



4 Abdominal enlargement may be due to organ enlargement, fluid accumulation, gaseous distention of hollow viscera or of the peritoneal cavity, or reduced abdominal muscle tone. Abdominal enlargement often develops insidiously. However, it also may be acute or dramatic, as with gas accumulation in the stomach in gastric distention and volvulus (GDV) or bleeding from a ruptured splenic hemangiosarcoma. Acute abdominal enlargement is likely to be more immediately life-threatening than chronic progressive enlargement, either because of the severity of the underlying disease (e.g., hypovolemia from abdominal bleeding) or compromise of venous return to the heart by increases in intra-abdominal pressure. Occasionally, abdominal enlargement may seem acute (e.g., ascites secondary to hypoalbuminemia), although the underlying disease is obviously more chronic.

5 If the patient is relaxed and not obese, abdominal palpation may detect intra-abdominal masses, organomegaly, gas, or fluid accumulation.

6 With ascites, a fluid wave often can be balloted through the abdominal wall in the standing patient (unless only small amounts of fluid are present). Radiographically, fluid accumulation obscures intra-abdominal structures, including any masses that might be the underlying cause. Ultrasound may be more useful for identifying changes in solid structures within the abdomen, potential sources of fluid, and mass lesions.

7 Progressive wasting and weakening of abdominal musculature commonly occurs due to high levels of glucocorticoids in the circulation (hyperadrenocorticism) or severe debilitation. Hyperadrenocorticism also causes hepatic enlargement as a result of glycogen accumulation in the liver. Muscle wasting and hepatic enlargement combine to produce the classical pot-bellied appearance in the patient. This is a major presenting complaint with hyperadrenocorticism, along with bilaterally symmetrical hair loss, thin skin, comedones, prominent abdominal blood vessels, and excessive panting.

8 Asymmetrical distention of the abdomen or tympany on percussion suggests air accumulation, either within a viscus or within the peritoneal cavity. Abdominal radiographs are the imaging method of choice for patients with suspected air accumulation (bowel obstruction, torsion, ileus, or other causes of gaseous distention of a viscus or peritoneal gas accumulation) because gas blocks the ultrasound beam. If both left and right lateral radiographs as well as ventrodorsal views are obtained, the majority of gastric dilations and GDVs will be identified.

9 The abdomen can be imaged by a variety of methods (plain and contrast radiographs, ultrasound, or CT/MRI scans of the abdomen). Abdominal ultrasound is probably the highest-yielding test if ascites or organomegaly is present, if hyperadrenocorticism is suspected, or if no abnormalities are detected on physical examination. It can document whether diffuse organ enlargement is present (with infiltrative conditions such as diffuse neoplasia, abnormal accumulation of metabolic products, or inflammatory cells) versus focal or mass-like lesions (benign or malignant neoplasia, hematomas, abscesses, cystic lesions, or hepatic nodular regeneration). Abnormal areas, once identified, may be aspirated for cytology and culture or biopsied to obtain a histopathological diagnosis once adequate precautions (e.g., coagulation panels, cross-match, assessment of renal function) have been taken. If the abdominal ultrasound scan is normal or inconclusive, plain or contrast radiographs may be considered (for the conditions described above).

10 Patients with normal or inconclusive abdominal imaging results, hepatomegaly or bi-/unilateral adrenomegaly should be tested for hyperadrenocorticism by means of an ACTH stimulation test. If that test is negative, it may be because the patient does not have hyperadrenocorticism or because it is one of the 15–20% of patients with hyperadrenocorticism that do not test positive on an ACTH stimulation test. If clinical signs are still suggestive of hyperadrenocorticism, it may be worthwhile to test the patient further with a low-dose dexamethasone suppression test or a urine cortisol:creatinine ratio. While these tests are more sensitive than the ACTH stim-

ulation test in detecting hyperadrenocorticism, they are also less specific and may be influenced by other current diseases (e.g., diabetes mellitus, seizure disorders, phenobarbital therapy).

11 If all of these screening or diagnostic tests for hyperadrenocorticism are negative, the patient needs to be evaluated for other causes of muscle wastage (e.g., malnutrition, severe inflammatory bowel disease and malabsorption, neoplasia, polyneuropathy, other neuromuscular diseases, autoimmune conditions).

12 If the ACTH test is positive, then combine the findings of a high-dose dexamethasone suppression test and/or previous abdominal ultrasound findings to determine whether the condition is adrenal or pituitary in origin.

13 Patients with focal masses or diffuse organomegaly should have fine-needle aspiration or biopsy of the tissue(s) involved in an effort to identify the underlying abnormality (e.g., neoplasia, inflammation, and immune-mediated disease). Cytology is less invasive than biopsy for histopathology, does not require general anesthesia, and usually does not require a coagulogram. However, although it may allow assessment of the cell types present, it will not identify structural changes in an organ such as fibrosis, cirrhosis, dysplasia, or hyperplasia, and it does not permit diagnosis of neoplasia if the tissue involved does not exfoliate.

14 If a diagnosis has not been reached via cytology in a patient with focal or diffuse organomegaly, pursue excisional or incisional biopsy either percutaneously or via exploratory celiotomy (the method selected depends on the patient's clinical condition, the structures involved, and whether or not complete excision can be performed). All biopsies of intra-abdominal structures are likely to require general anesthesia. Biopsy may be required to confirm the diagnosis or to treat conditions that may be diagnosed confidently with ultrasound (e.g., hydronephrosis, pyometra, paraprostatic cysts, perirenal cysts).

