What Is Your Diagnosis?

A 5-year-old spayed female Maltese was evaluated at the emergency service for acute onset of vomiting and inappetence of 3 days' duration. The dog had swelling in the inguinal area on the left side that had progressively enlarged over the previous 3 months. On physical examination, the dog was bright, alert, and responsive. Palpation revealed a soft abdomen, and no signs of abdominal pain were elicited. The swelling in the left inguinal area was firm on direct palpation, which yielded signs of pain. The dog had a high PCV of 60% (reference range, 37% to 55%) and total solids concentration of 9.0 g/dL (reference range, 5.0 to 7.4 g/dL). On serum biochemical analysis, lactate (3.9 mmol/L; reference range, 0 to 2 mmol/L) and glucose (140 mg/dL; reference range, 70 to 118 mg/dL) concentrations were high. Abdominal radiographs were acquired to determine a cause for the vomiting (Figure 1).

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

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Diagnostic Imaging Findings and Interpretation

Multiple segments of small intestine are moderately distended (up to 3.3 times the height of the L5 vertebral body; reference limit, < 1.6 to 2 times the height) with gas and fluid. The remaining small intestinal segments appear normal in size and content. An ovoid, smoothly margined, heterogeneous, soft tissue, and fat opaque mass measuring 5 X 3 X 3 cm is present in the left inguinal region (Figure 2). On the basis of the radiographic findings of segmental small intestinal distension, small intestinal mechanical obstruction was suspected. Differential diagnoses for small intestinal mechanical obstruction include foreign body ingestion, adhesions, neoplasia, intussusception, and herniation with incarceration. Differential diagnoses for the swelling in the left inguinal area include an inguinal hernia, soft tissue neoplasm, steatitis, abscess, and hematoma.

Abdominal ultrasonography was performed to further characterize the swelling in the left inguinal area and to determine a cause for small intestinal mechanical obstruction. Multiple distended segments of small intestine were identified ultrasonographically. In the left caudal portion of the abdomen, a few distended small intestinal segments could be tracked into a hyperechoic mass of tissue in the left inguinal region. This mass corresponded to the swelling observed clinically and on abdominal radiographs. These findings are consistent with small intestinal incarceration and surrounding steatitis within a left inguinal hernia.

Treatment and Outcome

An exploratory celiotomy confirmed the diagnosis of small intestinal mechanical obstruction caused by incarceration of a segment of jejunum and omentum to form a left inguinal hernia. A section of jejunum and herniated omentum was manually reduced from the inguinal swelling, and the contents were determined to be nonviable. A 4-cm section of jejunum was resected and anastomosed, and a partial omentectomy was performed. The hernia was partially closed while still allowing for the passage of normal inguinal structures (ie, genitofemoral nerve, external pudendal artery and vein, and superficial inguinal efferent lymph vessels). The patient recovered uneventfully from anesthesia and was discharged from the hospital 2 days later and prescribed buprenorphine (0.02 mg/kg [0.009 mg/lb], transbuccal, q 8 to 12 h as needed) for signs of discomfort. Three weeks following hospital discharge, the patient was returned to the emergency service after recurrence of the left inguinal hernia. The patient began vomiting a week later, at which time a surgical correction was performed. No incarcerated bowel was detected, and the left inguinal ring was closed more completely while still allowing the passage of the inguinal structures.

Comments

Inguinal hernias occur as a peritoneal evagination through the internal and external inguinal rings, which are formed by the internal abdominal oblique
and rectus abdominis muscles, inguinal ligament, and aponeurosis of the external abdominal oblique muscle. Contents within the hernia frequently include fat or omentum. They may also include the small or large intestine, urinary bladder, or uterus in females. Clinical signs in dogs without organ incarceration are often limited to a palpable swelling without pain or clinical signs. The superficial swelling is often evident on radiographs. Additional radiographic signs include the absence or displacement of organs normally in the caudal aspect of the abdomen (eg, urinary bladder or intestine). This may be better delineated by performing a radiographic positive-contrast study. Mechanical ileus secondary to small intestinal herniation and incarceration or entrapment often is identified by segmental small intestinal distension in the abdomen or the hernia. Ultrasonography is useful as a noninvasive method for confirming the presence of a herniated abdominal viscus. The objectives of surgical repair of inguinal hernias are to reduce the contents of the hernia, determine their viability and address nonviable tissue accordingly, and reestablish the continuity of the abdominal wall. Conventional inguinal herniorrhaphy typically consists of suture closure of the external inguinal ring. Larger, traumatic, or recurrent defects may be more complex and require the use of a synthetic mesh or a muscle flap (eg, cranial sartorius) for a tension-free reconstruction. Postoperative complications may include incisional infection, dehiscence, peritonitis associated with bowel leakage after intestinal resection and anastomosis, neurovascular injury, or hernia recurrence.

References