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The utility of ultrasound elastography in placenta

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Elastography is used as a non-invasive imaging tool for assessment of the elasticity in biological tissue, and has widely applied for breast and prostate to distinguish malignant tumor from the surrounding normal tissue. Recently, it was found that elastography is also useful for evaluation of pathological change in noncancerous tissue, such as placenta. Placenta has an important role in fetal development and maintenance of pregnancy, and its pathological change was correlated with major obstetrical disease, such as hypertensive disorders of pregnancy or fetal growth restriction (FGR). The pathological finding of placenta in these patient showed an acute sclerosis of the blood vessel and fibrosis of the villus. In this study, we prospectively evaluated an ultrasound elastography as a new assessment tool for placenta. A total of 111 pregnant women who regularly visit our hospital received examinations including elastography. After delivery, pathological examinations were performed in placentas. This study was approved by the Institutional Review Board of our University (No. 2949). In results, a significant positive correlation was observed between the ratio of the elasticity of the abdominal wall fat tissue and a Z score of birth weight (correlation coefficient, $r=-0.39$; $p<0.01$). Furthermore, white infarctions were macroscopically observed in parts of the placenta, and incomplete infarction images of the villus were histopathologically observed in the placenta of FGR as hard tissues using elastography. These results suggested that ultrasound elastography may provide useful information on finding high risk pregnant women who need further evaluations, and could be able to reduce perinatal risk.

Biography

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