



FETO-MATERNAL OUTCOME IN PRIMIGRAVIDA HAVING SINGLE LOOP OF CORD AROUND THE NECK OF FETUS

Obstetrics & Gynaecology

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ABSTRACT

Aims & Objectives: To analyze the fetomaternal outcome in primigravida having single loop of cord around the neck of fetus on ultrasonography. **Material & Methods:** A prospective study was conducted in department of Obstetrics and Gynecology, SMS Medical College, Jaipur from may 2021 to June 2022 on 100 pregnant women. they were divided in two groups pregnant women had single loop cord around neck of fetus (Group A) diagnosed by USG and pregnant women without cord around neck of fetus (Group B) with 50 cases in each group. **Results:** 72% of cases of group A had cord length >55cms as compared to group B in which only 2% had cord length more than 55cms, in group A, 60% women anxiety developed after the sonography diagnosis of CAN as compared to group B in which cases were comparatively relaxed, majority 78% women in group A and 92% women in group B had normal vaginal delivery followed by 20% women in group A and 8% women in group B had LSCS and only 2% women in group A had instrumental delivery. Indication of LSCS were elective in 4 cases, fetal distress in 3 cases and NPOL in 3 cases in group A while fetal distress in 2 cases and NPOL in 2 cases in group B, 92% of neonates in group A and 96% of neonates in group B did not required NICU admission. Only 8% of neonates in group A and 4% of neonates in group B needed NICU admission. **Conclusion:** Cord around the neck of fetus is not an indication of caesarean section and these cases can be delivered vaginally if careful intrapartum monitoring is done.

KEYWORDS

LSCS, CAN, NICU

INTRODUCTION

A nuchal cord occurs when the umbilical cord becomes wrapped around the fetal neck 360 degrees.¹ It is divided into Type A Nuchal cord that encircles the neck in a freely sliding pattern. This loop can undo itself but in Type B Nuchal cord that encircles neck in a locked pattern and cannot undo itself.² A pregnancy with nuchal cord is a high risk condition particularly during labour and delivery. The umbilical cord is a narrow tube-like structure that connects the developing baby to the placenta. The cord is also called the baby's 'supply line' because it carries the blood back and forth, between the fetus and the placenta. It delivers nutrients and oxygen to the fetus and help in excretion of waste products. The umbilical cord begins to form at 5 weeks after conception. It becomes progressively longer until 28 weeks of pregnancy, reaching an average length of 22-24 inches.³ As the cord gets longer, it generally coils around itself. Umbilical cord / FUNIS - forms the connecting link between fetus and placenta through which the blood flow to and from the placenta. Cord Length of umbilical cord varies from no cord (Achoridia) to 300 cm with diameter up to 3 cm with up to 380 helices. An average umbilical cord length 55 cm with diameter 1-2 cm and 11 helices. Short Cord - may be true (less than 35 cm) or relatively due to entanglement of the cord around neck or any fetal part. It may leads to: Failure of external version, Prevent descent of the presenting part specially during labour, Early separation of normally situated placenta causing abruptio placenta, Malpresentation. Long Cord - > 80 cm the clinical significance of a long cord is that there are increased chances of cord prolapse . Cord entanglement, True knot. Nuchal cord is diagnosed antenatally by ultrasonographically when combined with color doppler imaging. To alleviate fear in general population regarding adverse pregnancy and neonatal outcome this study was carried out to show that such natural occurrence does not have significant effect on pregnancy, labour and neonatal outcome if proper intra-partum fetal heart rate (FHR) monitoring is provided by a obstetrician.

METHODS:

It was a hospital based observational study which was conducted in department of Obstetrics and Gynecology in SMS Medical College, Jaipur from may 2021 to June 2022. Total 100 pregnant women admitted for delivery enrolled for a study among this 50 pregnant women had single cord around neck of fetus and 50 pregnant women without cord around neck of fetus diagnosed by color doppler USG after inclusion and exclusion criteria were included in the study.

Inclusion criteria-Primigravida (18-35year), Gestational age >37 weeks, Single loop of cord around the neck in the ultrasound findings, Single ton pregnancy, Live fetus, Cephalic presentation, Cases not included in any other study. Exclusion criteria-Fetal anomalies, Oligohydramnios, Polyhydramnios, Cephalo pelvic disproportion, Presence of medical illness HDP, Heart Disease, Diabetes Mellitus, Presence of obstetric complication APH, obstructed labour, pre-eclampsia or eclampsia, IUGR excluded from study, Written informed consent, history, detailed obstetrical examination for fundal height, fetal heart sound, lie & presentation was done. Bishop's score was calculated & adequacy of pelvis was checked. All base line investigations blood group and Rhesus factors, complete blood and urine examination, viral markers & blood glucose level was done. Ultrasound findings including gestational age, amount of liquor, number of loops were noted, color Doppler was done. Intrapartum cardiotocography monitoring done, any high risk factor was noted and mode of delivery was decided. Fetal outcome was based on APGAR score at 1 min. and 5 min and NICU admission. data collected was subjected to statistical analysis. Approval from the ethical committee was taken.

RESULT:

Table 1: Distribution of cases based on cord length.

Cord Length in cms	Group A		Group B		Total	
	No.	%	No.	%	No.	%
36-40	1	2	8	16	9	9
41-45	3	6	16	32	19	19
46-50	4	8	18	36	22	22
51-55	6	12	7	14	13	13
56-60	11	22	1	2	12	12
61-65	4	8	0	0	4	4
>65	21	42	0	0	21	21
Total	50	100	50	100	100	100
Mean±SD	64.26±12.37		46.1±4.33			
P-Value	<0.0001					

Above shows that 72% of cases of group A had cord length >55cms as compared to group B in which only 2% had cord length more than 55cms. This indicate that in length of umbilical cord was one most important determinants for the occurrence of nuchal cord and number of loops. (p value significant)

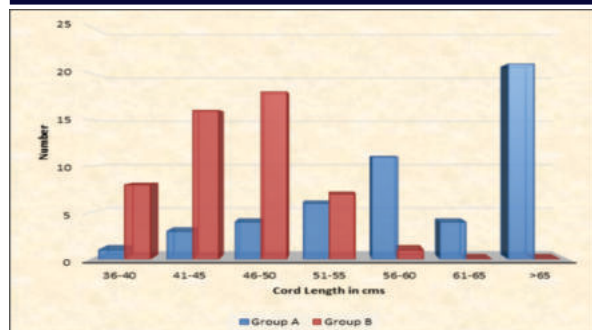


Table 2: Distribution of cases based on maternal anxiety on revealing to her of CAN.

Anxiety	Group A		Group B		P-value
	Number	Percentage	Number	Percentage	
Present	30	60	0	0	<0.0001
Absent	20	40	50	100	
Total	50	100	50	100	

We found that in group A, 60% women anxiety developed after the sonography diagnosis of CAN as compared to group B in which cases were comparatively relaxed.

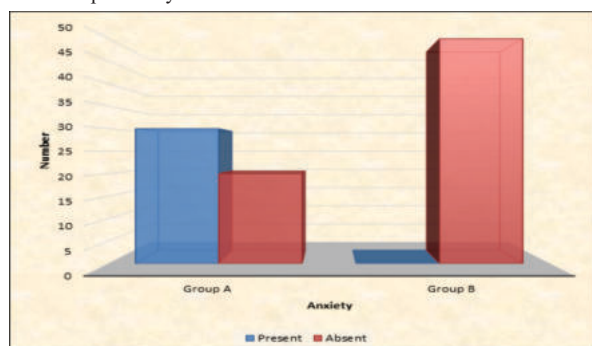


Table 3: Distribution of study participants on the basis of Color Doppler USG.

Color Doppler USG (CAN)	Group A		Group B		P-value
	Number	Percentage	Number	Percentage	
Present	45	90	2	4	<0.0001
Absent	5	10	48	96	
Total	50	100	50	100	

False positive = 10%

False negative = 4%

The above table shows that after delivery in 90% of group A cases CAN present and absent in 10% cases. In group B in 4% cases CAN present and absent in 96% cases.

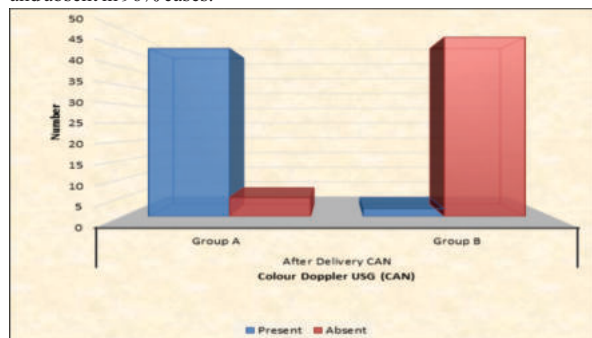


Table 4: Distribution of cases according to mode of delivery.

Mode of Delivery	Group A		Group B		P-value
	Number	Percentage	Number	Percentage	
NVD	39	78	46	92	0.1
LSCS	10	20	4	8	
Instrumental delivery	1	2	0	0	
Total	50	100	50	100	

We found that majority 78% women in group A and 92% women in group B had normal vaginal delivery followed by 20% women in group A and 8% women in group B had LSCS and only 2% women in group A had instrumental delivery.

There was slight increase in LSCS and instrumental delivery with nuchal cord group as compared to without nuchal cord group. There was no significant difference seen in mode of delivery in both the groups as 'p' value was not significant.

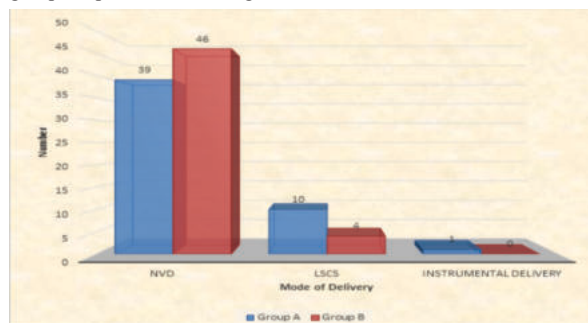


Table 5: Distribution of cases based on indication of LSCS.

Indication of LSCS	Group A		Group B		P-Value
	Number	Percentage	Number	Percentage	
NPOL	3	30	2	50	0.7
Fetal Distress	3	30	2	50	
Elective LSCS	4	40	0	0	
Total	10	100	4	100	

We found that indication of LSCS were elective in 4 cases, fetal distress in 3 cases and NPOL in 3 cases in group A while fetal distress in 2 cases and NPOL in 2 cases in group B. Only difference was elective LSCS in group A on maternal request due to anxiety. (p value = 0.7)

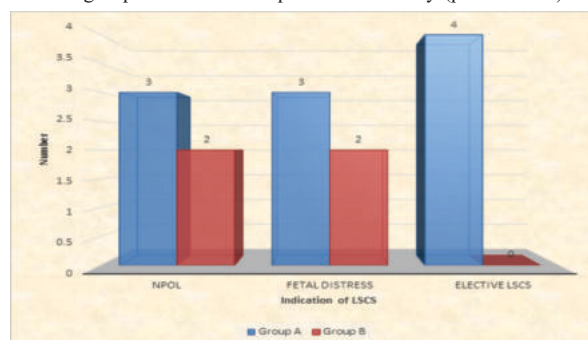


Table 6: Distribution of cases based on APGAR Score.

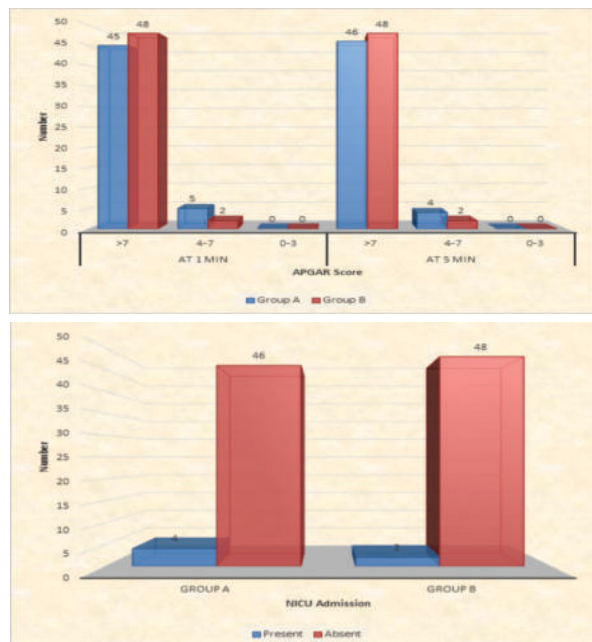
APGAR Score	Group A		Group B		P-value
	Number	Percentage	Number	Percentage	
at 1 min	>7	45	48	96	0.5
	4-7	5	2	4	
	0-3	0	0	0	
at 5 min	>7	46	48	96	0.7
	4-7	4	2	4	
	0-3	0	0	0	

The above table show 90% of new born in group A and 96% new born in group B had an Apgar score > 7 while 10% of new born in group A and 4% of new born in group B had an Apgar score between 4-7 at 1 minute. 92% of new born in group A and 96% of new born in group B had an Apgar score > 7 while in 8% of new born in group A and 4% new born in group B had an Apgar score between 4-7 at 5 minute. As the p value is not significant there was no significant difference seen in both the group in Apgar score at 1 and 5 minute.

Table 7: Distribution of subjects according to NICU Admission.

NICU Admission	Group A		Group B		P-value
	Number	Percentage	Number	Percentage	
Present	4	8	2	4	0.3
Absent	46	92	48	96	
Total	50	100	50	100	

The above table indicates that 92% of neonates in group A and 96% of neonates in group B did not required NICU admission. Only 8% of neonates in group A and 4% of neonates in group B needed NICU admission. Regarding the admission of neonates to NICU there is no significant difference visible for both the group as p value was not significant.



DISCUSSION

In our study 72% cases of group A had cord length >55cm as compared to group B in which only 2% had cord more than 55cm. This indicates that length of umbilical cord was one of the most important determinants for the occurrence of nuchal cord and number of loops. This fact is observed in various studies Kan-Pun-Shui and Eastman⁴, Chatterjee and Gupta⁵, Joshi K et al.⁶, Singh G et al.⁷ In sonographic group A 60% women anxiety developed after diagnosis cord around neck as compared to group B in which cases were comparatively relaxed resulting there is increase incidence of elective cesarean section. Confirmation of cord around neck can not be on USG there are false positive and negative, 100% diagnosis only on direct visualization at the time of delivery, our study similar with the studies of Meena P et al.⁸, Młodawska H et al.⁹ Majority of cases deliver vaginally there was slight increase in LSCS and instrumental delivery with nuchal cord group as compared to without nuchal cord group. These finding is similar to study conducted by Sonawane et al.¹⁰, Mastrobattista et al.¹¹, Peregrine et al.¹² and Joshi K et al.⁶ found that percentage of caesarean and forceps delivery was more common in test as compared to control group although difference was not statistically significant.

In our study indication for LSCS is majority were elective LSCS due to maternal anxiety on revealing CAN on fetus, there was no significant difference found in both the group at 1 min APGAR score 1 min and at 5 min APGAR score as P value was >0.05. Our study similar with Vasa R et al.¹³, Sheiner et al.¹⁴, Shrestha and Singh¹⁵, Peregrine et al.¹² and Meena P et al.⁸ slightly more NICU admission neonates in Group A as compared to group B there was no significant difference found between these groups. Similar results to present study were obtained by Gonzalez Quintero VH et al.¹⁶, Rhodes DA et al.¹⁷ and Larson JD et al.¹⁸ who reported no significance increase in NICU admission of neonates delivered with nuchal cord.

CONCLUSION:

It can be reasonably concluded from our study that cord around fetal neck diagnosed on sonography remains subject of anxiety for obstetrician, paediatrician and for patient herself and there was no significant difference regarding mode of delivery and fetal outcome in the two groups. It is the duty of obstetrician to relieve anxiety, counsel the patient and relatives and close observation especially in late first and second stage of labour and facility for cardiotocography, cesarean section, paediatrician and NICU admission will be helpful for better fetomaternal outcome. However larger and multicentric studies can be helpful to endorse our result as our study was small and unicentric.

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