SIX LOOPS OF NUCHAL CORD – A RARE CAUSE FOR ANTENATAL IUD

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ABSTRACT

Nuchal cords at term are present in 15 to 34% of births for single loop and 5-6% for multiple nuchal cords. Despite the good prognosis in most of the cases, nuchal cord is associated with variable fetal heart rate deceleration, decreased fetal movements, fetal distress, and intrauterine fetal demise in few cases. Diagnosis of nuchal cord is by colour doppler which has senstivity of 60%- 95%. Multiple nuchal cord, especially four or more loops, demands special care due to the risk of intermittent cord compression. We present a rare case of gravid four para three woman, in which intra uterine death (IUD) occurred due to the six tight loops of cord around neck, which was not detected in the antenatal period.

Key Words: *Nuchal cord, Intra uterine death*

INTRODUCTION

Nuchal cord has been defined as a ≥360° wrapping of the umbilical cord around the fetal neck[1]. It can be loose or tight and tight loop is defined as the inability to manually reduce the loop over the fetal head, and loose as the ability to manually reduce the loop over the head[2]. Nuchal cords at term are common, with incidence ranging from 15 to 34% of births for single loop and 5-6% for multiple nuchal cords[3]. Tight nuchal cords are not uncommon, and occur in 6.6%[2].

Despite the good prognosis in most of the cases, nuchal cord is associated with variable fetal heart rate deceleration, decreased fetal movements, fetal distress, and intrauterine fetal demise in few cases[4]. Diagnosis of nuchal cord is by colour Doppler and various studies has mentioned sensitivity varying from 60%- 95%[5,6]. Multiple nuchal cord, especially four or more loops, demands special care due to the risk of intermittent cord compression[3]. If signs of fetal distress are present, an operative delivery may be required. We present a rare case in which intra uterine death (IUD) occurred due to the six tight loops of cord around neck, which was not detected in the antenatal period.

CASE REPORT

A 28 years old woman gravida four para three presented with 38 weeks of pregnancy with decreased fetal movements for 12 hours. On examination her general condition was good, the uterus was 36 week, non-tender, relaxed with single fetus presenting as cephalic and fetal heart sound could not be heard. Ultrasound reported a 36 week size dead fetus with no congenital anomaly and no retro placental clot. No cause of IUD could be found from the history, examination and sonography.

There was no retro placental clot on ultrasonography. She was a booked patient and had no complications earlier and had her earlier antenatal visit just one week back, which showed normal check-up at that visit. She had one ultrasound at 20 weeks for anomaly scan which showed normal fetus. Previously she had three normal vaginal deliveries with three live babies. The patient was counselled regarding intrauterine death and induction of labor was done with prostaglandin E_2 gel. She delivered vaginally a female dead baby weighing 2.90 Kg after 12 hours of the induction. At the time of delivery it was observed that baby had six tight loops of cord around the neck (Figure-1) and there was no knot in the cord. The length of umbilical cord was 96 cm and the cord had three vessels. The placenta weighed 380

grams with no obvious abnormality and there was no retro placental clot. Patient's attendants did not give consent for the autopsy and she was discharged after 24 hours of delivery in good condition.

Figure 1: Six loops of nuchal cord

DISCUSSION

Various causes of term IUD are pre-eclampsia, intrauterine growth restriction, severe olihydranios, placenta previa, abruption placentae or nuchal cord. Nuchal cord can be diagnosed by Doppler ultrasound[5]. Color Doppler ultrasound, has sensitivity of 60-95% and has a false positive rate of 19% [5,6,7]. Present technology (ultrasonography) cannot predict whether a nuchal cord is tight or loose or determine anything regarding the likelihood of hypoxia, IUGR or stillbirth. Retrospective data of over 182,000 births, with the statistical power to determine even mild associations, suggest that a single or multiple nuchal cords at the time of delivery is not associated with adverse perinatal outcomes[8].

Tight nuchal cord may have poor prognosis, Shephered et al reported that five of the 27 neonates born after a tight nuchal cord developed anemia, and three of the five neonates had signs severe hypotension necessitating RBC transfusion[9]. Mastrobattista et al observed 4426 neonates, 3651 served as controls, 691 had one loop, and 84 had two or more loops. There were no significant differences in the frequency of non-reassuring fetal heart rate patterns, operative vaginal deliveries, or 5-minute Apgar scores of < 7 among any of the group[10].

In the present case ultrasound was done at 20 weeks and after that no ultra-sonography was done except at time of admission when patient came with intrauterine death. In this case no other cause of intrauterine death could be ascertained as woman had no complication till 37 weeks of gestation. She was neither hypertensive nor diabetic. Moreover, morphologically baby and placenta appeared normal; baby weighing 2.9 Kg so no intrauterine growth restriction and no gross congenital anomaly. The previous obstetric history was also did not suggest any high risk factor. In most of the cases, though the single loop of cord or tight loop or multiple loops are not cause for intrauterine death[3,7,10], but it may cause adverse fetal and perinatal outcome in few cases[4,9]. Combination of multiple loops of cord and that also tight may be diasatrous as in present case, six tight loops of nuchal cord was the only positive finding and suggested reason for sudden IUD.

Sudden term antenatal fetal demise is a great psychological trauma to patient and her family. Should routine doppler ultrasound be offered near term to rule out nuchal cord is a big dilemma. Intervention for the supposed presence of single or multiple loops of nuchal cord, suspected by ultrasound prenatally, is unjustified because diagnosis by ultrasound has false positive rates of 19% and nuchal cords

occur at rates of 30-34% at 40 weeks and are not associated with adverse perinatal outcomes in most of the cases[7]. Schäffer et al suggested that ultrasonographic nuchal cord assessment is not necessary at the time of admission for delivery[3] (level of evidence: II-3). As per Mastrobattista et al nuchal cord at term is not associated with untoward pregnancy outcomes[10].

Conclusion- Rarely six tight loops of cord around neck, may cause sudden intrauterine death at term. Given the common occurrence of nuchal cords and its very high association with a favorable outcome, routine doppler ultrasound near term to rule out nuchal cord in low risk women is not suggested.

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REFERENCES:

1. Collins JH, Geddes D, Collins CL, De Angelis L. Nuchal cord: a definition and a study associating placental location and nuchal cord incidence. J La State Med Soc 1991; 143: 18–23.
2. E Henry, RL Andres, RD Christensen. Neonatal Outcomes Following a Tight Nuchal cord. J Perinatol. 2013;33(3):231-4.
3. Schäffer L, Burkhardt T, Zimmermann R, Kurmanavicius J. Nuchal cords in term and post term deliveries—do we need to know? Obstet Gynecol 2005; 106: 23–8.
4. Larson JD, Rayburn WF, Crosby S, Thurnau GR. Multiple nuchal cord entanglements and intrapartum complications. Am J Obstet Gynecol. 1995; 173: 1228-31.
5. Peregrine E. O'Brien P. Jauniaux E. Ultrasound detection of nuchal cord prior to labor induction and the risk of Caesarean section. Ultrasound Obstet Gynecol 2005; 25:160-4.
6. Aksoy U. Prenatal color Doppler sonographic evaluation of nuchal encirclement by the umbilical cord. J Clin Ultrasound.2003;31:473-7.
7. Cohain JS. Nuchal cords are necklaces, not nooses. Midwifery Today Int Midwife. 2010;(93):46-8, 67-8.
8. Sheiner E, Abramowicz JS, Levy A, Silberstein T, Mazor M, Hershkovitz R. Nuchal cord is not associated with adverse perinatal outcome. Arch Gynecol Obstet. 2006 May; 274(2):81-3.
9. Shephered AJ, Richardson CJ, Brown JP. Nuchal cord as a cause of neonatal anemia. Am J Dis Child 1985; 139: 71-3.
10. Mastrobattista JM; Hollier LM; Yeomans ER; Ramin SM; Day MC; Sosa A; Gilstrap LC. Effects of nuchal cord on birthweight and immediate neonatal outcomes. Am J Perinatol. 2005; 22(2):83-5.