to 46, concordant with our case. Of these cases 4/10 are over 35 years. Maternal first meiotic division errors predominated for all trisomies including double trisomies. It is unclear how three non-disjunction involving three different chromosomes could occur in triple trisomies. There are several mechanisms including; error in maternal meiosis I involving two chromosomes (like double trisomy) and error in maternal meiosis II involving the third chromosome component, might occur. Hassold et al. performed molecular studies to investigate the origin of the triple aneuploidy.¹¹ They demonstrated that, of the 49,XX,+14,+15,+22 karyotype, trisomy 14 had a maternal origin (Meiosis I). However, they couldn't eval-

uate the origin of the chromosomes 15 and 22 in their case. Trisomy, due to the non-disjunction in spermatogenesis could be the other reason for the occurrence of the triple aneuploidies. Trisomy 21 had a significantly increased proportion of paternally derived cases by comparison with all other trisomies.¹⁰ The possibility of paternal inheritance of aneuploidies has triggered investigations on numerical chromosome aberrations in human sperm. Sperm chromosome studies using multicolor fluorescence in situ hybridization technique have shown that the frequency of disomy 21 is higher than the frequency of disomy for other autosomes; suggesting that chromosome 21 has tendency to non-disjunction.¹² Compared with the general male population, men with abnormal sperm parameters appear to have an increased frequency of aneuploidy.¹³ There are several studies in the literature investigating whether the asthenozoospermia could be associated with sperm aneuploidies.^{14,15} It seems that low sperm motility could be a reason for altered sperm chromosome segregation as evident for aneuploidies, concordant with the relatively low sperm parameters in our case; which might cause the paternal meiotic division errors.

Conclusion

As a result, except the trisomies of chromosome 13, 18, 20, 21 and gonosomal trisomies, many trisomies are generally lethal and frequently can be detected in spontaneous abortion materials. The rare triple trisomies, similar with this case, can not be alive. The clinicians who are dealing with this aspects must take care of the triple trisomy reports to explain the reason of the abortion material, especially the ones who have abnormal sperm parameters and/or abnormal sperm motility in their obstetric histories.

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ERRATUM

Using Intracardiac Hyperechogenic Focus as the Identifier of Down Syndrome in Turkish Population

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While the right bottom line of Table 1 in our article titled as “Using Intracardiac Hyperechogenic Focus as the Identifier of Down Syndrome in Turkish Population” (Perinatology Journal Volume 17, Issue: 4 / December 2004, 163-167) published in your journal should give the data for the trisomy 21 negative cases who do not have hyperechogen focus, cases who were positive for hyperechogenic focus but without trisomy 21 were given by mistake. Correct data and statistics corrected accordingly are given below.

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e-Adres: <http://www.perinatologyjournal.com/20040124001>

Table 1. Odds Ratio (OR) for Trisomy 21 when soft marker (SM) was detected together with hyperechogenic focus (HF).

	T 21 +	T 21 -	χ^2	OR (5-95% CI)	p
HF + / SM +	2	15			
HF -	7	5674			
Total	9	5689	145.65	108.07 (20.73-563.41)	<0.0001

HF + / SM +: Both hyperechogenic focus and any soft marker exist; HF -: Hyperechogenic focus does not exist;
 χ^2 : Chi square; OR (5-95% CI): Odds ratio and 5-95% confidence interval.

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