

Interesting Images

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Three-Dimensional Ultrasound Visualization of the Epididymis Using a Transvaginal Probe Applied Scrotally

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Interesting Images

Three-Dimensional Ultrasound Visualization of the Epididymis Using a Transvaginal Probe Applied Externally to the Scrotum

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Abstract

Ultrasound is the primary imaging modality for evaluation of the scrotum and male reproductive tract. While high-frequency linear probes allow detailed assessment of testicular parenchyma, comprehensive visualization of epididymal anatomy and its spatial relationship to the testis may be limited using conventional two-dimensional imaging alone [1]. This limitation is clinically relevant in the evaluation of male infertility, where epididymal abnormalities may contribute to obstructive processes [2–4]. We present a clinical image demonstrating a novel external scrotal application of a conventional three-dimensional (3D) transvaginal ultrasound probe. The images were obtained in an adult male undergoing infertility evaluation. With generous coupling gel and minimal probe pressure, the transvaginal probe was applied externally over the scrotum. High-resolution 2D images were first obtained, followed by volumetric 3D acquisition. The acquired dataset was analyzed using multiplanar reconstruction and volume-rendering techniques. This approach enabled clear visualization of the epididymal head, body, and tail, along with their anatomical continuity and relationship to the adjacent testis. The volume-rendered images provided an intuitive 3D depiction of epididymal curvature and spatial orientation, features that can be challenging to appreciate using standard linear scrotal ultrasound alone. Importantly, no patient discomfort, adverse effects, or technical complications were observed during the examination. This clinical image highlights the feasibility of repurposing a 3D transvaginal probe for external scrotal imaging to improve anatomical depiction of epididymal structures. While the technique is not intended to replace conventional scrotal ultrasound, it may offer additional anatomical insight in selected infertility cases. This report serves as a hypothesis-generating illustration and supports further evaluation of its diagnostic utility in larger studies.

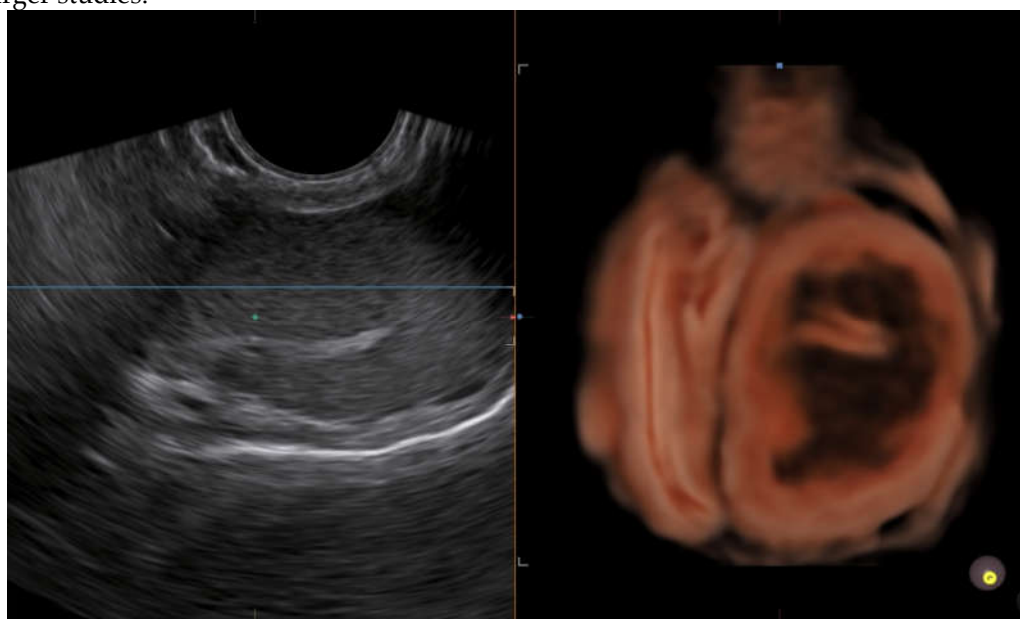


Figure 1. External scrotal ultrasound using a three-dimensional transvaginal probe.

(Left) Two-dimensional grayscale image demonstrating visualization of the epididymal–testicular interface.

(Right) Volume-rendered three-dimensional reconstruction showing the spatial relationship between the epididymis and testis.

Supplementary Materials: The following supporting information can be downloaded at the website of this paper posted on Preprints.org.

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