

# CORD ROUND THE NECK OF THE FETUS

(A Study on 101 Cases)

By

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## SUMMARY

Loops of cord around the fetal neck is a common occurrence. However, only a few systematic studies on this subject are available. Here we are presenting a study on a series of 101 such cases amongst 1903 deliveries in DSP Hospital. An incidence of 5.3% was recorded. The number of loops varied from 1 to 5 and the length of cord from 9 to 40 inches. Majority were delivered vaginally indicating that cord round the neck per se is not an indication of CS. More than 1/3 babies were variously depressed at birth—hence cord round the neck is an important cause of fetal asphyxia. Interestingly, it was found that it is the tightness of the loop (s) rather than the number which is more important in causing asphyxia. These and various other statistical aspects were analysed and the results discussed in this paper which, we think will greatly help all to understand this interesting problem.

### Introduction

Loops of Cord around the neck and other parts of the fetus is a common occurrence. However, only few systematic studies on this subject are available. Here is a study on 101 such cases in DSP Hospital.

### Material and Methods

101 Cases of Cord round the neck were collected among 1903 deliveries. The data is analysed and presented below.

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### Incidence

This was 5.3% (Table I).

TABLE I  
*Incident of Cord Round the neck*

No. of Loop(s)	Total Cases	Percentage	Percentage in total cases
1	69	68.4	3.6
2	25	24.0	1.3
3	4	3.9	0.2
4	2	1.9	0.1
5	1	0.9	0.05

### No. of Loops Vs. Cord Length

In this study, Number of Loops varies from 1 to 5 and the cord length from 9 inches to 40 inches (Table II).

TABLE II  
Number of Loops—Vs—Cord Length

No. of Loops	Mean Cord Length
1	20.8 Inches
2	22.3 "
3	33.0 "
4	22.0 "
5	40.0 "

Condition of the Baby at birth

54.8% were not depressed and 37.8% were variously depressed at birth. This is shown in Table VI.

Of these depressed babies (38 among 101), only 4 (10.4%) were severely depressed with 1 fetal death in hospital, while remaining 34 (89.6%) were mild to moderately depressed and recovered uneventfully.

Tight Vs. Loose Loops

The higher the Number of Loops, the higher is the incidence of tight loops (Table IV).

TABLE III  
Cord Length—Vs—No. of Loops (Detailed)

Cord length in inches	Number of Loops				
	1	2	3	4	5
Less than 10	1	—	—	—	—
10-20	30	10	—	1	—
21-25	35	10	2	1	—
26-30	3	3	2	—	—
More than 30	—	2	—	—	1

TABLE IV  
Tight—Vs—Loose Loops

No. of Loop	Total Cases	Tight Loop(s)	Loose Loop(s)
1	69	32 (46.3%)	37 (53.7%)
2	25	15 (60.0%)	10 (40.0%)
3	4	3 (75.0%)	1 (25.0%)
4	2	2 (100.0%)	Nil
5	1	1 (100.0%)	Nil

TABLE V  
Route of Delivery

No. of Loop(s)	Route of delivery		
	Vaginal (Spont)	Forceps	L.S.C.S.
1	41 (59.4%)	6 (8.7%)	22 (31.8%)
2	19 (76.0%)	1 (4.0%)	5 (20.0%)
3	4 (100%)	—	—
4	2 (100%)	—	—
5	1 (100%)	—	—
Total	67 (66.8%)	7 (6.8%)	27 (26.4%)

Mode of Delivery

Majority (66.8%) were delivered vaginally spontaneously, 6.8% by forceps, and 26.4% by L.S.C.S. (Table V).

TABLE VI  
Condition of the Baby at Birth

Route of Delivery	Total cases	Depressed	Not Depressed	Stillborn
Vaginal	67	15 (22.4%)	44 (65.7%)	8 (11.9%)
Forceps	7	5 (71.4%)	2 (29.6%)	Nil
LSCS	27	18 (65.7%)	9 (33.3%)	Nil
Total	101	38 (37.8%)	55 (54.8%)	8 (7.9%)

#### Fetal death

In this series, total fetal deaths were 9 (8.9%) of which 7 (6.9%) were Macerated still births, 1 (0.9%) was fresh still birth and 1 (0.9%) died in hospital.

#### No. of Loops of Cord Vs. Fetal death

##### 1. Macerated stillborn:

6 cases had 1 loop,  
1 case had 2 loops.

##### 2. Fresh Stillborn:

The only case, a grossly premature baby weighing 1.0 Kg, had 2 tight loops of cord round the neck and was severely depressed at birth. It died within 4 hours of birth.

All the above cases were delivered vaginally.

#### Birth Weight Vs. Cord Length

It is found that the birth weight: cord length ratio gradually falls from 0.128 in 1 loop to 0.084 in 5 loops (Table VII).

TABLE VII  
Birth Weight: Cord Length Ratio

No. of Loop(s)	Birth Weight Cord length Ratio
1	0.128
2	0.126
3	0.102
4	0.096
5	0.084

In other words, the longer the cord in comparison to the fetus, the higher the number of loops of cord round the neck. This is just what is logically expected.

#### Forceps Delivery

##### Incidence

Total 7 (6.8%) cases were delivered by forceps, of which 5 (4.9%) were Low forceps and 2 (1.9%) were mid-forceps delivery. There was no fetal death in this series.

##### Indications of Forceps Delivery

##### These Were:

- (1) Delayed 2nd stage...1 Low forceps
- (2) Acute fetal distress—1 Low forceps
- (3) Acute fetal distress +  
Delayed 2nd stage: 3 Low and 2 mid-forceps

so, the main indication in this series was Acute fetal distress with delayed 2nd stage.

#### No. of Loops in Forceps Delivery

Of the 7 cases, 6 had 1 loop and 1 had 2 loops of cord round the neck. All had tight loops.

This indicates that the tightness rather than the number of Loops is important in deciding the mode of delivery.

*Caesarian Section*

In total 27 (26.4%) cases had C.S. and all were L.S.C.S.

*Indications*

There were:

1. Acute fetal distress: 14 cases (13.8%)
2. Other than Acute fetal distress: 7 cases (6.8%)
  - (i) Post-dated pregnancy with unstable lie 2 (1.9%)
  - (ii) Diabetes with B.O.H. 1 (0.9%)
  - (iii) Post-C.S. pregnancy 1 (0.9%)
  - (iv) Breech 1 (0.9%)
  - (v) C.P.D. 1 (0.9%)
  - (vi) Non-progress of Labour 1 (0.9%)

3. Acute fetal distress + some other indications: 6 cases (5.8%)

- (i) A.F. Distress + Post-dated Pregnancy 3 (2.9+)
- (ii) Acute Distress + Post C.S. 1 (0.9%)
- (iii) Acute Distress with malpresentation 2 (1.9%)
  - (a) Occipito Posterior 1 (0.9%)
  - (b) D.T.A. 1 (0.9%)

So the chief indication was Acute fetal distress.

Perinatal mortality: Nil.

*Depressed Baby at Birth after C.S.*

Roughly, 2/3rd were not depressed and 1/3rd depressed (Table VIII).

*No. of Loops Vs. indication of C.S.*

The chief indication with any number of Loop was acute fetal distress (Table IX).

TABLE VIII  
*Depressed Baby After C.S.*

Sl. No.	Indication of C.S.	Total cases	Depressed	Not depressed
1.	Acute fetal distress	14	12 (85.7%)	2 (14.3%)
2.	Other than Acute fetal distress	7	2 (28.7%)	5 (71.3%)
3.	Acute fetal distress + Some other indications	6	4 (66.6%)	2 (33.4%)
Total		27	16 (66.6%)	9 (33.4%)

TABLE IX  
*Indication of C.S.—VS—Number of Loop(s)*

Sl. No.	Indication	Total Cases	Number of Loop(s)		
			1	2	3
1.	Acute fetal distress	14	13 (93.0%)	1 (7.0%)	Nil
2.	Other than acute fetal distress	7	4 (57.1%)	3 (42.9%)	Nil
3.	Acute fetal distress + some other cause	6	5 (83.3%)	1 (16.7%)	Nil
Total		27	22 (81.0%)	5 (19.0%)	Nil

*Discussion*

From the collected data, we have come to the following conclusions:

1. Incidence of cord round the neck in this series was 5.3%.
2. The number of Loops varies from 1 to 5. In this study the incidence of 1 Loop was 3.6%, while KAN & EASTMAN quoted a much higher figure of 21%.  
However, our figure of 0.2% in cases of 3 Loops matched perfectly with their figure of 0.2%.  
The higher orders (4 & 5 Loops) were not quoted by them, while we got a percentage of 0.1% and 0.05% respectively.
3. The mean cord length increased from 20.8 inches in 1 Loop to 40 inches in 5 Loops, clearly, the cord ought to be longer to coil more. A paradoxical drop in the mean cord length in case of 4 loops in this study might be due to fewer cases.
4. The higher the number of Loops, the higher is the percentage of tight Loops.
5. The majority (73.3%) were delivered vaginally, indicating that cord round the neck per se is not an indication of C.S.
6. 37.8% of the babies were depressed at birth (more than 1/3 rd cases). Hence it can be said that cord round the neck is an important cause of fetus asphyxia.
7. The incidence of fetal death in this series was 8.9%. This matches with KAN & EASTMAN who quoted that "Coiling of Cord round the neck is an uncommon cause of fetal death".

Interestingly, out of 9 deaths in this series of 101 cases, all but 2 had only 1 Loop of cord round the neck—this nullifies the commonly held view higher the coiling, higher the fetal death.

8. The chief indication for forceps delivery was Acute fetal distress with delayed 2nd stage.
9. The chief indication for C.S. (all L.S.C.S.) was Acute fetal distress. It is important to note that in C.S., 2/3rds of the babies were depressed at birth.
10. The interesting point to note is that in both forceps delivery and C.S., the majority had only 1 Loop of cord round the neck and all had tight Loops.  
From time we can infer that it is the tightness of the Loop rather than the number which is mor eimportant in causing fetal asphyxia.
11. The available data clearly indicates that the chances of coiling of cord round the neck and the number of Loops round the neck steadily increases as the birth weight: Cord length ratio decreases.

*Conclusion*

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*Reference*

1. Kan, P. S. and Eastman, N. J.: "Coiling of the umbilical cord around the fetal neck" in *Brit. J. Obstet. Gynec.* 64: 227, 1957—as quoted in *William's Obstetrics*, 16th Edition.