Intrapartum ultrasound is useful in the management of prolonged 2nd stage of labor

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Objectives

Angle of progression (AoP) is an accurate and reproducible parameter for assessment of fetal descent. The aim of this study was to evaluate the usefulness of the AoP in the management of prolonged second stage of labor by analyzing the change of AoP during second stage in the vaginal delivery group compared to the failed vaginal delivery group.

Methods

This study included nulliparous women who had term delivery in cephalic presentation in Korean University Guro Hospital and took intrapartum ultrasonogram to measure AoP since cervix was fully dilated. We compared change of AoP during 2nd stage of the labor between the vaginal delivery group and the failed vaginal delivery group.

Results

No significant differences were found between two groups in maternal age, gestational age, birth weight, use of epidural anesthesia and oxytocin. Duration between 6cm cervical dilatation and full dilatation was longer in the failed vaginal delivery group compared to vaginal delivery group. AoP were measured in 176 women (147 vaginal deliveries, 29 emergency cesarean section) since cervix was fully dilated.

We analyzed AoP data measured for the last time before delivery. Median AoP was significantly higher in the vaginal delivery group compared to the failed vaginal delivery group (136.16±19.12° vs 118.97±16.11°; P<0.01). For the prediction of successful vaginal delivery, the optimal AoP cut-off was 125°. AoP was significantly higher in vaginal delivery group compared to the failed vaginal delivery group when second stage of labor lasted more than 120 minutes (139.79±16.09° vs 119.78±16.82°; P<0.01).

Conclusion

Labor dystocia is the most common indication for primary cesarean section. To reduce the rate of primary cesarean section, accurate measurement of fetal station is very crucial during the second stage of labor. AoP seems to be very useful in the management of prolonged second stage of labor. AoP may serve as a guidance to clinicians whether vaginal delivery can be expected or not.