

## Double Loop Of Cord Around The Neck Of Fetus And Its Effects On Mode Of Delivery And Fetal Outcomes – Case Series

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### Abstract

#### Background:

Entanglement of umbilical cord around fetal neck is a common finding in ultrasonography. Nuchal cord occurs when umbilical cord becomes wrapped around fetal neck by 360°. Two loops of cord is reported in 2.5-5% deliveries.

#### Aim:

To assess fetomaternal outcome in singleton Pregnancies in sonographically proven two loops of cord around neck.

#### Methods:

It is an observational case study series conducted in department of obstetrics and gynaecology in Apollo KH hospital over a period of 3 months on women with singleton pregnancies irrespective of parity with sonographically proven two loops of cord around neck attending antenatal clinic.

#### Results:

6 patients were studied during case study of which 2 delivered vaginally and one by instrumental vaginal delivery with indication of fetal distress. Three underwent cesarean section, the indications being fetal distress and non-reassuring CTG.

#### Conclusion:

Two loops of cord around the neck per se is not an indication for cesarean section and these cases can be delivered vaginally if proper intrapartum fetal monitoring is done. There is also no adverse fetal outcomes observed in deliveries with two loops around the neck in our case series.

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### I. Introduction:

Umbilical cord extends from fetal umbilicus to fetal surface of placenta (i.e. chorionic plate). Umbilical cord development begins in embryonic period around 3 weeks with formation of connecting stalk. By week 7, Umbilical cord has fully formed composed of connecting stalk, vitelline duct and Umbilical vessels surrounding the amniotic membrane. Embryonic structures regress near the end of the first trimester, leaving the umbilical cord composed of two umbilical arteries and one umbilical vein surrounded by a gelatin-like extracellular matrix known as Wharton's jelly. Average umbilical cord is 50-60 cm in length 2 cm in diameter with up to 40 helical turns (2)

Nuchal cord occurs when umbilical cord becomes wrapped around fetal neck by 360°. Cord loops are frequently encountered and are caused by coiling around various fetal parts during movement. They are more common with longer cords.

The types of cord according to Giacomello classification

Type A – Nuchal loop that encircles neck in a freely sliding pattern where placental end crosses over the umbilical end, this pattern can undo itself.

Type B – Nuchal loop that encircles neck in a locked pattern, where placental end crosses under umbilical end. This pattern locks and cannot undo itself with potential for fetal morbidity and mortality.

One loop is reported in 20-34% of deliveries, two loops in 2.5-5% and three loops in 0.2-0.5%. During labour these loops can result in fetal heart rate decelerations and these are associated with lower umbilical artery pH. Despite their frequency, nuchal cords are relatively uncommon causes of adverse perinatal outcome (3)

## **II. Methods:**

It is an observational case study series conducted in department of obstetrics and gynaecology in Apollo KH hospital over a period of 3 months on women with singleton pregnancies irrespective of parity with sonographically proven two loops of cord around neck attending antenatal clinic. Detailed obstetrical examination for Fundal height, fetal heart sound, lie and presentation was done.

All base line investigations including blood Group and Rhesus factor, complete blood and urine Examination, viral markers and blood glucose level were Done. Ultrasound findings including gestational age, Amount of liquor, number of loops were noted. Continuous intrapartum cardiotocography (CTG) was done. Any high risk factor was noted and mode of delivery was decided. Fetal outcome was assessed based on APGAR at 1 min and 5 minutes and NICU admission.

## **III. Case Study 1:**

A 26 year primigravida at 38 weeks 5 days presented to our hospital for safe confinement. She does not suffer from any illnesses or allergies. Her ultrasound done during 37+5weeks showed posteriorly placed placenta; AFI -8.5 cm; double loop of cord around the neck of fetus. Her CTG was reactive. Intrapartum fetomaternal monitoring was done and she delivered a male baby by instrumental vaginal delivery in view of fetal distress. Two loops of cord around the neck of the fetus was noted during delivery. Apgar score was 9 at 1 min and 10 at 5 min. The newborn weighed 3.040 kg. No adverse neonatal outcome was observed. The patient was later discharged with normal vital signs. No complications were observed.

## **IV. Case Study 2:**

A 24 year women at 39 weeks 6 days period of gestation , gravida 2, para 1 presented to our hospital in early labour. She does not suffer from any comorbidities or allergies. Her vital signs were stable and all her basic investigations were within normal range. Her ultrasound done during 38 weeks gestation showed posteriorly placed placenta, AFI – 13.7cm, double loose loop of cord around the neck . Her CTG was reactive She delivered a female baby weighing 3.080 kg by normal vaginal delivery. Apgar score was 9 at 1 min and 10 at 5 min. No fetomaternal complications were observed.

## **V. Case Study 3:**

A 29 year women at 39 weeks 4 days, gravida 2 abortion 1 with gestational diabetes mellitus on T.METFORMIN 250mg BD presented to hospital with prolonged latent phase of labour. Her baseline investigations and vitals were within normal range with ultrasonographically proven double loop of cord around the neck of fetus and AFI – 16 cm taken at 36 weeks of gestation. In view of non reassuring CTG she underwent emergency cesarean section and delivered female baby weighing 3.040 kg. Apgar was 9 in 1min and 10 in 5 minutes. No neonatal and maternal complications were observed.



**Figure 1: Double loop of cord noted during cesarean section**

#### **VI. Case Study 4:**

A 23 year primigravida with 38 weeks 1 days period of gestation came to our hospital for safe confinement. She has no comorbidities and has no allergies. Her ultrasound done during 38 weeks of gestation showed fundal and anteriorly placed placenta, AFI – 7.2 cms, double loose loop of cord around the neck of fetus. Intrapartum fetomaternal monitoring was done and she was taken up for emergency cesarean section in view of fetal distress. She delivered a male baby weighing 2.7 kg. Two loops of cord around the neck of fetus was noted. Apgar score was 9 in 1 min and 10 in 5 min. No neonatal complications or NICU admissions were observed.

#### **VII. Case Study 5:**

A 24 year women at 35 weeks 3 days , gravida 3, para 1, abortion 1, dead 1 presented with preterm labour. She has no comorbidities. During the course of labour she was found to be dengue positive and had urinary tract infection. Her ultrasound done during 34 weeks of gestation showed fundal and posteriorly placed placenta, AFI – 12.3cm, single loose loop of cord around the neck of fetus. She got admitted for fever evaluation .In view of persistent fetal tachycardia, she underwent emergency cesarean. Double loop of cord around the neck of the fetus was observed during cesarean. Grade 2 meconium stained liquor was noted. No fetomaternal complications were observed .

#### **VIII. Case Study 6:**

A 23 year women at 39 weeks 6 days, gravida 3, para 1, living 1, abortion 1 with Rh negative pregnancy presented to our hospital for safe confinement. She has no illnesses or allergies. Her vitals and investigations were in normal range. Her ultrasound done during 38+5weeks showed double loop of cord around the neck with adequate liquor. Intrapartum fetal monitoring was done. She delivered a female baby by normal vaginal delivery. Weight of the baby was 2.740 kg and Apgar was 9 in 1 min and 10 in 5 min. No neonatal complications were observed.



**Figure 2: Two Loops Of Cord Noted During Normal Delivery**

#### **IX. Results:**

6 patients were studied of which 2 delivered vaginally and one by instrumental vaginal delivery with indication of fetal distress. Three underwent cesarean section, the indications being fetal distress and non reassuring CTG. Effect of double loop of cord during delivery is transient which is shown by good APGAR score and no NICU admissions.

### **X. Conclusion:**

Excessive fetal movement and length of the cord increase the incidence of two loops of cord around the neck. The diagnosis of double loop of cord antenatally via Ultrasound is not an indication for Caesarean Section. Although these patients need vigilant intrapartum evaluation by continuous electronic fetal heart rate monitoring. Results suggest that Vaginal delivery can be carried out safely with good Apgar score.

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