

What Is Your Diagnosis?

In cooperation with

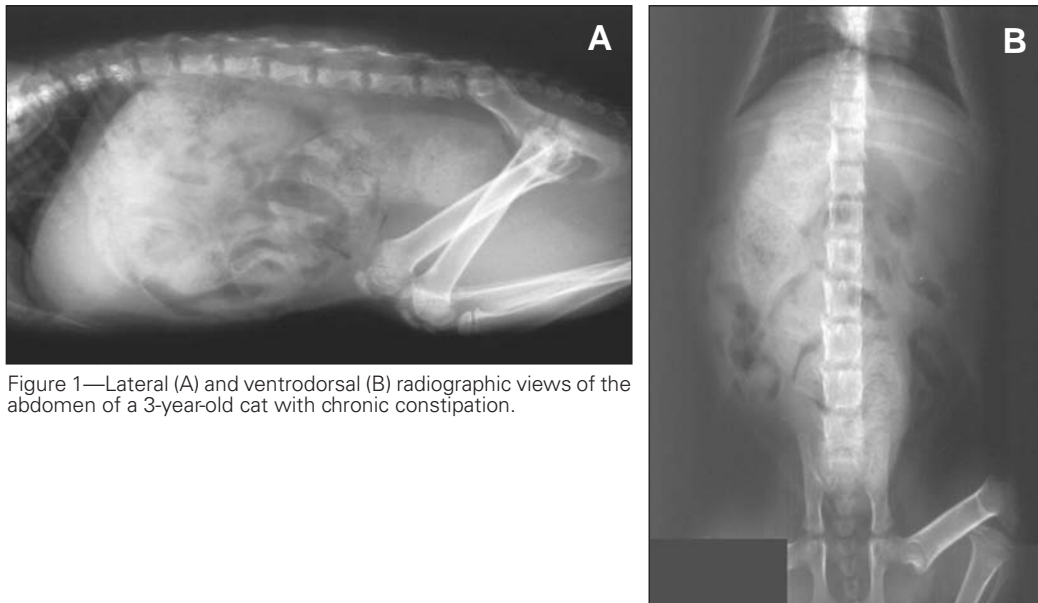


Figure 1—Lateral (A) and ventrodorsal (B) radiographic views of the abdomen of a 3-year-old cat with chronic constipation.

History

A 3-year-old neutered male domestic shorthair cat was referred for subtotal colectomy because of chronic constipation; the cat had had constipation since it was 6 weeks old. The cat had been treated with cisapride (1 mg, PO, q 12 h), lactulose (1 mL, PO, q 8 h), and canned pumpkin (amount and frequency not known) for 6 months prior to evaluation with no response. The decision to refer was based on an increase in the cat's requirement of enemas (20 mL/kg [9 mL/lb] of tap water and petrolatum) from every 3 to 4 months to weekly.

On physical examination, the cat weighed 2.14 kg (4.7 lb) and had a rectal temperature of 37.1°C (98.7°F; reference range, 38.1° to 39.2°C [100.5° to 102.5°F]). The cat appeared kittenlike with short limbs and had a broad head with flattened facial features suggestive of Persian ancestry. The cat's mentation was dull, but it could stand and ambulate weakly. Its coat was thin and dry. On abdominal palpation, the abdomen was severely distended and firm feces were detected in the intestinal tract. Radiographs of the abdomen were obtained (Figure 1).

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

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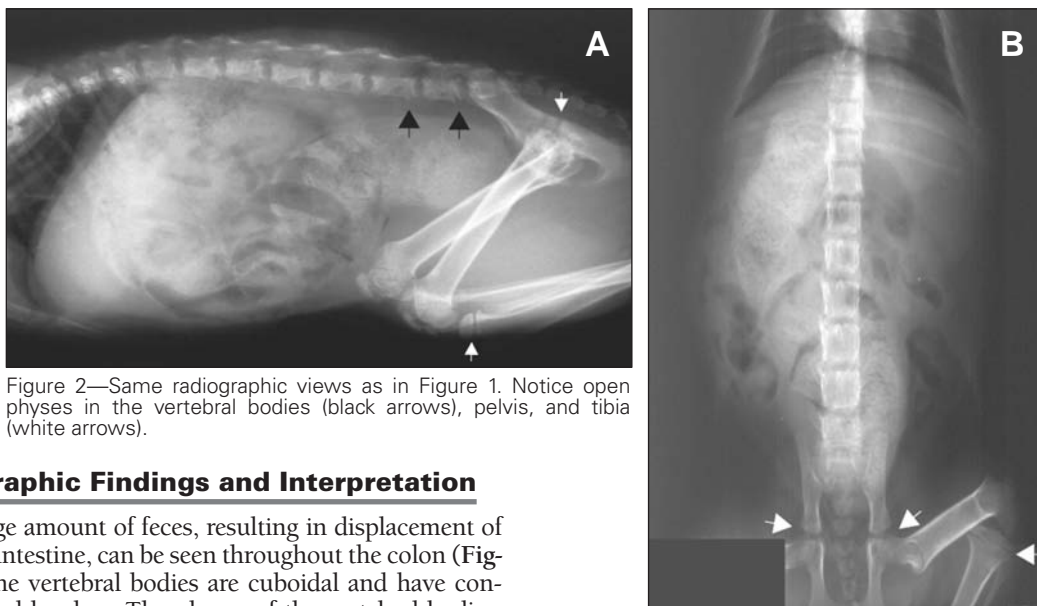


Figure 2—Same radiographic views as in Figure 1. Notice open physes in the vertebral bodies (black arrows), pelvis, and tibia (white arrows).

Radiographic Findings and Interpretation

A large amount of feces, resulting in displacement of the small intestine, can be seen throughout the colon (Figure 2). The vertebral bodies are cuboidal and have concave ventral borders. The physes of the vertebral bodies, proximal portion of the tibia, acetabulum, and ilium are open. Bone density and cortical thickness are considered normal. Differential diagnoses included congenital megacolon, congenital hypothyroidism, lysosomal storage diseases, congenital dwarfism, portosystemic shunt, congenital intestinal stenosis, intestinal obstruction, gastrointestinal anomaly, or a primary intestinal motility disorder.

Comments

On the basis of the physical examination and radiographic findings, a presumptive diagnosis of congenital hypothyroidism was made. In utero and during the first few months of life, thyroid hormone is important for normal development of the skeletal system. Delayed closure of the ossification centers of long bones can be marked on radiographs of kittens with congenital hypothyroidism. The vertebral bodies are frequently shortened with scalloping of their ventral borders suggesting lack of normal bone growth.¹ Affected kittens develop disproportionate dwarfism or cretinism with enlarged, broad heads; short limbs; and short, rounded bodies attributable to severely delayed longitudinal bone growth.²⁻⁶ They are commonly chronically constipated because of decreased gastrointestinal motility and also become mentally dull, bradycardic, and hypothermic because of their decreased metabolic rate. Joint laxity, retained deciduous teeth, and a kittenlike coat may also be detected.

Congenital hypothyroidism is rarely reported in cats. Results of a study³ of an affected line of Abyssinians indicated that the disease is inherited as an autosomal recessive trait. Reported causes include a defect in thyroid hormone biosynthesis or dysgenesis of the thyroid gland.^{3,4} Diagnosis is usually made by clinical and radiographic signs and a low basal thyroxine concentration. A definitive diagnosis of congenital hypothyroidism is usually not necessary because of concurrent clinical signs but can be made by performing a thyroid-stimulating hormone or thyrotropin-releasing hormone stimulation test.⁴

The owner of the cat of this report agreed to have the serum thyroxine concentration measured and to proceed with deobstipation only. The total thyroxine concentration was 0.4 $\mu\text{g}/\text{dL}$ (reference range, 0.4 to 5.2 $\mu\text{g}/\text{dL}$). The cat was treated with thyroxine^a (0.05 mg, PO, q 24 h; recommended starting dose, 0.05 to 0.1 mg, PO, q 24 h).^{2,4-6}

Long-term prognosis for cats with congenital hypothyroidism is not known. Reversibility of clinical signs may depend on a cat's age at the time of diagnosis and timing of treatment.⁵ Adult cats can have continued musculoskeletal abnormalities, mental dullness, and gastrointestinal motility problems despite administration of supplemental thyroxine.⁴⁻⁶ The cat of this report was given a poor prognosis on the basis of age and chronic clinical signs. Four weeks after initiating treatment with thyroxine,^a the serum thyroxine concentration was 0.8 $\mu\text{g}/\text{dL}$. The dosage of thyroxine was increased to 0.1 mg, PO, daily. Seven months after evaluation, the thyroxine concentration was 1.43 $\mu\text{g}/\text{dL}$ and the cat's weight had increased to 2.7 kg (6.0 lb). The cat continued to receive lactulose (1 mL, PO, q 12 h) and required enemas every 1 to 2 months. The owner reported that the cat was notably more active and alert.

a. Synthroid, Knoll Pharmaceuticals, Hanover Township, Whippany, NJ.

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