

## What Is Your Diagnosis?

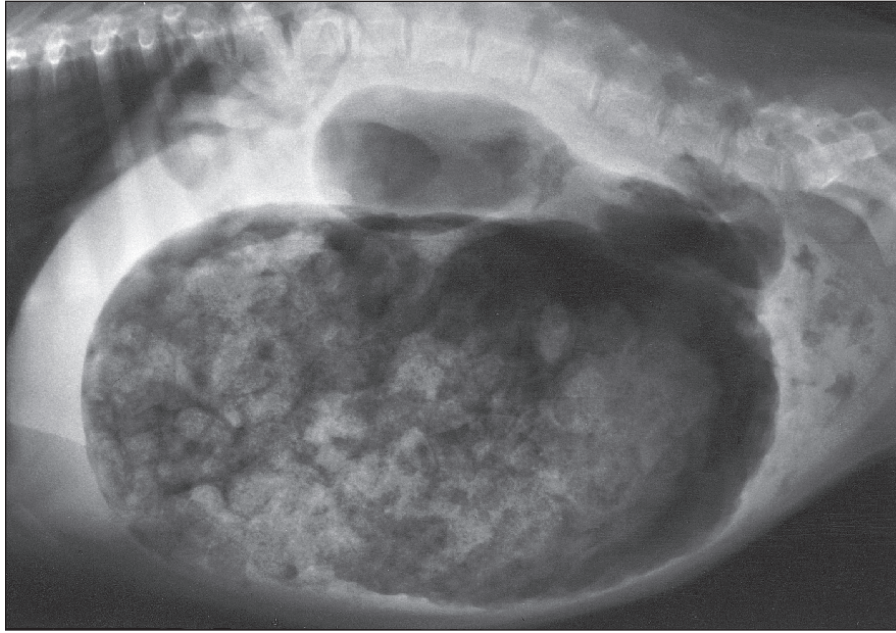


Figure 1—Right lateral radiographic view of the abdomen of a 7.5-week-old puppy with abdominal distention and tachypnea.

### History

A 7.5-week-old male Labrador Retriever was evaluated because of restlessness and a grossly distended abdomen. The distended abdomen was first noticed 1 hour after the puppy had eaten. Physical examination revealed tachypnea and a severely distended and tympanic abdomen. A radiograph of the abdomen was obtained (Fig 1).

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

## Diagnosis

**Radiographic diagnosis**—Distension of the stomach with gas and ingesta, with dorsal displacement of the pylorus (Fig 2).

## Comments

The stomach was dilated by ingesta and gas, the pylorus was displaced dorsally, and the stomach was divided into 2 compartments by a soft-tissue opacity; these radiographic findings were consistent with a diagnosis of **gastric dilatation-volvulus (GDV)**. Radiographic features of GDV include a large dilated gas-filled gastric shadow that may be divided into 2 compartments by the soft tissue of the lesser curvature and the duodenum as it courses caudally from the abnormally positioned pylorus in the craniodorsal quadrant of the abdomen.<sup>1</sup> The clinical signs of the puppy described in this report, in combination with the radiographic abnormalities, were diagnostic of GDV. Surgical correction after medical stabilization was recommended to the owners but was declined. Instead, gastric decompression via gastrocentesis and orogastric intubation was attempted.

Because of the puppy's increasing dyspnea, gastrocentesis was performed initially. A 16-gauge catheter was inserted in the left paracostal space, using routine aseptic technique. Mild decompression was obtained, and dyspnea lessened. Orogastric intubation was then performed without sedation. Although placement of the tube within the stomach was confirmed via auscultation of the stomach, no ingesta or gas was obtained. A second abdominal radiograph revealed persistent GDV. The owners requested that the puppy be euthanized. A necropsy was not permitted.

Gastric dilatation-volvulus in dogs is characterized by rapid accumulation of air in the stomach, malposition of the stomach, increased intragastric pressure, and often cardiogenic shock.<sup>2</sup> The etiopathogenesis of GDV is not well understood, but specific risk factors have been identified. Older purebred large- and giant-breed dogs with a deep and narrow thorax and a first-degree relative that developed GDV at least once are at a higher risk for developing GDV than other dogs.<sup>2</sup> In addition, management and feeding patterns, including overeating, eating rapidly, exercising after eating, consumption of processed foods containing grain and soy meal, stress, and delayed gastric emptying, are potential risk factors.<sup>3</sup>

Initial medical management of dogs with GDV involves appropriate treatment for hypovolemic shock and gastric decompression. After medical stabilization, surgery is necessary to correct the malpositioned stomach, to assess and treat gastric and splenic ischemic injury and to prevent recurrence by permanently fixing



Figure 2—Same radiographic view as in Figure 1. The stomach is distended with gas and ingesta, and the pylorus (closed arrow) is displaced dorsally. A soft-tissue opacity (open arrow) divides the stomach into 2 compartments. These features are diagnostic of gastric dilatation-volvulus.

the stomach to the abdominal wall.<sup>4</sup> Fatality rates remain high despite early intervention.

To the authors' knowledge, GDV has not been reported in a dog as young as the puppy described in this report. Authors of 1 report<sup>5</sup> suggest that increasing age is a risk factor for GDV because of an age-associated stretching of the ligaments that support the stomach. This facilitates volvulus when the stomach is weighted with food. We speculated that a congenital abnormality of the hepatogastric ligaments, in addition to the heavy, distended, food-laden stomach, contributed to the development of GDV in this 7.5-week-old puppy.

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2. Glickman LT, Glickman NW, Schellenberg DB, et al. Incidence of and breed-related risk factors for gastric dilatation-volvulus in dogs. *J Am Vet Med Assoc* 2000;216:40–45.

3. Glickman LT, Glickman NW, Perez CM. Analysis of risk factors for gastric dilatation and dilatation-volvulus in dogs. *J Am Vet Med Assoc* 1994;204:1465–1471.

4. Matthiesen DT. Gastric dilation-volvulus syndrome. In: Slatter D, ed. *Textbook of small animal surgery*. 2nd ed. Philadelphia: WB Saunders Co, 1993;580–593.

5. Hall JA, Willer RL, Siem HB, et al. Gross and histologic evaluation of hepatogastric ligaments in clinically normal dogs and dogs with gastric dilatation-volvulus. *Am J Vet Res* 1995;12:1611–1614.

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