

Neonatal Outcome and Mode of Delivery with Nuchal Cord - A Cross Sectional Study at Independent Medical University Hospital, Faisalabad

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ABSTRACT

Aim: To determine the incidence of umbilical cord around the fetal neck and its effects on fetal outcome.

Study Design: It is single center cross sectional study.

Duration: The duration of study is two year from January 2020 to January 2021.

Settings: This study was carried out in Independent University Hospital Faisalabad.

Methodology: All patients presents after 28 weeks upto 41 weeks of gestation either delivered by caesarean section or delivered vaginal birth with baby having one, two or three loops of cord around the neck were selected. Fetal outcome was observed, maternal age, Parity, Gestational age, Mode of delivery, APGAR score and admission to NICU were noted.

Results: A total of 102 patients (27.4%) were delivered having nuchal cord 65 patients (63.7%) were in age group (26-30y) and 60 patients (58%) were multipara delivered with cord around the neck of fetus. In present study cesarean section rate was 70.5%. In 25 patients (24.5%) nuchal cord was diagnosed before delivery and in 77 patients (75.4%) nuchal cord was incidental findings during labour. Regarding fetal outcome; In 47 babies (46%) delivered with nuchal cord were having APGAR score less than 5 but in 55 babies (53.9%) having good APGAR score.

Conclusion: Nuchal cord is common incidental finding during labour and fetal outcome regarding APGAR score & NICU admission was better in patients delivered with nuchal cord. But the cesarean section rate was higher.

Keywords: Nuchal cord, Frequency, Fetal outcome

INTRODUCTION

Nuchal cord is defined as umbilical cord entangled around the neck about 360° degree¹. The first time nuchal cord was defined as umbilical cord around the neck in 1962 by Crawford². It is one of the most common findings at the time of delivery. Incidence of nuchal cord varies from 14.7% to 33.7% of all deliveries³. The prevalence of nuchal cord increases as gestational age increased, (40-42 weeks). About 29% of birth have nuchal cord⁴. The risk factors for nuchal cord around the neck are excessive foetal movements, insufficient wharton's Jelly, like excessive liquor length of cord and multiple pregnancy. A study conducted in 2014 in Taiwan demonstrated that Nuchal cord is associated with still births⁴ but other studies showed that incidence of cesarean section is not increased due to Nuchal cord⁵. The Nuchal cord is reported to be associated with adverse perinatal outcome, like spastic cerebral palsy and quadriplegia⁶.

On other hand several studies reported that routine ultrasonography is not advised⁷ when Nuchal cord is diagnosed during antenatal period an ultrasonography, it increases the anxiety for mother which leads to the increased cesarean section rate on patient request.

The significance of Nuchal cord is that some obstetrician relate it to with unexplained fetal distress & perinatal morbidity. So multiple opinions are there to manage nuchal cord at the time of delivery. Some obstetricians like to clamp cord before delivery of shoulder and head. Research shows that keeping the nuchal cord intact may results in better outcome for both mother and baby because tightly wrapped nuchal cord became impossible to slip over the baby head. So, some physician attempts the somersault delivery.

Our aim of study is to see the frequency of Nuchal cord and what are the effects of Nuchal cord on fetus and mode of delivery.

MATERIAL & METHODS

It is a cross sectional study conducted in Obstetrics and Gynae Department of Independent University Hospital Faisalabad from Jan 2020-Dec 2021. Total number of 372 were delivered in 2 years

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out of which 270 patient delivered either by cesarean section or normal vaginal delivery without nuchal cord and 102 patients delivered with cord around the neck. The prevalence of nuchal cord was 29% with confidence interval 95% and there was 10% margin of error. Sample size was calculated by Raosoft Sample size calculator. The patients delivered by caesarean section or normal vaginal delivery with cord around the neck, singleton pregnancy greater than 28 weeks upto 41 weeks and cephalic presentation were included in this study. The patients having multiple pregnancy, with medical disorders, preterm deliveries and placental calcification were excluded from the study. After getting permission from ethical committee of hospital, data was collected with informed consent. After admission detail history regarding gestational age history of labour pains and gravidity were taken. General physical examination, obstetrical examination for fundal height, presentation, engagement, amount of liquor, fetal heart rate and uterine contractions were observed. CTG monitoring, mode of delivery, Loops of cord around the neck and APGAR score after delivery of fetus were noted.

RESULTS

Table I: Distribution of Patients according to Nuchal Cord (n=372)

No. of deliveries	n	%age
Total no of patients delivered without Nuchal cord	270	72.5
Total no of patients delivered with Nuchal cord	102	27.4

Table II: Distribution of patients according to maternal age (n=102)

Maternal Age	n	%age
20-25 years	7	6.86
26-30 years	65	63.7%
31-35 years	30	29.4%

Table III: Distribution of Patients according to Gravidity (n=102)

Gravidity	n	%age
Primigravida	18	17.6
P2-P4	60	58.8
>P5	24	23.5

Table IV: Distribution of Patients according to Mode of delivery

Mode of Delivery	n	%age
NVD	30	29.5
Caesarean Section	72	70.5

Table V: Distribution of patients according to loops of cord around the neck (n=102)

Loops of Nuchal Cord	No. of Fetus	%age
Single loop	55	53.9
Double loop	29	28.5
Triple loop	18	17.6

Table VI: Distribution of patients according to Nuchal Cord diagnosis

Nuchal cord Diagnosis	No. of Fetus	%age
Antepartum	25	24.5
Intrapartum	77	75.5

Table VII: Distribution of patients according to APGAR score

APGAR score	No. of Fetus	%age
< 5 in 1 min	47	46.1
> 5 in 1 min	55	53.9

Table VIII: Distribution of Babies according to NICU admission (n=102)

NICU Admission	No. of Babies	%
NICU admission require	40	39.3%
No Admission	62	60.7%

According to current study 372 patients delivered in 2 years and 102 patients were diagnosed as nuchal cord. So, the incidence of nuchal cord was 27.4%. In current study 65 patients (63.7%) were in age group 26-30 and 30 patients (29.4%) were in age group 31-35 years. Only 7 patients (6.86%) were in age group 20-25 years. In present study 60 patients (58.8%) were P2-P4, 24 patients (23.5%) were >P5 and 18 patients (17.6%) were primigravida. Out of 102 patients with nuchal cord 72 patients (70.5%) delivered by cesarean section and 30 patients (29.5%) delivered vaginally. In present study 55 babies (53.9%) were having the single loop of cord around the neck, 29 babies (28.5%) having double loop and 18 babies (17.6%) having the three loops of cord around the neck. In 77 patients (75.5%) were diagnosed as nuchal cord at the time of delivery and in 25(24.4%) cases it was diagnosed before labour. Regarding APGAR score at 1 min and 1 min, it was 46.1% and 53.9% respectively. According to our study 62 babies (60.7%) required no NICU admission and 40 babies (39.3%) were admitted in NICU.

DISCUSSION

Nuchal cord is frequent finding at the time of delivery. The prevalence of nuchal cord in two years study was 27%. On the other hand the same result was observed by Henry in 2013⁸.

The 65 patients (63%) with nuchal cord were in age group (26-30y) and 30 patients (29.4%) were in age group (31-35y). these results were comparable with study in territory care hospital of KPK⁹.

According to present study 60 patients (58.8%) were P2-P4 and 24 patients (23.5%) were > P5. On the other hand study by Nandhini showed that the 27% patients nuchal cord were multi para and 71.5% were primigravida.¹⁰ according to my study 65% babies delivered with single loop of cord around the neck, 29% babies delivered with double loop and 8% delivered with three loops around the neck. The study conducted by India (2020) showed the same result (63%, 28%, 7%) respectively.

In our study cesarean section rate was higher in patient with nuchal cord as compared to normal deliveries while study by Dr. Neeru Verma of India in 2020 had the same results¹².

According to current study nuchal cord was diagnosed before labour in 24.5% patients and in 75.4% patients it was diagnosed during delivery. On other hand it was 38.4% and 61.6% according to study in KPK tertiary care hospital respectively⁹.

In our study APGAR score at 1min was not much different with study conducted by Dr. Prabhakar Kore Hospital and Medical Research Center Belgium, India¹³.

CONCLUSION

According to present study frequency of Nuchal cord is 27.4%. In most of patients it was incidental findings at the time of delivery. The pre delivery diagnosis of nuchal cord can help obstetrician in counseling the patients who requested elective cesarean section due to nuchal cord. Such patients closely monitor at the time of delivery with CTG to reduce the undue rise in cesarean section rate. It is interesting to note that the APGAR scores in the nuchal cord group was better. So, adverse fetal outcome was minimum in current study.

Author contribution: UM: Manuscript writing, statistical analysis, TA: Data collection, NS: Critical analysis, SA: Reference writing, MJ: Discussion writing, MZ: Literature search

Conflict of Interest: The author declares that there is no conflict of interests.

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