What Is Your Diagnosis?

History
A 2-year-old 13.4-kg (29.5-lb) spayed female mixed-breed dog was evaluated for repair of a left inguinal hernia and ovariohysterectomy. The dog had had a litter of puppies in the past; however, no additional history was known. The dog also had red-pigmented urine. Results of CBC included leukocytosis (22.3 × 10³ WBCs/µL; reference range, 6.2 to 14.4 × 10³ cells/µL), neutrophilia (17.2 × 10³ cells/µL; reference range, 3.4 to 9.7 × 10³ cells/µL), and a left shift (0.4 × 10³ band neutrophils/µL; reference range, 0 to 0.1 × 10³ cells/µL). Results of serum biochemical analyses included hypoalbuminemia (2.4 g/dL; reference range, 3.1 to 4.1 g/dL) and mild hyperglobulinemia (3.7 g/dL; reference range, 1.9 to 3.6 g/dL). A urinalysis was not performed. Radiographs of the abdomen were obtained (Fig 1).

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

Figure 1—Right lateral (A) and ventrodorsal (B) radiographic views of the abdomen of a 2-year-old dog evaluated for an inguinal hernia.

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Diagnosis

Radiographic diagnosis—A large inguinal hernia containing portions of the small intestine and a mineral-opacity curvilinear structure in the perineal region are evident (Fig 2 and 3). The distal portion of the colon contains a large amount of gas and feces. The urinary bladder cannot be seen.

Comments

Left inguinal herniorrhaphy and ovariohysterectomy were performed. The mineral opacity was not investigated further. The dog was treated with amoxicillin-clavulanic acid (15 mg/kg [6.8 mg/lb], PO, q 12 h for 3 weeks) for a presumptive urinary tract infection.

Four weeks later, the dog was evaluated for persistently red-pigmented urine and pollakiuria despite antimicrobial treatment. Results of physical examination were unremarkable, and radiographs obtained during the previous visit were reviewed.

Differential diagnoses for the mineral opacity in the perineum included os clitoris, fetal structure or other foreign body, and dystrophic mineralization associated with a muscle. The dog was sedated with butorphanol and acepromazine, and a vaginal examination was performed. The dog had signs of pain during vaginal examination, and a sharp, mobile object was palpated in the vestibule of the vagina. Os clitoris was ruled out because palpation of an os clitoris would not induce signs of pain. The dog was anesthetized and an episiotomy performed. A band of fibrous tissue was observed within the vestibule wall with a foreign body and purulent exudate. The foreign body, fibrous tissue, and purulent exudate were removed and tissue was submitted for histologic examination, which revealed chronic, locally extensive, pyogranulomatous vaginitis with extensive fibrosis. The foreign body was identified as a fragment of the calvaria of a macerated fetus, presumably from the previous parturition. After surgery, the color of the urine was normal.

Although there are several reports of retained fetal tissues in large animals, especially cows, there are few reports in small animals. However, retention of fetal tissues should be a differential diagnosis for abnormal vaginal discharge or hematuria in breeding bitches. In the dog of this report, dystocia during a previous parturition was the most likely cause of the retained neonatal calvaria.

Persistent hematuria may be associated with multiple disease processes, including persistent urinary tract infection, sterile interstitial cystitis, cystic calculi, ruptured bladder, coagulopathy, neoplasia, vaginal disease, and foreign material in the reproductive or urinary tract. To determine the cause of persistent hematuria, a CBC, serum biochemical analyses, urinalysis, bacteriologic culture of the urine, and diagnostic imaging are essential. Radiography and ultrasonography are useful when searching for cystic calculi and bladder wall abnormalities. Although foreign material in the vagina is not a common cause of hematuria, a vaginal examination may be useful as part of the diagnostic evaluation.