What Is Your Diagnosis?

In cooperation with

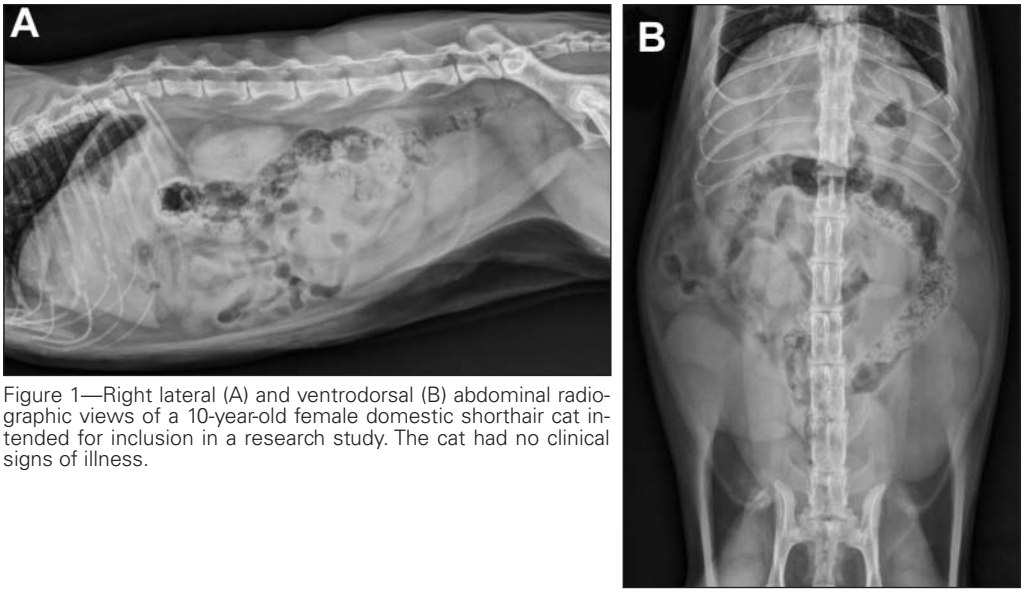

Figure 1—Right lateral (A) and ventrodorsal (B) abdominal radiographic views of a 10-year-old female domestic shorthair cat intended for inclusion in a research study. The cat had no clinical signs of illness.

History

A 10-year-old female domestic shorthair cat from a research colony underwent abdominal radiography (**Figure 1**) and ultrasonography as part of a screening protocol prior to inclusion in a research project. Results of a physical examination and a CBC and serum biochemical analyses failed to reveal any abnormalities. When questioned, caretakers from the laboratory animal facility indicated that the cat had no clinical signs of illness.

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1—then turn the page →

This report was submitted by Matthew L. Baron, DVM; Federica Morandi, DVM, MS, DACVR; Silke Hecht, DVM, DACVR; and Amy K. LeBlanc, DVM, DACVIM; from the Department of Small Animal Clinical Sciences, College of Veterinary Medicine, University of Tennessee, Knoxville, TN 37996.
Address correspondence to Dr. Morandi.

Figure 2—Same radiographic views as in Figure 1. Notice the soft tissue opaque tubular structures (white arrowheads) located on either side of the abdomen and between the colon (C) and bladder (B).

Figure 3—Transverse ultrasonographic view of the uterine body (between calipers; diameter, 2.7 cm). The uterus is distended with fluid of homogeneous, finely textured echogenicity.

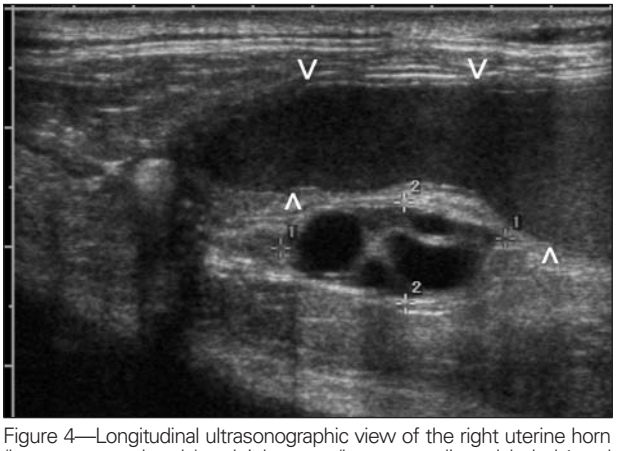

Figure 4—Longitudinal ultrasonographic view of the right uterine horn (between arrowheads) and right ovary (between calipers labeled 1 and 2; 1.9 × 0.9 cm). Several anechoic structures are evident within the ovary.

Diagnostic Imaging Findings and Interpretation

In the radiographic views, 2 large tubular to lobulated structures of homogeneous soft tissue opacity are visible on each side of the caudal portion of the abdomen (**Figure 2**). On the lateral view, these structures are superimposed and extend between the colon and the neck of the urinary bladder to the area of the pelvic inlet. The intestines are displaced cranially and axially.

Ultrasonographically, the uterus appears severely distended (maximum diameter of 2.7 cm) and contains fluid of homogeneous, finely textured echogenicity. There is no evidence of fetal structures (**Figure 3**). Both uterine horns can be traced cranially to the caudal pole of the respective kidney, and both ovaries are large (right ovary, 1.2×1.6 cm; left ovary, 2.5 × 1.2 cm), have irregular shape, and contain multiple, anechoic structures, measuring up to 1.1 cm in diameter with distal enhancement, consistent with fluid-filled follicles or cysts (**Figure 4**).

Differential diagnoses included hydrometra, mucometra, hemometra, and pyometra with concurrent polycystic ovaries. Given the lack of clinical signs and laboratory values within reference range, hydrometra or mucometra were considered most likely.

Comments

Ovariohysterectomy was performed later that day. Mucometra was confirmed after cytologic analysis of a sample of the uterine fluid. Hydrometra and mucometra are terms that describe the accumulation of sterile mucin within the uterine lumen.[1]

Mucometra, hydrometra, pyometra, hemometra, and pregnancy before fetal mineralization should be high on the differential list whenever radiography reveals a large, distended, fluid opaque mass in the caudal portion of the abdomen of a sexually intact female cat. Definitively documenting pregnancy via radiography is only possible after ossification of the fetal skeleton, which occurs between 36 and 45 days of gestation in the queen.[2] Differentiation between pyometra or hemometra and mucometra or hydrometra is important, as pyometra is a potentially life-threatening condition that requires immediate medical (prostaglandin) or surgical (ovariohysterectomy) intervention.

Ultrasonography can distinguish pregnancy from nonpregnant conditions of the uterus, although it is much less helpful in differentiating between hydrometra or mucometra and pyometra or hemometra. Watery mucin (hydrometra) is more likely to be anechoic, whereas viscous mucin (mucometra) and hemorrhagic (hemometra) or purulent (pyometra) fluid are more likely to be homogeneously echogenic[3]; however, because ultrasonographic appearance of the uterine fluid is unreliable at determining cytologic makeup of fluid, differentiation between hydrometra or mucometra and hemometra or pyometra is best made on the basis of clinical signs and results of physical examination and laboratory analyses.

1. Feldman EC, Nelson RW. Feline reproduction. In: *Canine and feline endocrinology and reproduction*. 3rd ed. St Louis: Saunders Co, 2004;1035–1038.
2. Feeney DA, Johnson GJ. The uterus, ovaries, and testes. In: Thrall DE, ed. *Textbook of veterinary diagnostic radiology*. 5th ed. St Louis: Saunders Co, 2007;739–742.
3. Matton JS, Nyland TG. Ovaries and uterus. In: *Small animal diagnostic ultrasound*. 2nd ed. Philadelphia: Saunders Co, 2002;231–249.