Case Report

Umbilical Coiling Index: An Important Predictor of Fetal Outcome

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ABSTRACT

Umbilical cord is an important structure for fetal survival. Any abnormality of the umbilical cord can lead to fetal distress, growth restriction and intrauterine death. A rare case of long cord with high umbilical coiling index leading to growth retardation and fetal distress is reported and importance of umbilical coiling index is discussed.

Keywords: Umbilical cord, Fetal distress, nonstress test.

INTRODUCTION

Umbilical cord represents the only connection between the mother and the fetus that determines not only fetal welfare but also its existence. Umbilical cord lies freely in the amniotic fluid making it vulnerable to kinking, torsion, entanglement and compression. The fetal distress which is a common entity during labor monitoring usually occurs due to umbilical cord compression and cord around neck. A very rare case of excessive long umbilical cord with high umbilical coiling index causing fetal distress is reported.

CASE REPORT

A 26 year second gravida with parity one and no live issue at 34 weeks gestation from last menstrual period presented with decreased movements since night. There was no history headache, pain in abdomen, blurring of vision, vaginal leaking or bleeding. She was on regular antenatal checkup. She had preterm vaginal delivery of dead fetus at 35 weeks of gestation one year back. No details were available regarding that pregnancy.

Her general physical and systemic examination was unremarkable. Her pulse rate was 80/minute and blood pressure was 112/70 mm of Hg. Abdominal examination revealed 30–32 weeks size relaxed uterus, adequate liquor and with fetus in breech presentation. On auscultation, fetal heart rate was 90/minute initially but picked to 120/min immediately. Her hemoglobin was 11 gm%. Her ultrasound showed single live fetus of approximately 31 weeks gestation and intrauterine growth retardation of 3 weeks with central placenta praevia. Biophysical profile was 8/8 and fetal weight was 1.6 kg. Doppler studies revealed S/D ratio of 3.7 in umbilical artery and 4.4 in middle cerebral artery. Her nonstress test on cardiotocograph showed decreased beat to beat fetal heart rate variability (Fig. 1) with prolonged variable deceleration (Fig. 2). Immediate cesarean section was performed in view of previous history of preterm intrauterine death at 35 weeks gestation, decreased fetal movements, and repeated prolonged variable deceleration with decreased fetal heart rate variability. Baby was distressed with apgar score 2, 4 and 5 at 1, 5 and 10 minutes and needed artificial ventilation. Baby’s weight was 1800 grams and placental weight was 450 gm. The umbilical cord was excessive long (170 cm) with left sided hypercoiling (Fig. 3). There were 74 coils with umbilical cord coiling index of 0.44 coils/cm. Histopathological examination of cord and placenta showed increased syncytiot knots, intervillous hemorrhage, intraluminal thrombus formation with thickening of trophoblastic layer.
DISCUSSION

The umbilical cord is vital for the development of the fetus. The normal umbilical cord length varies from 30–100 cm with having a length of 45–50 cm in most of the cases. In our case, the length of cord was 170 cm which is very rare to find. Although cases with very long cord have been reported, but we could not find case of excessive long cord with very high coiling index as in this case on literature search. Taweewit M has reported umbilical cord length of 130 cm associated with fetal thrombotic vasculopathy and fetal demise at 37 weeks of gestation. Thrombosis related complications are very commonly observed in long umbilical cord and cord around necks.

The coils are the normal features of the cord that are formed due to the fetal movement, torsion of the embryo (active or passive), differential growth of umbilical vessels, hemodynamic forces of fetus or due...
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**CONCLUSION**

The length and the umbilical cord coiling index must be assessed in the second trimester ultrasonographic examination more so in cases of intrauterine growth restriction and previous history of unexplained intrauterine death. Prolonged variable deceleration and the decreased beat to beat heart rate variability are a sign of fetal distress requiring intervention.

**REFERENCES**


