

When a Long-Acting Contraceptive Device in the Uterus Is Not an “IUD”

William W. Brown III, MD

CASE

A 31-year-old female presented to her primary care provider for a periodic health maintenance visit with the only complaint being some daily mild, nonlateralizing pelvic discomfort. An intrauterine contraceptive device (IUD) of uncertain type had been placed 3 years prior at another clinic.

When the IUD strings were not visible on pelvic examination, a pelvic ultrasound was ordered that showed an unrecognized foreign body in the uterus (Figures 1A, 1B). It lay eccentrically high in the left cornu and was suspicious for partial serosal perforation, so a referral was made to the gynecology service.

Given the complaint of vague pelvic discomfort and the uncertain efficacy of the device in situ, a plan was made for hysteroscopy, and possible laparoscopy, with removal and replacement of the IUD. At surgery, the outer coil of a tubal microinsert device was seen protruding from the left tubal os, and the right tubal os appeared normal. Intraoperative pelvic x-ray clearly showed 2 devices symmetrically positioned in the mid-pelvis and consistent with likely intratubal positioning. The operative procedure was then terminated.

Review of the previous ultrasound information uncovered a saved, unstudied 3-dimensional volume data set. Multiplanar reconstructed images confirmed bilateral implants (Figure 2), although the tubal mi-



FIGURE 1A. Left sagittal view of the uterus. There is an undulating, bright, linear echodensity (arrowhead) high in the left cornu of the uterus. It appears to extend from the upper reaches of the endometrial cavity, through the myometrium and beyond the serosa.

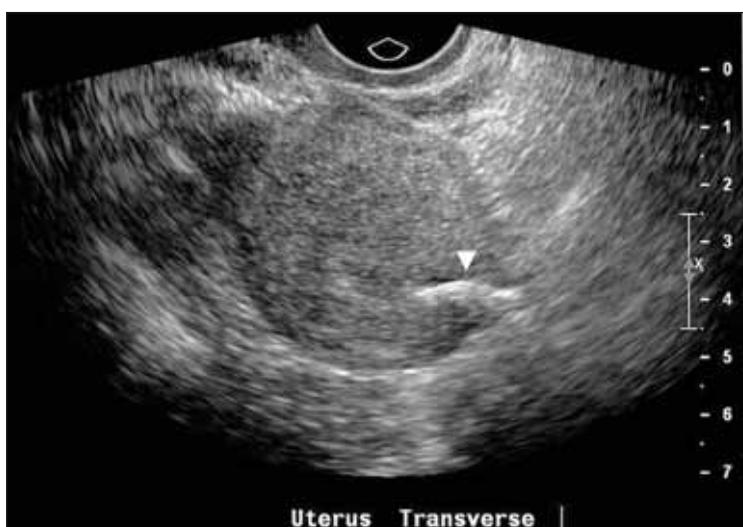


FIGURE 1B. The same device (arrowhead) is apparent when vaginal transducer is turned horizontally, although the endometrial cavity is less well defined. The remainder of the uterus is normal, with no evidence of other foreign bodies.

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CASEREPORT

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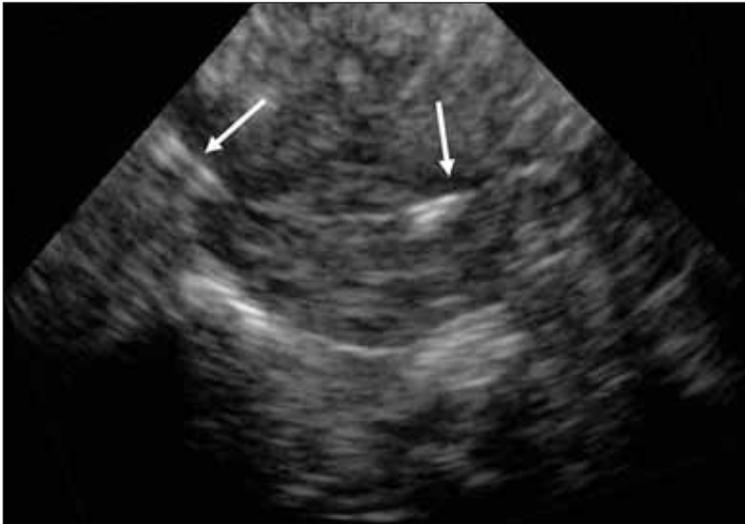


FIGURE 2. Multiplanar reconstructed (MPR) horizontal image, uterus. Two microinserts (arrows) are clearly evident, although the right has only minimal extension into the intramural fallopian tube. Double lines representing the device outer coil can now be appreciated.

microinsert device on the right was located more distally in the fallopian tube than that on the left (Figure 3).

Tubal microinserts for sterilization (Essure[®]; Conceptus Inc, Mountain View, CA) were first approved by the FDA in 2002, and the easily performed office procedure for hysteroscopic insertion is rapidly gaining increased worldwide acceptance as an alternative to more traditional tubal ligation.¹

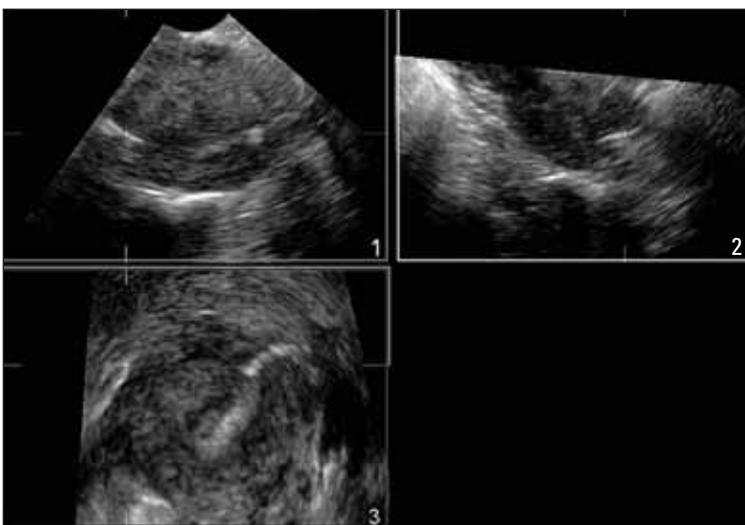


FIGURE 3. Complete MPR views showing the right-sided contraceptive device in each of 3 orthogonal planes (crosshair caliper). Box 1, transverse; box 2, sagittal; box 3, true coronal.

When device placement is uncomplicated, the usual pelvic sonographic findings are predictable and have been well described in the literature. However, unbalanced positioning of the microinserts is not uncommon, and the resulting imaging can be misleading. This case demonstrates atypical ultrasound images after Essure placement and the subsequent clinical challenges in a woman who was uncertain of her own method of contraception.

DISCUSSION

The appearance on ultrasound of bilateral Essure microinserts after ideal placement has been well described²: A curvilinear echodensity is symmetrically located in each uterine cornu; the unwound outer coil of the device, made of nickel and titanium, looks like 2 parallel interrupted lines (Figure 2) with the proximal ends near to or penetrating through the endometrial-myometrial junction; rarely, a third singular echogenic line can be seen that represents the wound-down inner stainless steel coil.³

Not uncommonly, however, device placement is not perfect, and the resulting imaging appearances do not follow scripted expectations. While atypical sonographic findings have even been reported after successful bilateral Essure placement, they are more likely the result of device insertion that is asymmetrically unbalanced or complicated.⁴ The microinsert may be incorrectly placed too proximally in the fallopian tube, or it may become completely dislodged within the endometrial cavity.⁵ Alternatively, if an implant rests more distally in the tube, it may be partially or totally obscured by nearby bowel or gas. The overall result can be a uterus that appears empty of any contraceptive apparatus, or there may be evidence of only one foreign body echodensity of varying lengths, locations, and appearances.⁶

The customary characteristics of the device coils, or the exact positioning of the implants relative to the utero-tubal junction, may require 3-dimensional volume imaging ultrasound in order to be optimally enhanced, as is evident in this case.⁷ In fact, such technology that allows the postprocessing ability to infinitely rotate a volume data set for viewing may be the only means of locating a malpositioned microinsert or

identifying it accurately.

Essure localization with ultrasound is readily accomplished in most patients as a means of postprocedure confirmation, but the microinserts are not always visible, presumably due to either distal placement or expulsion into the abdominal cavity.^{8,9} When there is no stated past history from the patient of transcervical sterilization, it may be even more confusing to find a unilateral curvilinear echodense structure traversing somewhere in the area of the uterine cornua. Importantly, this report is a reminder that Essure devices may occasionally have atypical, asymmetric ultrasound features or locations.

Perfect positioning of the appliance bilaterally through the entire length of the intramural fallopian tube is not absolutely necessary to result in tubal occlusion.⁷ Thus, sonographic visualization and localization of both microinserts may not be achievable, although the implants may be perfectly functional. As this simple office procedure becomes more commonplace in the future, diagnostic ultrasound for routine gynecologic indications will reveal both predictable and nonconforming microinsert appearances.

While the clinical conundrum presented here could have been easily solved had the patient fully known the type and irreversibility of her own chosen contraceptive method, the case serves to remind inter-

preting clinicians and sonographers alike of the many various ultrasound expressions of Essure tubal sterilization devices.

The author reports that he is a consultant for Philips Healthcare.

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