

EP05.82 Breakthrough of SlowflowHD vascular imaging in detailed first trimester anatomy scanning

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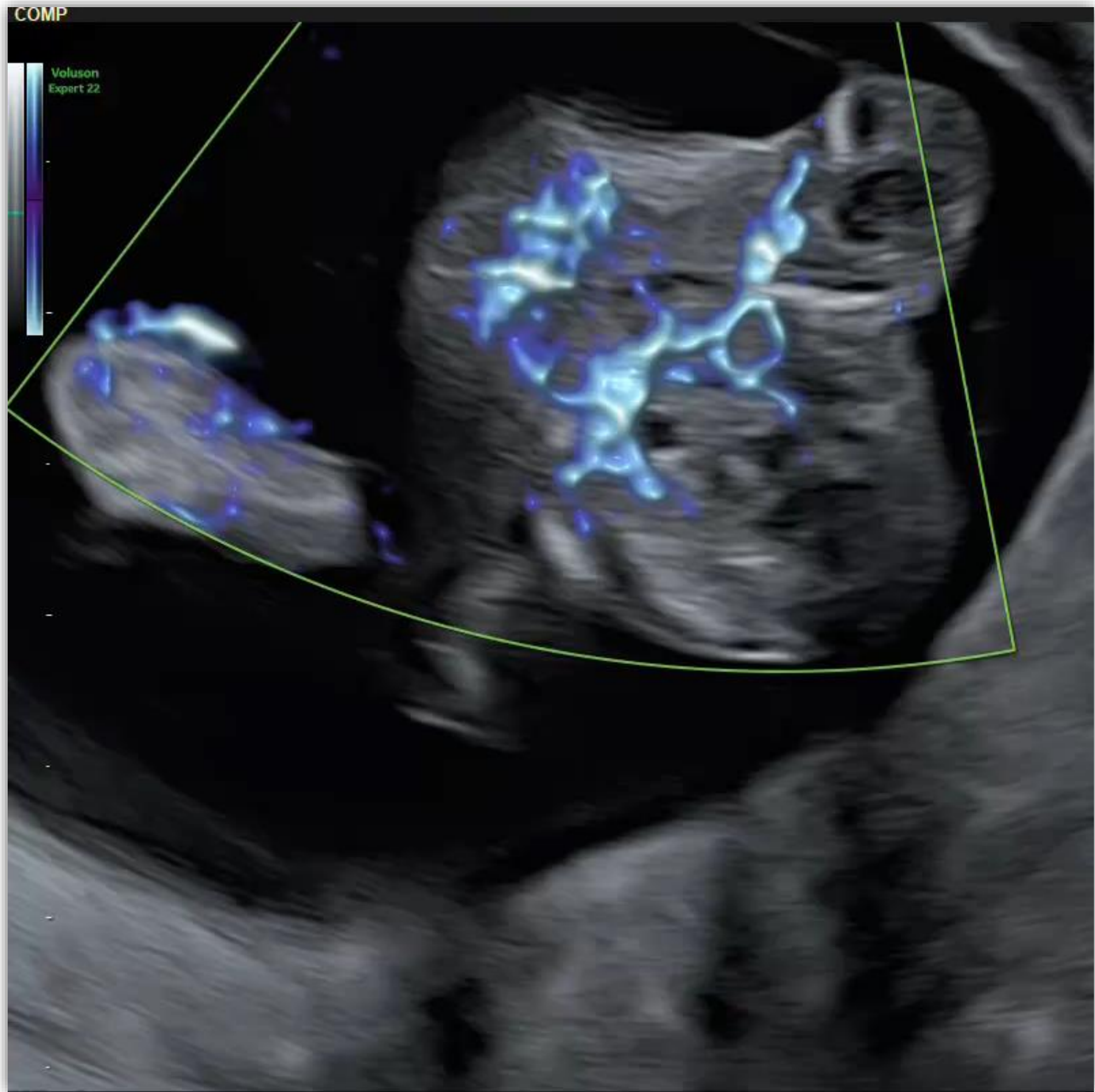


Objective: SlowflowHD (SF) ultrasound technology leverages advanced Doppler principles and sophisticated signal processing to detect and visualize low-velocity blood flow in small vessels. By enhancing sensitivity, reducing noise, and optimizing system settings, slow-flow Doppler provides detailed and accurate imaging of vascular structures. We aimed to compare the performance of SF to High-definition Doppler (HD) in imaging vessels of the brain, chest, and abdomen, in first trimester detailed fetal anatomy scanning (FAS).

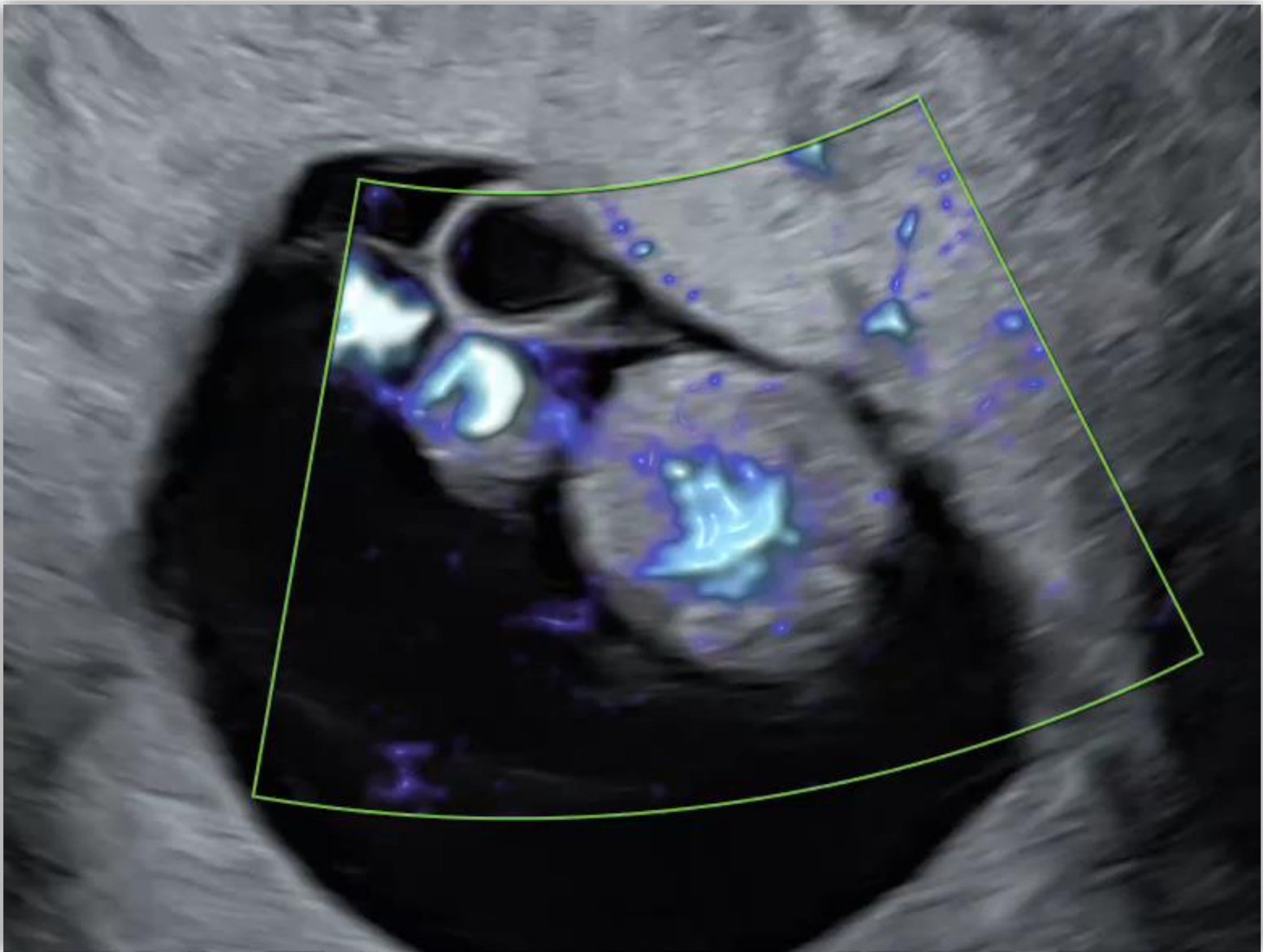
Methods: During routine detailed FAS in the NT window (12⁺⁵-13⁺⁶ wks) we compared the visualization of key blood vessels (see Table) using HD Doppler and SF Doppler.

Results: In 157 fetuses (part of a group recruited to a study of the effectiveness of detailed FAS in the NT window), we showed that following a learning curve, the target vessels were consistently imaged using SF Doppler, in a sagittal sweep from fetal head to abdomen, requiring approximately 90 seconds.

Conclusions: SF Doppler facilitates the visualization of subtle vascular structures during detailed FAS in the NT window (12⁺⁵ to 13⁺⁶ wks) that are not amenable to visualization with HD Doppler.



Thy-box and subclavian

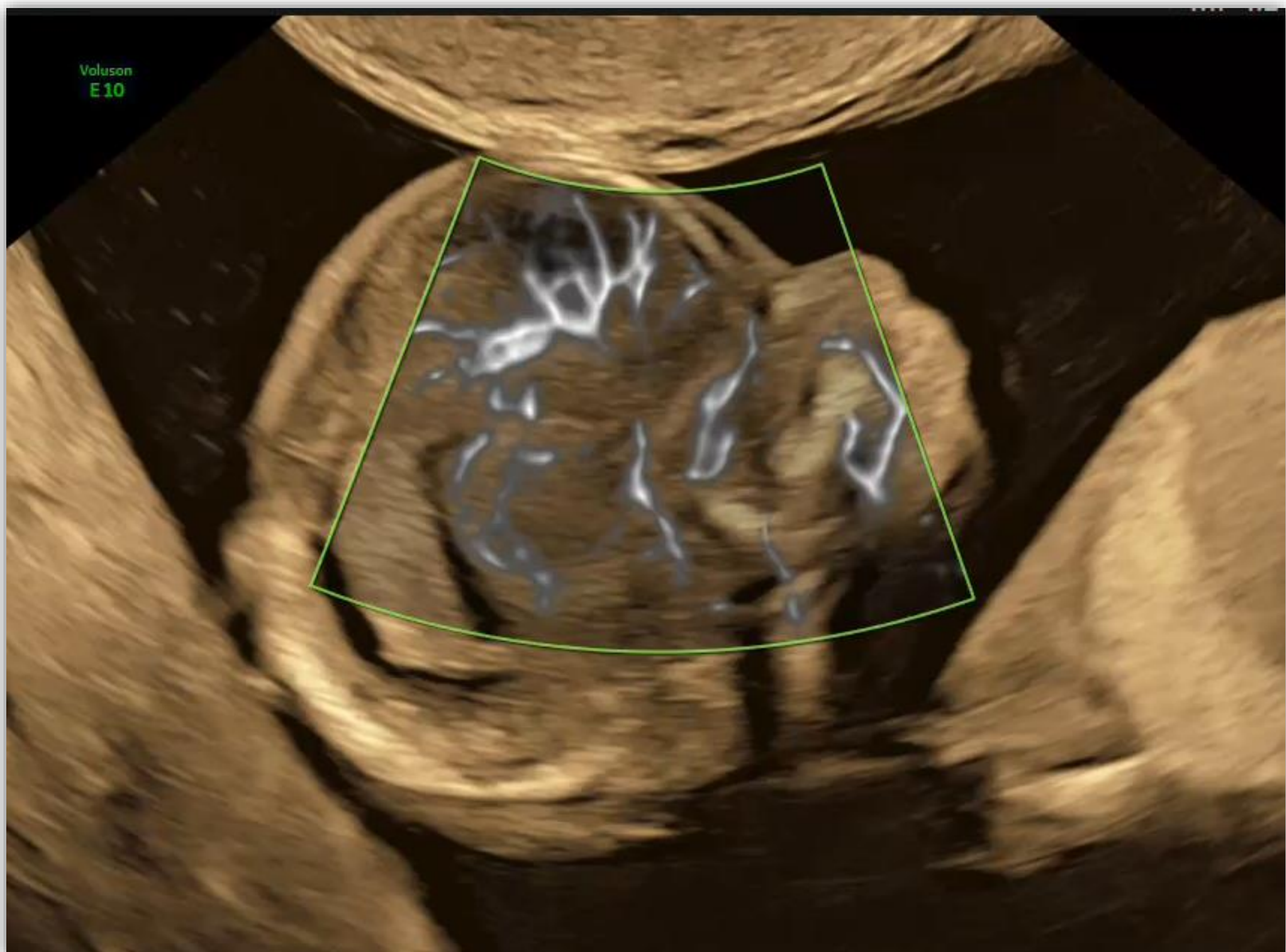


Omphalocele 9 weeks

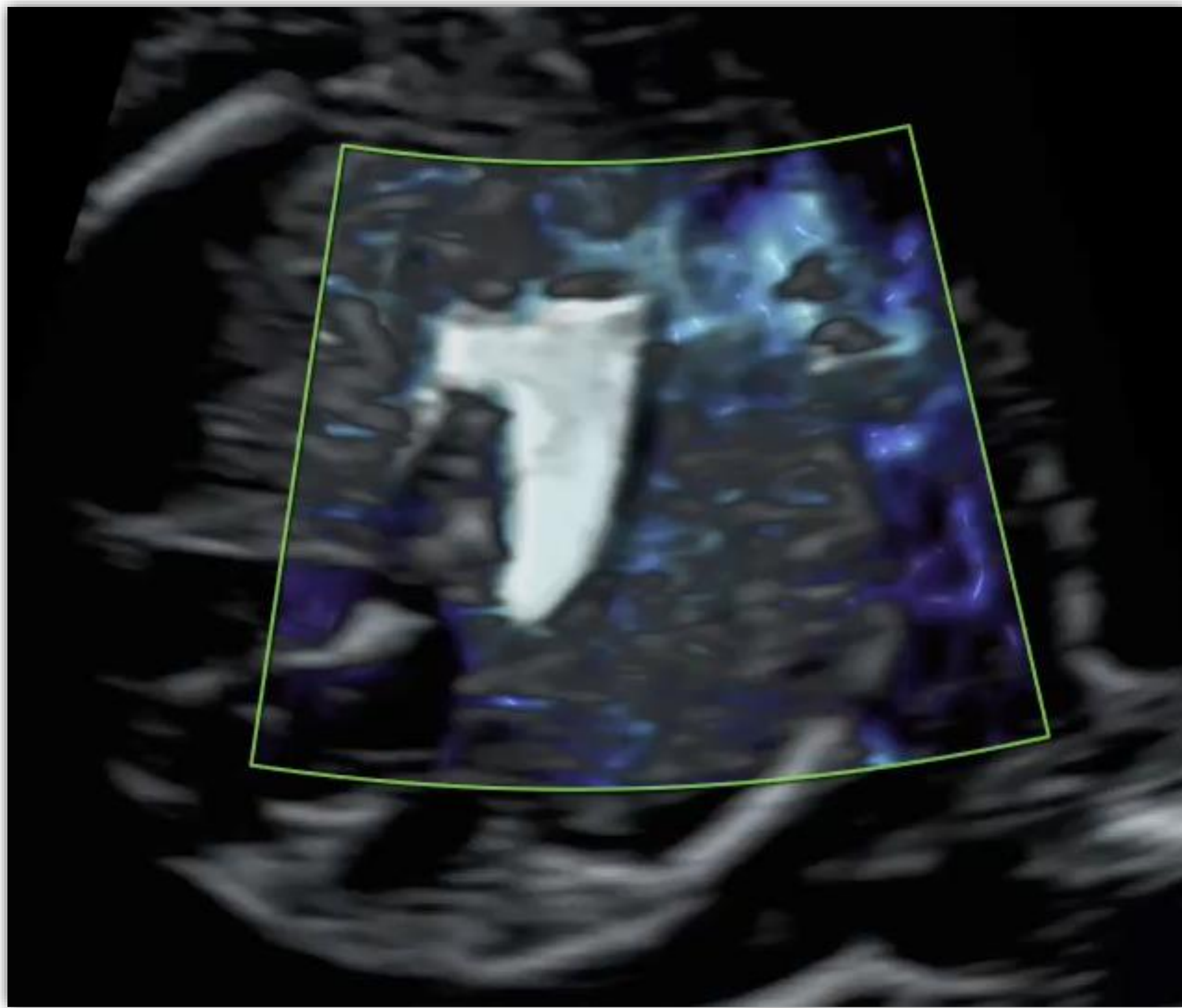
Comparison of visualization rates for fetal vessels using SlowflowHD vs HD Doppler

	Slowflow HD Doppler (N=157) n (%)	HD Doppler (N=157) n (%)	p-value
Brain arteries:			
Anterior cerebral	153 (97.5)	71 (45.2)	p < 0.001
Pericallosal	157 (100)	58 (36.9)	p < 0.001
Brain veins:			
Superior sagittal sinus	157 (100)	100 (63.7)	p < 0.001
Straight sinus	148 (94.3)	76 (48.4)	p < 0.001
Vein of Galen	146 (93.0)	21 (13.4)	p < 0.001
Torcular Herophili	101 (64.3)	24 (15.3)	p < 0.001
Chest arteries:			
Subclavian	128 (81.5)	33 (21.0)	p < 0.001
Internal thoracic	128 (81.5)	17 (10.8)	p < 0.001
Aortic arch bifurcations	98 (62.4)	Ø	p < 0.001
Chest veins:			
Pulmonary veins (2)	157 (100)	133 (84.7)	p < 0.001
Azygos	152 (96.8)	70 (44.6)	p < 0.001
Abdominal veins:			
Portal system	157 (100)	71 (45.2)	p < 0.001
Hepatic system	157 (100)	78 (49.7)	p < 0.001
IVC	157 (100)	154 (98.1)	p = 0.25
Umbilical	157 (100)	157 (100)	p = 1.00
Left portal and DV	157 (100)	139 (88.5)	p < 0.001
Heart:			
Four chamber view	157 (100)	157 (100)	p = 1.00
RVOT	157 (100)	157 (100)	p = 1.00
LVOT	157 (100)	157 (100)	p = 1.00
3VT	157 (100)	157 (100)	p = 1.00

*chi-square test



Brain vasculature 13 wks



Pulmonary stenosis

