

# The Value of Ultrasound in Diagnosing Umbilical Cord Knot and Its Effect on Fetal Perinatal Outcome

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## Abstract

**Objective:**To analyse the prenatal diagnostic value of ultrasound in umbilical cord knot(UCK) and the correlation of UCK and fetal perinatal outcome.**Methods:**Firstly, retrospective analysis was conducted on the prenatal ultrasound and clinical data of newborns or induced fetuses with UCK.Secondly,the incidence of UCK and its relationship with fetal perinatal outcome were summarized and analyzed.Then,the value and image characteristics of prenatal ultrasound in diagnosing UCK were analyzed.Finally,fetuses who were diagnosed as UCK after delivery were UCK group, and control group was 200 cases randomly selected from other normal fetuses.The differences of ultrasonic parameters and related clinical parameters were compared.**Results:**During 5 years, there were 40346 fetuses were born, including 209 cases stillbirths in the third trimester.99 fetuses were confirmed with UCK by postnatal diagnosis (including 3 stillbirths died of UCK),accounting for 3% of the diagnosis of UCK.2D ultrasonic images can be classified as excessively distorted, stacked or cloverleaf.The 3D-US can clearly identify the true and false UCK,which can be divided into loose UCK,tight UCK,spiraling umbilical cord and twisted and stacked umbilical cord.RI of middle cerebral artery in UCK group was lower than that in normal control group ( $P<0.05$ ).There were statistically significant differences in maternal age, multiparty, gestational weeks, gestational diabetes mellitus, amniotic fluid volume and length of umbilical cord.**Conclusions:**The incidence of UCK is only 0.25%, but mortality accounts for 1.4% of fetal death in the third trimester.2D-US is combined with 3D-US can improve prenatal diagnostic accuracy of UCK.With maternal age,parity,amniotic fluid volume and cord length increased,the risk of UCK is increased.

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