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Frequency Of Perinatal Outcome Inpatients With Umbilical Cord Prolapse.

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ABSTRACT

Introduction: Umbilical cord prolapse (UCP) is an uncommon but potentially fatal obstetric emergency. Several risk factors for UCP have been identified. The first step in anticipating this obstetric emergency and decreasing the perinatal morbidity and mortality. Umbilical cord prolapse among pregnant women is an emergency and potentially dangerous condition, which may lead to grave consequences regarding fetal outcomes, if not properly managed. This study is designed to determine the fetal outcome among these patients, as it may help us to anticipate and educate our patients better.

Objectives: To determine the frequency of perinatal outcomes among patients having umbilical cord prolapse.

Design: Cross-sectional study

Setting: Gynecology & Obstetrics Department, Sheikh Zayed Women Hospital, Larkana.

Duration of Study: 6-months from 01-04-2020 to 30-09-2020.

Subject and Methods: Eighty two patients having umbilical cord prolapse (UCP) presenting in labour room were recruited in this study. Their demographic details including age, gestational age, parity, previous history of UCP and history of polyhydramnios was obtained. They was assessed for perinatal outcome and all the data was entered on the proforma (Attached).

Results: - The average age of the women was 26.52±5.17 years. Frequency of perinatal outcomes among patients having umbilical cord prolapse are listed in table 2. Cesarean sectionwas performed in 68.3% (56/82), preterm delivery was found as 48.8% (40/82), mortality as 18.3% (18/82), Apgar score 27 at 1 minute as 54.9% (45/82) and Apgar score 27 at 5 minute as 82.9% (68/82) in a study.

Conclusion: Umbilical cord prolapse is associated with a significant perinatal mortality in this study, especially in those with spontaneous rupture of membranes that occurred outside the hospital setting...

Keywords: *Umbilical cord prolapse, Perinatal outcomes, Preterm delivery*

1. INTRODUCTION

Umbilical cord prolapse (UCP) is an uncommon but potentially fatal obstetric emergency. The overall incidence is reported at 0.1%-0.6% with higher incidences in non-cephalic presentations, multiple gestations, and earlier gestational ages. However, a lower incidence (0.018%) has been reported recently UCP is diagnosed by seeing or palpating the prolapsed cord in addition to the presence of abnormal fetal heart tracings. In overt UCP, the diagnosis is straightforward, as the Umbilical cord (UC) is seen coming out of the vagina or palpated as a soft pulsating mass during vaginal examination. However, the diagnosis of occult UCP may be more difficult [2' 3].

Abnormal fetal heart rate (FHR) tracings in the form of recurrent,.

variable, sudden severe, and/or prolonged (lasting a minute or more) decelerations may be the first sign of UCP, especially the occult type. These

FHR abnormalities may occur in up to 67% of cases Several risk factors for UCP have been identified. Clinicians should be aware of these risk factors, as this would represent the first step in anticipating this obstetric emergency and decreasing the perinatal morbidity/mortality [6]. The Royal College of Obstetricians and Gynecologists recommends the diagnosis-to-delivery interval (DDI) to be less than 30 minutes in order to optimize the perinatal outcome, particularly in the presence of evidence of fetal compromiset7. However, further decreases of DDI below the 30-minute limit do not necessarily improve the neonatal outcome. Prompt recognition and rapid action are the mainstays of managing this emergency [8] Regarding the perinatal outcome, the frequency of preterm delivery was found as 30.8% (16/52), mortality as 19.2% (10/52), APGAR score 27 at 1 minute as 25% (13/52) and APGAR score 27 at 1 minute as 69.2% (36/52) in a study [9] The rationale of this study is that UCP among pregnant women is an emergency and potentially dangerous condition, which may lead to grave consequences regarding fetal outcomes, if not properly managed. It is important to determine the fetal outcome among these patients, as it will help us to anticipate and educate our patients better. Although it is an important topic, however, there is minimal literature available from our part of the world from last 5 years. Foreign literature has shown frequency of these outcomes, but geographic and ethnic variations cannot be negated, which makes this study important to be conducted

2. MATERIALS AND METHODS:

Study Design: Cross-sectional study

Setting: Gynecology& Obstetrics Department, Sheikh Zayed Women Hospital, Larkana.

Duration of Study: 6-months from 01-04-2020 to 30-09-2020

Sampling Technique: Non-probability Consecutive sampling

Sample Size: A sample size of 82 patients is calculated taking confidence level as 95%, absolute precision as 10% and expected frequency of pre-term delivery as 30.8% among mothers having UCP.

Sample selection:

Inclusion Criteria:

Female patient aged 18-45 years, with any gestational age and any parity

Patients having UCP (as per operational definitions), presenting in labour room

Exclusion criteria:

Patients with multiple pregnancies (Ultrasound) (if there are 22 hearts visible)

Patients having abnormal long umbilical cord (length of > 75 cm) (medical records) (as there are more chances of UCP in such patients)

3. DATA COLLECTION PROCEDURE:

After approval of synopsis, 8Z patients fulfilling inclusion criteria was assessed. The purpose and objectives of study was explained and informed consent was obtained from all of them. Their demographic details including age, gestational age, and parity, previous history of UCP and history of polyhydramnios was obtained. They were given obstetrical careas per departmental protocols. They were assessed for perinatal outcomes per operational definitions. All the data was entered on the proforma.

4. DATA ANALYSIS PROCEDURE:

All data was analyzed using SPSS version 24. Mean ± SD was calculated for quantitative variables like age, gestational age and parity. Frequencies and percentages was calculated for qualitative variables like previous history of UCP, history of polyhydramnios and perinatal outcome (pre-term delivery, CS, mortality, Apgar score 27 at I minute and at 7 minute). Data was stratified for effect modifiers including age, gestational age, and parity, previous history of UCP and history of polyhydramnios. Post-stratification chi-square test was applied and P SO.05 was considered as significant.

5. RESULTS

Eighty two patients having umbilical cord prolapse (UCP) presenting in labour room were recruited in this study. The average age of the women was 26.52±5.17 years. Mean gestational age and parity are also shown in table 1. History of polyhydramnios and previous history of umbilical cord prolapse are 29.27% and 41.98% as shown figure 1 and 2 respectively.

Frequency of perinatal outcomes among patients having umbilical cord prolapse are listed in table 2. Cesarean section was performed in 68.3% (56/82), preterm delivery was found as 48.8% (40/82), mortality as 18.3% (18/82), APGAR score 27 at 1 minute as 54.9% (45/82) and APGAR score 27 at 5 minute as 82.9% (68/82) in a study.

Rate of perinatal outcome was not statistically significant between below and equal to 30 and above 30 years of age (table 2). Perinatal outcome was also observed according to gestational age and parity of women as shown in table 3 and 4. Rate of perinatal mortality was high in those women who had previous history of UCP as shown in table 5 however rate

of perinatal outcome was not statistically significant with patients who had history of polyhydramnios (table 6).

TABLE 1: DEMOGRAPHIC CHARACTERISTICS OF QUANTITATIVE VARIABLES

Variables	Mean ± SD	95% Confidence Interval for Mean	
		Lower Bound	Upper Bound
Age (Years)	26.52±5.17	25.39	27.66
Gestational age (Weeks)	36.38±2.48	35.83	36.92
Parity	1.49±0.76	1.32	1.65

FIGURE 1: HISTORY OF POLYHYDRAMNIOS History of Polyhydramnios

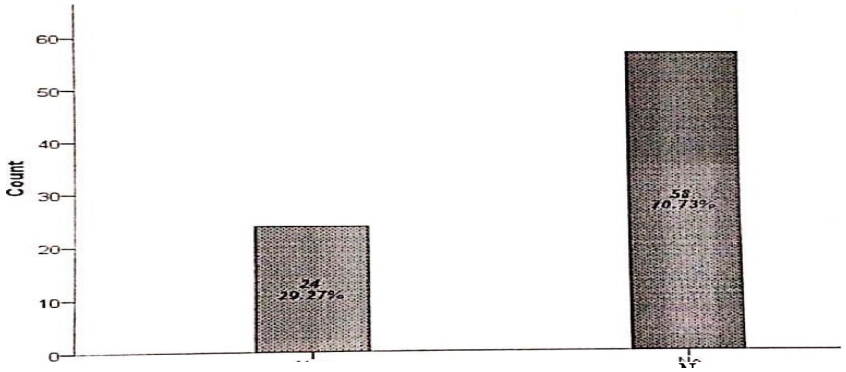
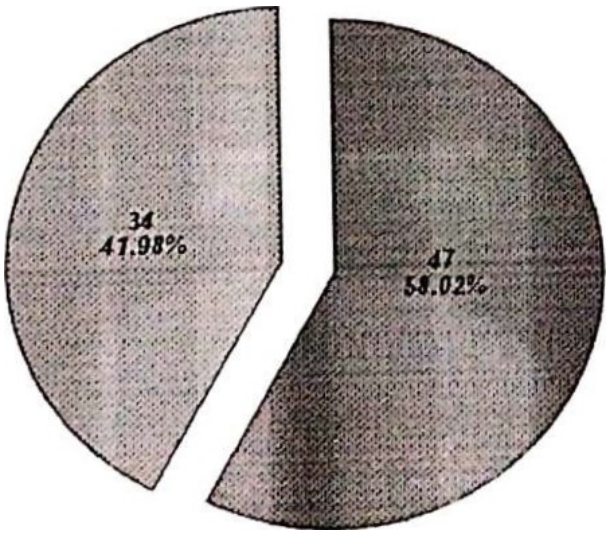


FIGURE 2: PREVIOUS HISTORY OF UMBILICAL CORD PROLAPSE



ABLE 2: FREQUENCY OF PERINATAL OUTCOMES AMONG PATIENTS HAVING UMBILICAL CORD PROLAPSE

Perinatal outcomes		Frequency	Percentage
Preterm	Yes	40	48.8%
	No	42	51.2%
Caesarean section	Yes	56	68.3%
	No	26	31.7%
Apgar score at 1 minute			45.1%
		45	54.9%
Apgar score at 5 minutes		14	17.1%
		68	82.9%
Mortality	Yes	15	18.3%
	No	67	81.7%

TABLE 3: FREQUENCY OF PERINATAL OUTCOMES AMONG PATIENTS HAVING UMBILICAL CORD PROLAPSE STRATIFIED BY AGE GROUPS

Perinatal outcomes		Maternal Age (Years)				P-VaIue
		s 30				
		Count		Count		
Preterm	Yes	33	47.8%	7	53.8%	0.690
	No	36	52.2%	6	46.2%	
Caesarean section	Yes	47	68.1%	9	69.2%	0.937
	No	22	31.9%	4	30.8%	
Apgar score at 1 minute		34	49.3%	3	23.1%	0.082
		35	50.7%	10	76.9%	
Apgar score at 5 minutes		14	20.3%			0.075
		55	79.7%	13	100.0%	
Mortality	Yes	15	21.7%			0.063

	No	54	78.3%	13	100.0%	

TABLE 4: FREQUENCY OF PERINATAL OUTCOMES AMONG PATIENTS HAVING UMBILICAL CORD PROLAPSE STRATIFIED BY GESTATIONAL AGE

Perinatal outcomes		Gestational Age				P-VaIue
				237		
		Count		Count		
Preterm	Yes	40	100.0%	o	0%	0.0005
	No	O	0%	42	100%	
Caesarean section	Yes	30	75.0%	26	61.9%	0.203
	No	10	25.0%	16	38.1%	
Apgar score at 1 minute		24	60.0%	13	31.0%	0.0008
		16	40.0%	29	69.0%	
Apgar score at 5 minutes		10	25.0%	4	9.5%	0.063
		30	75.0%	38	90.5%	
Mortality	Yes	10	25.0%	5	11.9%	0.125
	No	30	75.0%	37	88.1%	

TABLE 5: FREQUENCY OF PERINATAL OUTCOMES AMONG PATIENTS HAVING UMBILICAL CORD PROLAPSE STRATIFIED BY PARITY

Perinatal outcomes		PARITY				P-VaIue
		Primiparous		Multiparous		
		Count		Count		
Preterm	Yes	26	49.1%	14	48.3%	0.946
	No	27	50.9%	15	51.7%	
Caesarean section	Yes	39	73.6%	17	58.6%	0.164
	No	14	26.4%	12	41.4%	
Apgar score at 1 minute	S7	25	47.2%	12	41.4%	0.614
		28	52.8%	17	58.6%	
Apgar score at 5 minutes	67		17.0%	5	17.2%	0.033

		44	83.0%	24	82.8%	
Mortality	Yes	10	18.9%	5	17.2%	
	No	43	81.1%	24	82.8%	0.855

TABLE 6: FREQUENCY OF PERINATAL OUTCOMES AMONG PATIENTS HAVING UMBILICAL CORD PROLAPSE STRATIFIED BY PREVIOUS HISTORY OF UCP

Perinatal outcomes		Previous history of UCP				P-VaIue	
		Yes		No			
		Count		Count			
Preterm	Yes	19	55.9%	20	42.6%	0.236	
	No	15	44.1%	27	57.40/0		
Caesarean section	Yes	25	73.5%	30	63.8%	0.356	
	No	9	26.5%	17	36.2%		
Apgar score at 1 minute		20	58.8%	17	35.4%	0.036	
		14	41.2%	31	64.6%		
Apgar score at 5 minutes		12	35.3%	2	4.2%	0.0005	
		22	64.7%	46	95.8%		
Mortality	Yes	13	38.2%	2	4.2%	0.0005	
	No	21	61.8%	46	95.8%		

TABLE 7: FREQUENCY OF PERINATAL OUTCOMES AMONG PATIENTS HAVING UMBILICAL CORD PROLAPSE STRATIFIED BY HISTORY OF POLYHYDRAMNIOS

Perinatal Outcomes		History of Polyhydramnios				P-Value
		Yes		No		
		Count		Count		
Preterm Yes		12	50.0%	28	48.3%	0.887
No		12	50.0%	30	51.7%	
Caesarean section	Yes	16	66.7%	40	69.0%	0.839
	No	8	33.3%	18	31.0%	
Apgar score at 1 minute	S7	12	50.0%	25	43.1%	0.568
		12	50.0%	33	56.9%	

Apgar score at 5 minutes	S 7	5	20.8%	9	15.5%	0.560
		19	79.2%	49	84.5%	
Mortality	Yes	5	20.8%	10	17.2%	0.702
	No	19	79.2%	48	82.8%	

6. DISCUSSION

Umbilical cord prolapse is an obstetric emergency which can result in a significant perinatal mortality or long-term neurological morbidity. The incidence of cord prolapse from the study in the LUTH was 0.38% (3.8/1000 deliveries). The above value mainly represent the incidence of overt cord prolapse in the hospital. It is however possible that some unexplained fresh stillbirth recorded particularly among the unbooked patients in this study could have been the result of occult cord compression that went unrecognized, especially in an environment where continuous intrapartum electronic fetal monitoring is not yet the norm. The implication of this is that the real incidence may even be higher than this figure. However, the incidence from this study is still within the general range observed in most other international and local studies [10-12]In this study the average age of the women was 26.52±5.17 years. In Khan et al [13] study the mean and SD of maternal age was 28.7 ± 4.7 years (range 21 - 41 years). In this study frequency of perinatal outcomes among patients having umbilical cord prolapse cesarean section was performed in 68.3%, preterm delivery was found as 48.8%, mortality as 18.3%, APGAR score 27 at 1 minute as 54.9% and APGAR score 27 at 5 minute as 82.9% in a study. Similar result was also reported in a study regarding the perinatal outcome, the frequency of preterm delivery was found as30.8% (16/52), mortality as 19.2% (10/52), APGAR score 27 at 1 minute as 25% (13/52) and APGAR score 27 at 1 minute as 69.2% (36/52) in a study([9]).The perinatal mortality rate from this study was 18.3%. This was much lower compared to the findings in Abakaliki, (41.3%) [14].Ibadan, Benin (28%) [10]Maiduguri, (27.3%) [15] which are different cities in different parts of the same country, Nigeria. This could be because, Lagos, a major city and former capital city in Nigeria, has better health facilities than these other cities. Other international studies had previously reported perinatal mortality rate of 36% to as high as 91% from umbilical cord prolapse.[16, 17]The ideal intervention on the event of cord prolapse with fetus alive is prompt delivery by the fastest route [18]. The choice and the promptness of such intervention constitute important determinants of the fetal outcome.[19J The factors affecting the immediate management of cord prolapses include fetal viability, fetal maturityand the presence of any significant life threatening anomaly. Emergency delivery is recommended for a live and mature fetus. In the first stage of labor with partially dilated cervix, a cesarean section is the only way to achieve early delivery[19,20] However, with a completely dilated cervix, the obstetrician has a choice between instrumental vaginal delivery and cesarean section. Some studies have quoted more favorable outcomes with cesarean section even in the second stage of labor [In this study, 68.3% fetuses were delivered by cesarean delivery. The diagnosis-delivery interval has been observed to be directly related to the degree of asphyxia suffered by a fetus during cord prolapse and therefore noted as a determinant of fetal outcome. The German Society of Gynecologists and Obstetricians recommend a maximum decision to delivery time of 20 min to achieve a favorable fetal outcome.[21] The American College of Obstetricians and Gynecologists and the American Academy of Pediatrics in jointly developed guidelines for perinatal care [22] however, believes the maximum decision to incision time of 30 min is appropriate. In this study APGAR score 27 at 1 minute as 54.9% andAPGAR score 27 at 5 minute as 82.9% in a study. In the United Kingdom which suggested that in cases of cord prolapse, a diagnosis—delivery interval of 15 min was feasible but in many cases delivery within 30 min was not achieved.[23].It has been found that delivery within 75 min appears not to increase the risk of compromise just as delivery within 30 min may not always result in good perinatal outcome.[24,25] This therefore suggests that rather than the diagnosis—delivery interval being the main determinant of the perinatal outcome in cord prolapse, quite a lot of factors act in synergy to determine the perinatal outcome of a neonate affected by this obstetric complication. Some of these apart from the time frame of intervention may include the effectiveness of the in utero resuscitative, measures adopted on recognition of the accident, the efficiency of the neonatal care, maternal health status, the fetal maturity, and other fetal intrinsic factors yet to be identified.

7. CONCLUSION

Umbilical cord prolapse is associated with a significant perinatal mortality in this study, especially in those with spontaneous rupture of membranes that occurred outside the hospital setting.

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