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Original Research Paper

Gynaecology

UMBILICAL CORD PROLAPSE : A RACE AGAINST TIME

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KEYWORDS :

Introduction

Prolapse of the umbilical cord, which has a perinatal mortality rate of 50%, is an obstetric emergency that threatens the life and well-being of the fetus. (1) The incidence of umbilical cord prolapse is only 1 in 200 to 300 pregnancies (3.3 to 5.0 per 1000 deliveries. (2, 3) Factors predisposing to umbilical cord prolapse are largely unavoidable. (3) They include fetal malpresentation, preterm delivery, premature rupture of the membranes, contracted pelvis, big baby, and multiparity. The incidence has been noted to be declining in the last seven decades due to increase in the safety and use of elective caesarean section in non-cephalic presentations and more active intrapartum management of preterm pregnancies. (4,5)

Cord prolapse is associated with high perinatal mortality, as high as 375 per 1000 was recorded in 1924 (9) but in the past few decades the perinatal mortality has fallen to between 36 and 162 per 1000. (8,10,11) Collae J V reported a perinatal mortality of 20% of all overt cord prolapse in his study. (12)

Current studies show that most perinatal mortality associated with cord prolapse relate more to complications of prematurity and low birth weight than to intrapartum asphyxia. (11) With the introduction and use of electronic fetal heart rate monitoring in recent years, variable deceleration pattern has been associated with umbilical cord prolapse and partial occlusion (8,11) which has aided early intrapartum intervention. In contrast many obstetric units in developing countries lack this continuous fetal monitoring facilities and it is not very easy to mobilize the theatre for emergency caesarean section. In addition, most patients with cord prolapse travel long distances to access hospitals with emergency caesarean section facilities. These result in high perinatal mortality associated with cord prolapse. (6)

Successful management of umbilical prolapse is predicated on prompt diagnosis and decisive intervention to enhance fetal survival. Various methods of manual and positional elevation of the presenting part above the pelvic brim have been applied following diagnosis and while preparing for delivery. In the absence of any contraindication to vaginal delivery, immediate delivery by vacuum extraction or obstetric forceps is advised in the presence of full cervical dilatation and a live fetus. Immediate emergency caesarean section is performed in cases of cord prolapse with partial cervical dilatation and a live fetus at a viable gestational age. (7)

Umbilical cord prolapse is a major cause of perinatal mortality (6) and no such study has been done recently to ascertain the incidence and perinatal outcome, hence the need for this study. This is descriptive study of all umbilical cord prolapse cases managed in MGM Teaching Hospital over a 2-year period, to determine the incidence, risk factors and the perinatal outcome of cord prolapse.

Materials and Methods

A search was conducted for all obstetric patients encountered at the MGM Hospital between July 1, 2015, and July 31, 2017, with the diagnosis of umbilical cord prolapse. There were 12 patients identified among 5127 deliveries at the hospital for an incidence of 0.23 umbilical cord prolapses per 100 deliveries. One occurred before the time of hospital admission as a result of spontaneous rupture of the fetal membranes. The remaining 11 cases of intrapartum umbilical cord prolapse occurring in women admitted with intact membranes. The medical record audit focused on standard patient demographics with special emphasis on whether attempts at labor induction, cervical ripening, amnio-infusion, or an amniotomy were performed. Emergency caesarean section was done for the majority of the cases in this study.

Results

There were 12 cases of umbilical cord prolapse managed in MGM Teaching Hospital during the 2-year period review by this study. The total deliveries over this same period were 5127 and the incidence of umbilical cord prolapse was 0.23%. During the study period the caesarean section rate was 27.01% (1385 cases) and cord prolapse constituted 0.72% (10 cases) of all the caesarean sections. A total of 83.33% of all cases of umbilical cord prolapse were delivered by caesarean section. Only 16.66% (2) of the cases of umbilical prolapse were delivered vaginally and one fetus was already dead before admission in the hospital.

Of the 12 cases of umbilical cord prolapse, 66.66% (8.) were multiparous women. A total of 41.66% of all cases of umbilical cord prolapse presented cephalic.

Unbooked cases constituted 66.66% (8) of cases of cord prolapse. Of the 12 fetuses with umbilical cord prolapse 58.33% (7) had birth weight of less than 2.5 kg.

Association of maternal risk factors with umbilical cord prolapse

Maternal Risk Factors	n	%
Age		
19 and below	0	0
20-24	2	16.66
25-29	5	41.66
30-34	4	33.33
35-39	0	0
40 and above	1	8.33
Parity		
Nulliparous	4	33.33
Multiparous	8	66.66
Booking Status		
Booked	4	33.33
Unbooked	8	66.66

Relationship of perinatal outcomes and delivery methods in patients with umbilical cord prolapse

	Caesarean Section (10)	Vaginal Delivery (2)
APGAR scores <7 at 1 minute	4	1
APGAR scores <7 at 5 minutes	2	1
NICU Admission Rate	2	1
Perinatal Mortality	**1**	**1**

Association of APGAR score with Decidion-to-delivery Interval

DECISION-TO-DELIVERY INTERVAL	APGAR SCORE<7 AT 1 MINUTE	APGAR SCORE>7 IN 1 MINUTE
20-30	1	2
30-40	2	2
40-50	3	0
>50	2	0

Association of some fetal characteristics with cases of umbilical cord prolapse

FACTORS	n	%
Gestational age		
Less than 36 weeks	8	66.66
36 weeks and above	4	33.33
Presentation		
Cephalic	5	41.66
Breech	5	41.66
Transverse	2	16.66
Number of foetuses		
Singleton	12	100
Multiple	0	0
Birthweight (kg)		
<2.5	7	58.33
>2.5	5	41.66

Apgar scores were used to assess the neonates who were delivered alive. Of the 12 cases of umbilical cord prolapse that were admitted, 5 (41.66%) fetuses had an Apgar score of less than 7. The perinatal mortality rate for cases of cord prolapse was 16.66%.

Discussion

Normal pregnancy which seems to be of relative low risk can instantly transform into a catastrophic emergency as a result of umbilical cord prolapse. This condition is associated with high fetal morbidity and mortality and increases maternal risk significantly during delivery. [13] Early diagnosis and prompt delivery usually results in satisfactory outcome. It is therefore important that the obstetrician identify the risk factors of umbilical cord prolapse in individual patients in the course of the pregnancy.

The incidences of umbilical cord prolapse in some previous studies have been reported to be between 0.14% and 0.62%. The incidence in this study is 0.23% and is in agreement with those earlier studies.

Intrapartum obstetric interventions have become an integral part of modern obstetrics. Attempts to ripen the unfavorable cervix and early amniotomy to allow more rapid labor have become synonymous with an active management of labor. These are necessary components to achieve an acceptable abdominal delivery rate. [13]

Conclusion

Findings in this study confirm an association between abnormal fetal presentation and increased risk of umbilical cord prolapse, low birth weight, and unbooked status. Hence pregnant women should be encouraged for early registration in pregnancy for antenatal care which enhances early identification of these risk factors and an appropriate management instituted including prompt Caesarean section delivery which resulting in a significantly lower perinatal mortality risk. [14]

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