

A view inside the womb

Gillian Graves

Technology: Sonohysterography

Use: With this technique, a refinement of transvaginal ultrasound imaging, saline is infused into the uterine cavity to enhance the imaging of the endometrium. The procedure was initiated because of the low sensitivity and specificity of transvaginal ultrasound for detecting endometrial pathology. In addition, the cost, inconvenience and radiation exposure associated with hysterosalpingography and the surgical risks of hysteroscopy are often avoided if sonohysterography is successful.

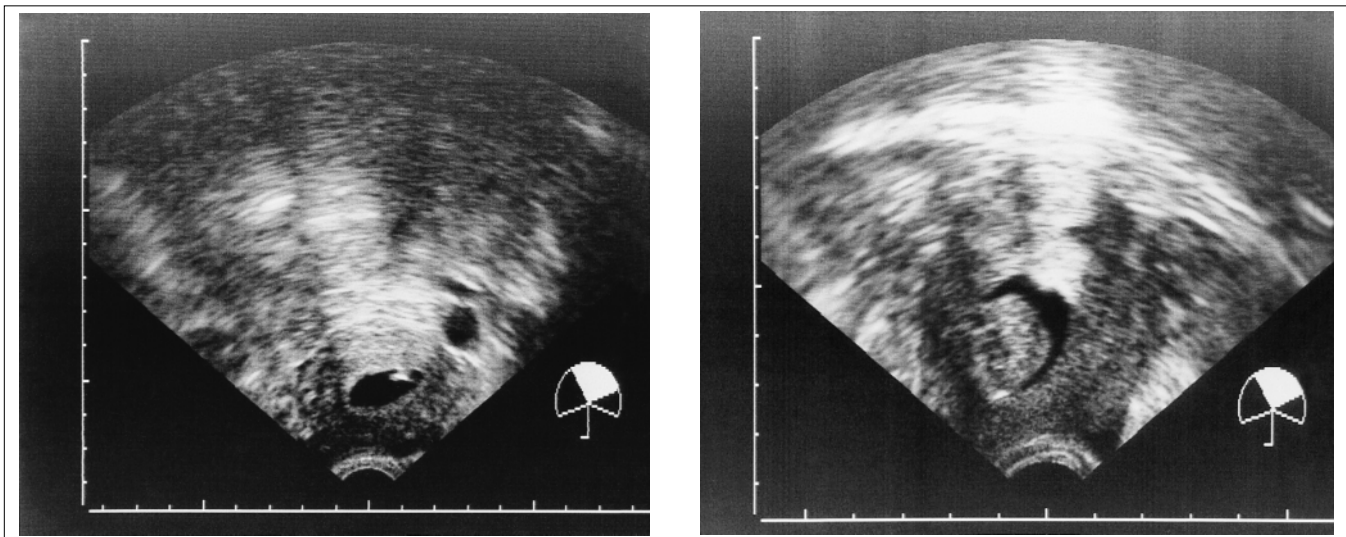
The procedure is performed in the follicular phase of the menstrual cycle; at this time, pregnancy can be ruled out and image quality is at its best because the endometrium is thinnest just after a period. After a baseline transvaginal ultrasound has been done, a soft catheter is placed in the uterus, and the uterine cavity is distended with saline; no analgesia is required for this. Endometrial polyps or submucosal fibroids protruding into the cavity can then be seen and diagnosed accurately.¹ This procedure should not be performed in the presence of infection, however.

History: Since the mid-1980s transvaginal ultrasonography has been used in Canada to evaluate the endometrium of women with infertility problems or abnormal uterine bleeding; its main advantage over the transabdominal route is better image quality. It is still difficult to distinguish between generalized endometrial thickening or hyperplasia, focal en-

dometrial polyps and submucosal myoma, however. In a sonohysterogram, the image is improved because the saline used to fill the uterine cavity acts as a negative contrast agent.

Promise: Sonohysterography is a simple, fast, well-tolerated and accurate method to evaluate uterine pathology; patient discomfort is minimal, and the cost is low for the 50 mL of saline and the catheter used to fill the uterus. A 27-cent pediatric feeding tube can be used if the cervix is small, or a \$60.00 balloon catheter may be required, for women who have given birth, to obtain a seal when the cervix is dilated and prevent saline from leaking out. The procedure is of benefit to patients because contrast dye is not required and the use of diagnostic hysteroscopy is minimized.

In a prospective study conducted by Gronlund and colleagues² in which sonohysterography and hysteroscopy were used to evaluate female infertility and metrorrhagia, 60 of 66 women were examined successfully with sonohysterography. The overall sensitivity and specificity for sonohysterography was 90.9% and 100% respectively, and the positive and negative predictive values were 100% and 90% respectively. In another study the assessment of tubal patency, which is important in diagnosing tubal causes of infertility, was successful in 79% of women when saline was used and in 92% of patients when a contrast agent was used.³ At present, hysterosalpingography is still a more reliable method for evaluating tubal patency, but it involves the radiographic use of contrast dye



Saline-instilled sonohysterograms of the uterine cavity. Left, normal uterine cavity; right, irregular shape indicates presence of a submucosal fibroid (later confirmed by hysteroscopy).

and, at times, discomfort. Laparoscopy, another technique used to assess tubal patency, involves an anesthetic and post-operative discomfort.

Problems: Implementing this technology properly, without introducing infection, requires experience with the catheterizing instruments. The gynecologist often performs the procedure, and coordination with the ultrasound technician and radiologist is therefore necessary. There is a small risk of trauma to the cervix or uterus if dilatation is required for patients with a stenotic cervical os. Also, if distension of the cavity is inadequate or if the polyp has a broad base, it may be difficult to distinguish between a polyp and a fibroid. Moreover, in one study, it was not technically possible to get a good image in 30% of the patients who were examined.⁴

Prospects: For the investigation of abnormal uterine bleeding, as a minimally invasive procedure to evaluate endometrial response to tamoxifen, for the assessment of infertility and the detection and localization of fibroids, and before in vitro fertilization this technique is simple and safe. Sonohysterography

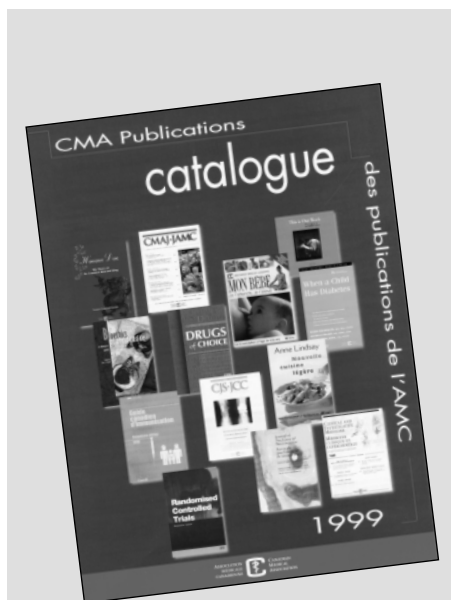
reduces the need for more invasive procedures and therapies and overcomes the limitations associated with unenhanced transvaginal ultrasound images of the endometrial cavity.

Competing interests: None declared.

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