

EP09.12 The study on the utility of the display of outflow tract coronal section with SlowflowHD in cardiac screening

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Objectives

To enhance the detection rate of first trimester CHD, this study employs SlowflowHD for displaying coronary flow images of outflow tract in addition to conventional screening methods. The aim is to evaluate the repeatability and efficacy of the new combined method.

Methods

To collect ultrasound images of fetal heart at early gestation from July 2020 to December 2023 in the First Hospital of Peking University, Ningxia Women and Children's Hospital. The normal group exhibited "&" shaped blood flow in the four chamber heart and outflow tract coronary section while the abnormal group displayed aberrant blood flow. Follow-up was conducted on fetal cardiac examination during mid-gestation or postpartum, divided into normal and abnormal groups. Some women who underwent induced labour provided informed consent for fetal autopsy. The sensitivity and specificity of this method in diagnosing fetal cardiac structure at early gestation were analyzed.

Results

A total of 1,131 pregnant women were enrolled, 129 CHD fetuses were identified in the first trimester, 143 confirmed CHD infants in the mid-pregnancy and postpartum, 57 severe ones, 156 miscarriages. The main diagnostic results concurred in 116 cases, missed diagnosis in 27, mistyped diagnosis in 13. The coincidence rate was 96.46%, misdiagnosis rate 18.9%, and misdiagnosis rate 1.32%. The positive diagnostic rate was 90.21%, and the positive incidence rate was 12.64%. The sensitivity of the conventional screening method combined with SlowflowHD scanning of the outflow tract coronary section in determining fetal cardiac structure was 81.21%, specificity 98.68%, AUC=0.90, positive likelihood ratio 61.65, negative likelihood ratio 0.19, disease prevalence 13%, positive predictive value 90.21%, and negative predictive value 97.22%.

Conclusion

The outflow coronary cross section can be employed as a novel diagnostic pattern for early CHD screening.



Figure 1. Pulmonary Stenosis

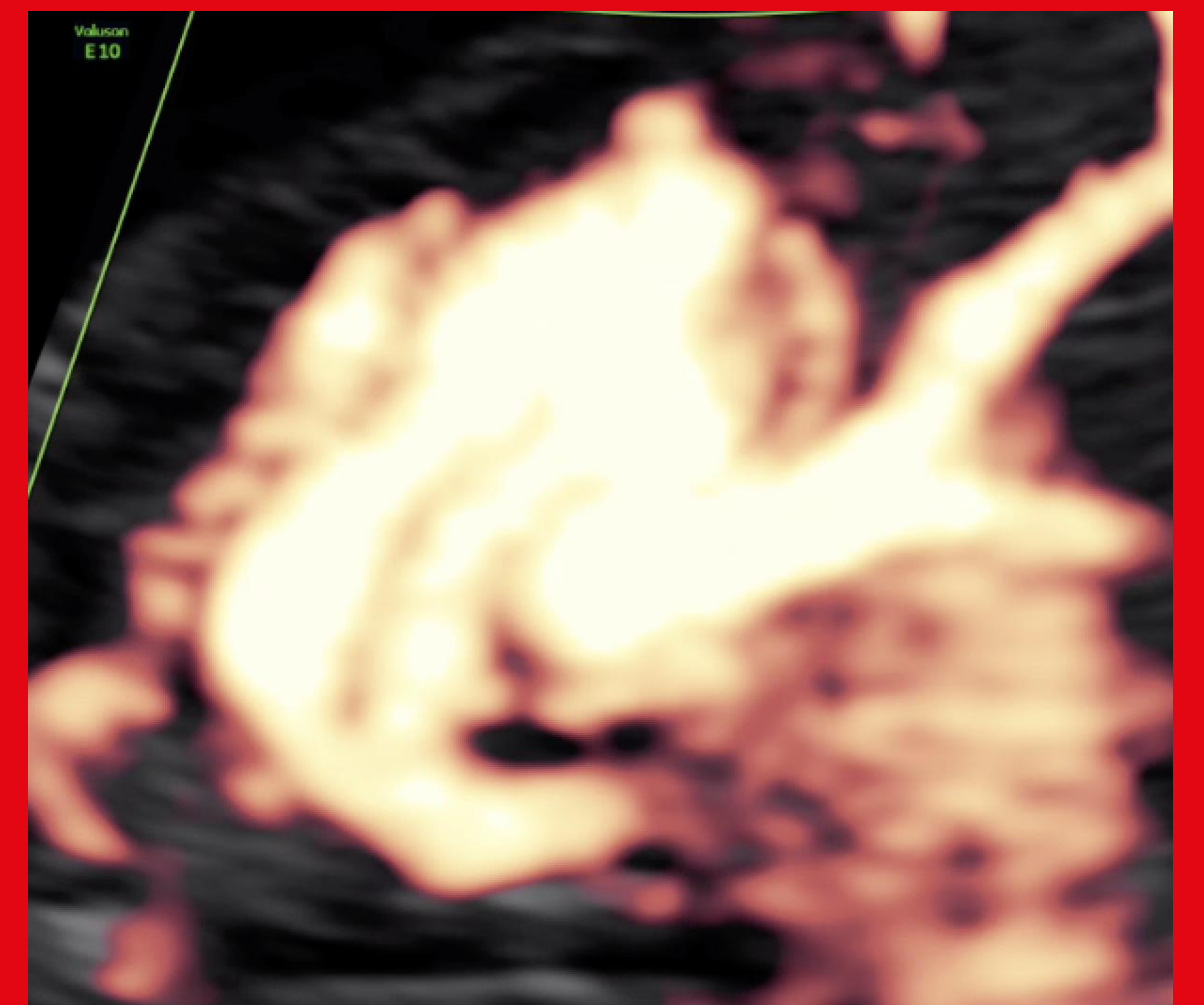


Figure 2. TGA