

eL18-4 PureWave linear array transducer

Category

Fetal assessment

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Elevating diagnostic confidence in suspected fetal spine anomaly

Overview

Ultrasound is the primary imaging modality to evaluate for fetal congenital anomalies. In the case of spinal abnormalities, evaluation of the anus is important to rule out anorectal malformations, which can be part of a larger association of abnormalities known as VACTERL (Vertebral, Anal, Cardiac, Tracheoesophageal, Renal, Limb).¹

Patient history

A 22-year-old female, pregnant with a single fetus, presented for fetal MRI and ultrasound at 23 weeks. The indication for the exam was

a spinal anomaly noted on an obstetrical ultrasound performed at an outside institution. Evaluation of the rectum was limited on balanced turbo field echo (BTFE) and T1-weighted high resolution isotropic volume excitation (THRIVE) MRI sequences. Usually, meconium is easily and well-seen on T1-weighted images as a bright signal within the colon. In the current case, the rectum was not well-seen on T1 (Figure 1) and seen only as a structure with dark signal on BTFE projecting posterior to the bladder (Figure 2).

The Philips eL18-4 PureWave linear array transducer is our first high-performance transducer featuring ultra-broadband PureWave crystal technology with multi-row array configuration, allowing for fine-elevation focusing capability.

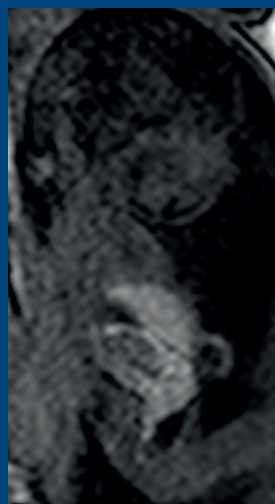


Figure 1 T-1 weighted MRI image.

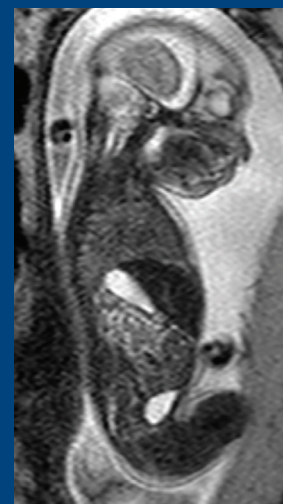


Figure 2 BTFE MRI image.



Figure 3 Ultrasound image with the X6-1 transducer.

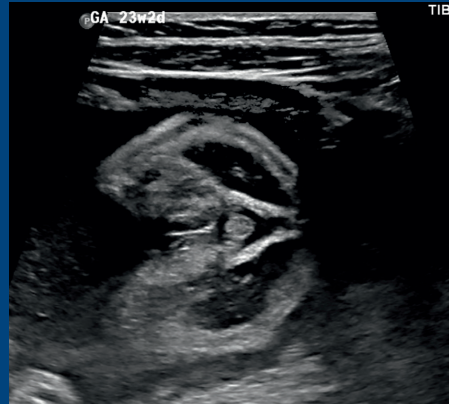


Figure 4 Ultrasound image with the eL18-4 transducer.

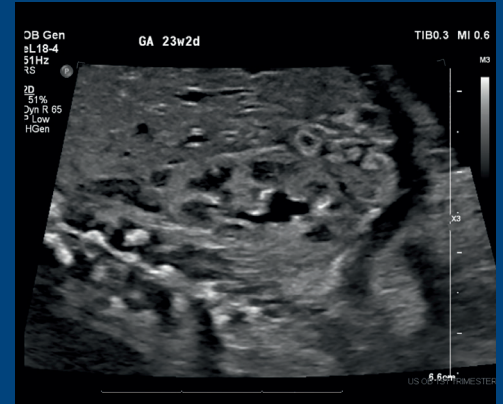


Figure 5 Ultrasound image with the eL18-4 transducer.

Protocol

Axial images were obtained with the X6-1 transducer (Figure 3) on the EPIQ ultrasound system at the level of the perineum, followed by axial images in the same plane using the eL18-4 PureWave linear array transducer (Figure 4). The goal of the exam was to confirm the presence of the anus to rule out anorectal malformation (anal dimple).

Findings

The anal dimple was seen to greater advantage using the eL18-4 transducer when compared to the X6-1 transducer, adding certainty that a normal anus was present. Additional pediatric-quality images were obtained on the right kidney (Figure 5).

Reference

1 Genetics Home Reference: VACTERL association. U.S. National Library of Medicine. <https://ghr.nlm.nih.gov/condition/vacterl-association>. Accessed May 18, 2018.

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

Conclusion

Using the Philips PureWave eL18-4 transducer brings pediatric-quality imaging to obstetrical ultrasound. The exceptional quality of the image obtained of the anus enhanced clinician confidence in excluding anorectal malformation.