

CASE STUDIES

3D Sonohysterographic Demonstration of an Endometrial Placental Site Nodule/Plaque With Multiplanar Reconstruction

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Recent advances in ultrasound and computer technology have given quick rise to 3D sonographic imaging. This case report demonstrates a placental site nodule/plaque within the endometrial cavity. The evaluation of the nodule was enhanced by the use of 3D imaging during sonohysterography, as well as coronal multiplanar reconstruction.

Key words: sonohysterography, 3D imaging, placental site nodule, placental site plaque

Case Presentation

A patient in her mid-30s, gravida 7, para 3, presented as a habitual aborter, with dysfunctional uterine bleeding. She had a D&C 3 months prior for an embryo demise at 9 weeks gestation. The patient was referred for a sonohysterogram to rule out retained products of conception or other endometrial pathology. Using standard protocols, a catheter was introduced into the endometrial cavity. During the injection of approximately 20 cc of sterile saline, 2D sonography demonstrated a 1.5-cm, somewhat irregular, echogenic mass centrally in the endometrial cavity. With the uterine cavity well distended with saline, 3D imaging was obtained using Biomedicom SonoReal/Sono3D software. The mass was well delineated with both 3D surface rendering (Figs. 1, 2), as well as coronal multiplanar reconstruction (Fig. 3).

The coronal reconstructions delineated the mass's origin from the right postero-lateral endometrial wall. The mass had a central component with a stranding appearance extending superiorly and inferiorly. The differential diagnosis included retained placental tissue, endometrial senescia, atypical polyp or fibroid, and neoplasm. 3D surface rendering did not add to the differential diagnosis; however, it gave the

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FIG. 1. 3D surface rendering of the endometrial mass from a right sagittal perspective.



FIG. 2. 3D surface rendering of the endometrial mass from a left sagittal perspective.



FIG. 3. Coronal reconstructions of the endometrial mass showing its attachment to the right lateral wall.

surgeon a helpful perspective of its overall size and shape in contrast to the endometrial cavity prior to surgical intervention. The patient underwent hysteroscopy and D&C. Pathological evaluation of the endometrial curettings demonstrated multiple fragments of endometrial tissue, containing a placental site nodule/plaque (PSN-P).

The patient's dysfunctional bleeding resolved, and she became pregnant within 2 months. She is

currently at 15 weeks gestation with an uncomplicated pregnancy.

Discussion

PSN-P are small aggregates of circumscribed, microscopic foci of hyaline material that contain intermediate trophoblast, which originate from the superficial myometrium. These occur as a result of

benign retention of small areas of placental tissue at the implantation site from previous normal or abortive pregnancies. The lesions usually are microscopic abnormalities found at curettage performed for abnormal bleeding, and they are often mixed with proliferative or secretory endometrium.¹ A 1990 study by Robert Young et al.¹ examined the presentation and features of 20 cases of PSN-P and found these lesions occurred in patients 27 to 45 years of age (average = 34.5 years) and were discovered in endometrial curettage specimens performed for irregular bleeding or were incidental findings in curettage or hysterectomy patients. The interval from the most recent pregnancy to the time of presentation ranged from 1 to 8 years (average = 3 years). An uneventful follow-up of 1 to 7 years was obtained in 14 cases, including 5 in which the only treatment was dilatation and curettage.²

Numerous authors have described the sonographic appearance of retained products of conception with 2D ultrasound, as well as hysterosonography³⁻⁸; however, we found no previous reference to 3D ultrasound used in conjunction with sonohysterography to augment the imaging or describe this particular pathology.

Comments

This case report demonstrates the expanding uses of 3D ultrasound, as well as multiplanar reconstruction. 3D surface rendering, augmenting sonohysterography, allows for improved orienta-

tion of endometrial pathology, its location, and origin. Multiplanar reconstruction can offer computed tomography–like, thin sections in multiple planes to better delineate internal structure, boundaries, and tissue planes. These new imaging tools will continue to improve our ability to evaluate the female reproductive system.

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