Objective
To investigate the association between the ultrasonic data (the progress angle, PA/the progress distance, PD) and the different delivery modes.

Method
100 primiparas who tried vaginal delivery were enrolled in this study (75 result in spontaneous vaginal delivery, 7 result in forceps delivery and 18 result in cesarean section). Three-dimensional TPU examinations were performed during the progression of labor. The PA and PD were measured after the digital examinations by the obstetrician.

Result
There was a significant linear correlation between the PA/PD and the fetal presentation assessed by digital examination. The angle > 125.5° and the distance > 39.5mm were always associated with vaginal delivery, except the fetal is persistent occipitoposterior position.

The progress rate of PA and PD in the cesarean section group were much slower than the vaginal delivery group (t = 9.896, 6.766, both P = 0.000). But there was no difference between the forceps delivery and the spontaneous vaginal delivery (t = 1.572, 2.554, P > 0.05).

Conclusion
The three-dimensional TPU provide an objective and simple assessment index for clinical labor monitor. But if the fetal is persistent occipitoposterior position, we need to reconsider the value of ultrasound parameters.