

## A Case Control Study On Perinatal Outcome In Neonates With Cord Around The Neck In Tertiary Care Hospital

<sup>1</sup>Dr. Twinkal Patel, <sup>2</sup>Dr. H. U. Doshi

<sup>1</sup>(3<sup>rd</sup> year resident) Under guidance of

<sup>2</sup>(Professor & Head of Department in OBGY at GCSMCHRC)

\*Corresponding Author: Dr. Twinkal Patel

### ABSTRACT:

**Introduction:** Intrapartum finding of umbilical cord around baby's neck is common finding. Nuchal cord usually causes mild to moderate variable deceleration during second stage of labor due to cord compression. Variable decelerations are generally associated with a favorable outcome. However, persistent severe decelerations with loss of beat to beat variability are non reassuring and indicate fetal hypoxia and acidosis.

**Material and Method:** The comparative study is conducted at GCS MEDICAL COLLEGE, HOSPITAL AND RESEARCH CENTER, and AHMEDABAD in randomly selected cases and control from December 2018 – June 2018 (Total 821 deliveries happened during the study period).

**Result:** From the Case group, 20% neonates had MSL and 8% had fetal distress, and 1% had IUGR, while from Control group, 19% neonates had MSL and 6% had fetal distress and 0% had IUGR. APGAR score at 1 min: 6% Neonates from Case group had <7, rest >7, while from Control group 5% neonates had <7, rest >7. APGAR score at 5 min: 1% neonates from both Case and Control groups had <7, rest >7. Of the 100 neonates, 8 were admitted to NICU.

**Conclusion:** The difference in APGAR score at 1 & 5 minutes between study & control group was statistically not significant. Also there was no statistically significant difference in NICU admission & neonatal morbidity.

**Key Words:-** meconium stained liquor , fetal heart rate

### I. INTRODUCTION

Intra-partum finding of umbilical cord around the baby's neck is common finding. It is seen in about a third of normal deliveries and caesarean section. This nuchal cord has often been the scapegoat for complicated deliveries with adverse outcome like asphyxia. The finding of either a single or multiple loops of cord around neck increases with increasing gestational age and with long cords[1].

It occurs in 2 types- Type A meaning that the loop/s of cord is/are loose around the baby's neck and Type B meaning that the loop/s is /are tight. Nuchal cord usually causes mild to moderate variable decelerations during second stage of labour due to cord compression. There is an acute fall in FHR with rapid downslope with a variable recovery phase. Pressure on cord initially occludes the umbilical vein which results in acceleration and indicates a healthy response. This is followed by occlusion of umbilical artery which cause sharp downslope.

Finally, the recovery phase is due to the relief of the compression and sharp turn to baseline , which may be followed by another healthy brief acceleration.

Variable decelerations are generally associated with a favourable outcome. However, persistent severe decelerations with loss of beat to beat variability are non reassuring and indicate fetal hypoxia and acidosis.

An APGAR score of 3 or less at 5 minutes of birth is considered an essential requirement for the diagnosis of severe perinatal asphyxia.

## II. AIM AND OBJECTIVE

- 1) To assess intra- partum asphyxia in case of cord around neck.
- 2) To assess the mode of delivery in case of cord around neck.

## III. MATERIAL & METHOD

### INCLUSION CRITERIA

Singleton pregnancies of 37 -42 weeks gestation with cephalic presentation are selected randomly.

### EXCLUSION CRITERIA

Patient with any risk factors like anemia, PIH , congenital anomaly , preterm deliveries, chorioamnionitis, multi-fetal gestation etc.

The comparative study is conducted at GCS MEDICAL COLLEGE, HOSPITAL AND RESEARCH CENTER, AHMEDABAD in randomly selected cases and control from December 2018 – June 2018(Total 821 deliveries happened during the study period).

Total 200 full term deliveries and caesarean section were studied with 100 case with single or multiple loop of cord & another 100 case without cord around neck. The control cases completed before the study case. Perinatal outcome is analyzed in newborn by means of APGAR score of neonate at 1 & 5 minute. NICU admission & complication till day 7 of life and mode of delivery was also assessed in both except a case of repeat caesarean section.

### Observation

Loop of cord around neck	No. of neonates	% of neonates
Nuchal cord one loop	86	86
Nuchal cord two loop	11	11
Nuchal cord three loop	3	3

Type of delivery	No. of neonates	Case(%)	No. of neonates	Control(%)
Vaginal	68	68	69	69
C-Section(primary)	17	17	10	10
C-section(repeat)	14	14	20	20
Forceps	1	1	1	1

Complication due to cord around neck	No. of neonates	Case %	No. of neonates	Control %
MSL	20	20	19	19
Fetal Distress	8	8	6	6
IUGR	1	1	0	0

APGAR at 1 min	No. of neonates	Case(%)	No. of neonates	Control(%)
<7	6	6	5	5
>7	94	94	95	95

APGAR at 5 min	No. of neonates	Case(%)	No. of neonates	Control(%)
<7	1	1	1	1
>7	99	99	99	99

No. of neonates	NICU admission
100	8

Of the 100 cases observed with a nuchal cord around neck, 86 neonates had a single loop, 11 had two loops and 3 had three loops around neck. Of the cases, 68 were vaginal deliveries, 17 were primary CS due to Meconium Stained Liquor, fetal distress, and failure of progress of labor(CPD), 14 were repeat CS, 1 was forceps delivery. While from control group there was 69 vaginal, 10 were primary CS, 20 were repeat CS and 1 was forceps delivery. From the Case group, 20% neonates had MSL and 8% had fetal distress, and 1% had IUGR, while

from Control group, 19% neonates had MSL and 6% had fetal distress and 0% had IUGR. APGAR score at 1 min: 6% Neonates from Case group had <7, rest >7, while from Control group 5% neonates had <7, rest >7. APGAR score at 5 min : 1% neonates from both Case and Control groups had <7, rest >7. Of the 100 neonates, 8 were admitted to NICU.

#### **IV. DISCUSSION**

Encirclement of umbilical cord around fetal neck is rather common occurrence and whether it is related to increased foetal morbidity and mortality is controversial. The pathophysiology of umbilical cord around the foetal neck & cord entanglement is that when umbilical cord is acutely compressed, foetal arterial resistance and blood pressure abruptly increase causing bradycardia & fall in cardiac output. If the cord compression is not prolonged, the FHR & metabolic status can rapidly normalize because of diffusion of carbon dioxide across the placenta. Although the presence of nuchal cord is not the matter of much apprehension & anxiety because of currently available obstetric resources, appropriate & timely management of this situation are helpful in improving neonatal outcome.

In our study, percentage of caesarean delivery was more common in test as compared to control group. Although difference was not statistically significant, similar finding was observed by Miser that there was no significant difference in number of operative deliveries between nuchal cord group[2]. Larson et al. also reported that caesarean delivery was not more common in multiple entanglement than the control group[3].

Length of the umbilical cord was one of the most important determinants for the occurrence of nuchal cord and number of loops, this fact has been observed by almost all the workers in various study. In study by Kan-Pun-Shui and the Eastmen of 1000 cases, it was found that increasing the length of the umbilical cord was associated with increased number of loops[4]. This is because it is easier for length of umbilical cord to be entangled in nuchal grooves because of its surplus mobility. We could not assess the length of the umbilical cord in all cases so it was not analyzed in our study.

There is little difference between APGAR score at 1 min and 5 min between case and control group, which was statistically not significant.

Thus, it is clear that proper intrapartum monitoring can improve the perinatal outcome irrespective of antepartum finding in relation to nuchal cord, bring it to almost same as in cases without nuchal cord.

#### **V. CONCLUSION**

The study has concluded that the fitting of cord around neck in fetus does not cause any specific adverse outcome in properly monitored labour. There was not a single stillbirth.

Hence, mention of nuchal cord in ultrasound report does not warrant panic and a safe vaginal delivery can be contemplated successfully.

The difference in APGAR score at 1 & 5 minutes between study & control group was statistically not significant. Also there was no statistically significant difference in NICU admission & neonatal morbidity.

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***\*Corresponding Author: Dr. Twinkal Patel***  
***<sup>1</sup>(3<sup>rd</sup> year resident) Under guidance of***