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True Knot of the Umbilical Cord: A Case Report

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Abstract- True umbilical cord knot is one of the abnormalities of the umbilical cord which is a rare occurrence. Constriction of a true knot of the umbilical cord may lead to obstruction of the fetal circulation and subsequent intrauterine death. We present a 20yr old primigravid,a who had a normal vaginal delivery with a true knot of the umbilical cord identified.

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I. INTRODUCTION

True knots in the umbilical cord are not uncommon, the reported incidence ranging from 0.3 to 2.1% of all deliveries.¹ Known predisposing factors for this condition include long cord, small fetus, polyhydramnios and monoamniotic twin pregnancy.¹ Although most knots are loose and present as unexpected findings at delivery, active fetal movements in utero can potentially tighten the knot, leading to obstruction of the fetal circulation and death.¹ Prenatal diagnosis may therefore be desirable to identify fetuses at risk of fetal distress and perinatal loss.

II. CASE

A 20yr old primigravida at 41wks of pregnancy was admitted for induction of labor. She was married for 4yrs and this was a planned spontaneous pregnancy. She attended regular antenatal checkups and the antenatal period was uneventful. Her bishop score was four and cervical priming was done with vaginal suppository tablet misoprostol 25ug. Intrapartum period was uneventful. She delivered alive, male baby of 2.5kg with Apgar score of 7&8 in one and five minutes. There was no excess liquor, no meconium staining and minimum blood loss. The placenta appeared normal. The cord, however, had one knot that was loose. The cord measured 65cm. Her antenatal investigations and ultrasound reports were within normal limits.

III. DISCUSSION

The umbilical cord is called a fetal lifeline.^{2,3} Many abnormalities are observed in the morphology and pathology of the umbilical cord but the knowledge of them is rather poor.⁴ A sudden umbilical cord compression with a poor layer of wharton's jelly may strongly reduce the umbilical cord venous blood flow and cause a life-threatening risk to the fetus.⁵ Some authors believe that 3D power sonography may be

helpful in the diagnosis of the umbilical cord knots, especially in the third trimester.⁵ Others believe that diagnosis of an umbilical cord knot should be considered in obstetrical situations very cautiously.^{6,7} Prenatal sonographic diagnosis of cases of a true knot of the umbilical cord have been reported infrequently. Ramon y Cajal and Martinez reported characteristic sonographic findings of this condition in which a detailed investigation disclosed a transverse section of the umbilical cord surrounded by a loop of umbilical cord. This finding, noted in 5 cases, was termed the "hanging noose" sign.⁸

In conclusion, four-dimensional and color Doppler examination is very important to diagnose a true umbilical cord. This diagnosis necessitates strict monitoring of fetal wellbeing during the pregnancy and the delivery. True umbilical cord knot diagnosis may reduce sudden and unforeseen fetal distress.

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Figure 1 : True Knot of the Umbilical Cord

