OP15.04. Novel AI-guided ultrasound screening system for fetal heart can demonstrate findings in timeline diagram. Reina Komatsu, OB/GYN, Showa University School of Medicine, Japan

Objectives:
We have developed a novel artificial intelligence (AI) - guided fetal cardiac screening system to visualize and explain how the AI distinguishes CHD from normal heart.

Methods:

Training dataset
2,378 Labeled Images
(42 Normal videos)

Convolutional Neural Network

Detection of 18 Cardiac Substructures

Test dataset
Normal
TOF
TGA

barcode-like timeline

Results:

Normal

TOF

TGA

The AI clearly identifies the each part of the heart in a manual sweep fetal cardiac screening movie.

The AI correctly identified the absence of the pulmonary artery.

The AI misidentified the pulmonary artery as the great artery, and vice versa.

Conclusions:
This barcode-like timeline system was able to demonstrate how the AI detects each fetal cardiac parts. Therefore, this system tells us the findings of CHD and we can easily understand the decision algorithm of the AI.