Prenatal screening for developmental displacement of the hip: the BUDDHA (pre-Birth Ultrasound for Developmental Displacement of the Hip Assessment) study.

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Objective

Developmental Displacement of the Hip (DDH) is very common and early diagnosis has been demonstrated to improve the outcome of affected babies. To our knowledge, no case of prenatal diagnosis of this pathology has been reported in literature. The objective of this study was to test the feasibility of antenatal ultrasound, using the postnatal technique based on Graf angles, to assess the normal development of the hip in unselected term fetuses.

Methods

This was a prospective cohort study. Single uncomplicated term women (37-41 weeks) attending our centre for routine ultrasound were consecutively recruited for the purpose of the study. A 3D volume acquisition was performed on the proximal coxofemoral articulation of the fetus by a single operator (figure 1), offline analysis was then performed in the multiplanar mode by two operators (blinded to each other analysis) in order to measure the alfa and beta Graf angles according to the Graf technique, elsewhere described. Reference charts for normal values of both angles were produced. Postnatal ultrasound was then performed to measure the Graf angles in newborns and to confirm the absence of DDH.

Results

From January 2017 to December 2017, 120 uncomplicated term pregnancies underwent 3D ultrasound for the assessment of the fetal hip. Alfa and beta Graf angles were measured in the multiplanar mode by two experienced operators. Intra- and inter-observer variability was good for both angles. Reference charts for normal values of both angles were produced (tables 1 and 2). Postnatal ultrasound scan confirmed the normal development of the hip in all newborns.

Conclusion

Prenatal assessment of the fetal hip using the Graf technique is feasible and reproducible using 3D ultrasound. Further research is needed to establish if a prenatal screening for DDH is possible.