

Umbilical cord prolapse in the southeast region of Turkey: evaluation of 79 cases

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Summary

Objective: The aim of the study was to determine the risk factors and perinatal outcomes of umbilical cord prolapse (UCP). **Material and Methods:** This study was performed at Dicle University between January 2000 and December 2008 on 79 cases in which deliveries were complicated by umbilical cord prolapse. **Results:** 0.36% of all deliveries were complicated by umbilical cord prolapse. The presentation of the fetuses were as follows: vertex, breech and transverse lie and foot presentation. Thirty-four (43%) fetuses with UCP had a fetal weight of ≤ 2500 g as compared with nine (9%) for fetuses in the control group ($p < 0.05$). Mothers in the study group were 1.3 times more likely to be multiparas than the control group ($p = 0.16$). Cesarean section was performed in 76 cases (96.2%) and there were nine (11.3%) perinatal deaths. **Conclusion:** Umbilical cord prolapse is a risk factor of perinatal morbidity and mortality. Fetal weight ≤ 2500 and abnormal fetal presentation are associated with increased risk of umbilical cord prolapse. Cesarean section resulted in a significantly decreased risk of perinatal mortality.

Key words: Umbilical cord prolapse; Cesarean; Perinatal mortality.

Introduction

Umbilical cord prolapse (UCP) is an obstetric emergency where the umbilical cord descends in advance of the presenting fetal part during labor, increasing perinatal morbidity with high perinatal mortality. The incidence of this undesirable situation is decreasing because of the increased use of elective cesarean section [1, 2]. UCP occurred in 6% of deliveries in 1932, now complicates only approximately 2% of deliveries [3, 4]. There are some well known risk factors for this situation which include abnormal fetal presentation, low birthweight (lower than 2,500 g), prematurity, multiple gestations, multiparity, hydroamnios, and amniotomy [5].

This retrospective study was designed to determine the prevalence and perinatal outcome of deliveries complicated by cord prolapse at Dicle University College Hospital.

Material and Methods

This retrospective study was performed at the Obstetrics and Gynecology Department of Dicle University Faculty of Medicine between January 2000 and December 2008. Seventy-nine (0.36%) of the deliveries were complicated by UCP. We diagnosed umbilical cord prolapse by palpating the umbilical cord in front of the presenting part of the fetus after rupture of the membranes. Data from the patients included maternal age, obstetrical history (gravidy, parity), age of gestation, presentation of the fetus, birthweight and 1 and 5 min Apgar scores. Risk factors were as follows: lack of prenatal care, multiparity, preterm rupture of the membranes, multiple pregnancies, previous cesarean section, amniotic fluid abnormalities (hydramnios > 24 cm, oligohydramnios < 5 cm). Amniotomy is used in our

clinic after the presenting part has descended through the pelvis. We performed amniotomy on 38 (50%) patients.

Results

During the study period 79 cases of UCP occurred. During this period there were 21,487 deliveries; the incidence of umbilical cord prolapse was one in 272 births (0.36%). In that period, totally 8,876 cesarean sections were performed; 0.84% of these cesarean sections were performed for UCP. Umbilical cord prolapse occurred in 52 (65.8%) cases with vertex presentation, 16 (20.2%) cases with breech presentation, six (7.5%) with transverse lie and five (6.3%) with foot presentation. In the control group the number of breech presentations was 18 (18%). Twenty-three (29.1%) of the cases were twin pregnancies, whereas in the control group there was no twin pregnancy. We performed amniotomy in 38 (48.1%) of the cases; 23 (29.1%) of these had UCP. The difference was not statistically significant. The mean age of the study cases was 31.44 ± 5.46 and the control group was 28.98 ± 5.04 . The mean gravidy was 4.9 ± 2.72 in the study group and 3.63 ± 2.56 in the control group. The mean parity was 3.46 ± 2.47 in the study group and 2.07 ± 2.12 in the control group. Seventy (88.6%) of the cases were multiparous women. In the control group 68 (68%) women were multiparous. Study cases were 1.3 times more likely to be multiparas than control group cases. The difference was not statistically significant. The mean birthweight of the cases was $2,733.29 \pm 957.77$ g in the study group and $3,523 \pm 569.39$ g in the the control group. Thirty-four (43%) fetuses with UCP had a fetal weight of $< 2,500$ g as compared with nine (9%) for fetuses in the control group. The incidence of UCP was significantly higher in $\leq 2,500$ g fetuses ($p < 0.005$). The odds ratios of the birth-

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Table 1. — Association of birthweight, presentation, and parity with umbilical cord prolapse.

Risk Factor	Cases (n = 79)		Control (n = 100)		Odds Ratio	95% Confidence interval
	No.	%	No.	%		
<i>Birthweight</i>						
≥ 2500	48	60.7	91	91	1.0234	0.26 - 1.15
< 2500	31	39.3	9	9	0.0937	0.03 - 0.23
<i>Presentation</i>						
Vertex	52	65.8	72	72	1.8244	0.77 - 2.90
Breech	16	20.2	18	18	0.45	0.23 - 1.34
Transverse	6	7.5	0	0	y	
Foot	5	6.3	0	0	y	
<i>Parity</i>						
Nulliparas	9	11.4	34	34	0.4526	0.26 - 3.29
Multiparas	70	88.6	68	68	1.8244	0.77 - 4.29

y: Small sample size, defined in breech presentation.

weight, fetal presentation and parity in umbilical cord prolapse cases are shown in Table 1. There were nine (11.3%) perinatal deaths overall. In 68 (86.0%) cases the UCP occurred after admission to the hospital, therefore the time from diagnosis to delivery was relatively short. The mean prolapse-to-delivery interval was 14 min (range 7-33 min). The mean 1-min Apgar score for study cases was 4.77 ± 2.28 and 6.51 ± 1.50 for the control group; the 5-min Apgar score was 7.05 ± 2.03 and 8.42 ± 0.90 respectively. Twenty-five percent of these infants had low 5-min Apgar scores. In both 1- and 5-min Apgar scores there was a statistical difference ($p < 0.05$). In 11 (13.9%) cases the UCP occurred outside our hospital. Cesarean section was performed in 76 (96.2%) cases. Two of the infants were delivered vaginally because the patients and their family did not wanted cesarean section. One of the infants was stillborn weighing 900 g.

Discussion

UCP, which occurred in 6% of deliveries in past, now complicates only approximately 2% of deliveries [1, 3]. The reduced incidence probably reflects changes in obstetric practice, especially the increased use of elective cesarean section. The high number of our UCP cases is depends on that our hospital is the biggest and sole reference hospital of southern east region of Turkey. In the literature the incidence of this situation is varies between one in 162 to one in 714 deliveries [3, 4]. In our case series the incidence is one out of 272 births in our study (36%). There are many risk factors of UCP recorded in the literature [6, 7]; we have found risk factors similar to these studies. The most accepted risk factor is non engagement of the presenting part of the fetus [8, 9]. In the previous studies the risk of prolapse is found to be 4-6% in breech presentation and 7-15% in transverse presentation [8]. In our study this risk was 20.2% for breech presentation and 7.6% for transverse presentation. Another important risk factor is multiparity; Kahana *et al.* reported that 88% of their patients were multipara [4, 8, 10] and Uygur *et al.* showed that multiparity increases prolapse risk 1.6 times [4]. In our study multiparity was

88.6% of the cases and 68% of the control group with a 1.3 times increased risk for multiparity. However the difference was not statistically significant ($p = 0.164$). Low birthweight is another risk factor associated with umbilical cord prolapse [6, 7], but Uygur *et al.* found that low birthweight does not increase risk of UCP [4]. In our study we found that low birthweight increases the UCP with significant statistical difference ($p = 0.09$). Another well known risk factor for UCP is hydramnios, especially polyhydramnios. Kahana *et al.* [10] and Dilbaz *et al.* [9] found that hydramnios increases the risk of UCP 3.3 times and 21 times. In our study only two cases had polyhydramnios. Lack of prenatal care is another studied factor in the literature [11]. Kahana *et al.* found that lack of perinatal care is an independent factor of UCP [10]; in our study the 96% of the patients did not take prenatal care. The most important point that affects the perinatal mortality is, the time between the diagnosis of UCP and delivery [12]. When the prolapse is diagnosed as soon as possible the delivery should be performed if the fetus is mature [13], and also Uygur *et al.*, believes that prompt cesarean section should be the treatment of choice when cord prolapse is diagnosed, when the fetus is still alive, and when delivery is not imminent [4]. We performed cesarean section in 76 cases, and our clinical choice for UCP is cesarean. When we look at the literature we can see that perinatal mortality ratio is between 3.9%-16.2% [4, 10], and in another study this ratio is 1/80 [9]. In our study we found perinatal mortality as 11.3%.

To prevent and decrease the perinatal and maternal mortality effective antenatal care, hospital vaginal delivery and prompt cesarean section seems to be the most important points. Moreover healthcare professionals should know the risk factors of UCP very well and should be aware during the follow-up of this cases.

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