When should I request an Ultrasound Exam?

Ultrasound is useful for many things beyond the traditional cardiac and abdominal exams. Ultrasound can be used to evaluate musculoskeletal lesions, deep subcutaneous or intramuscular mass lesions, chronic draining tracts, the mediastinum, and even some pulmonary lesions. Here some examples of when ultrasound might help to get a diagnosis:

- Liver disease: Identify changes associated with hepatic lipidosis, neoplasia, biliary obstruction, gall stones, portosystemic shunts, and more.
    - Fine needle aspiration (FNA) of the liver is common and minimally invasive to assess liver pathology with very little risk.
    - Ultrasound guided liver biopsy is a common procedure that can often obtain a definitive diagnosis with relatively low risk.

- Renal disease: Identify changes associated with pyelonephritis, ureteral obstruction, neoplasia, polycystic kidney disease, ethylene glycol poisoning, leptospirosis, chronic nephrosis and more.
    - Ultrasound guided fine needle aspirates (FNA) can diagnose lymphoma as well as other renal neoplasias.
    - Percutaneous pyelocentesis/pyelography involves placing a needle into the pelvis of a dilated kidney to sample urine directly for culture, and/or to inject contrast to identify the location of a suspected obstruction.
    - Identify and characterize bladder stones and obstructive ureteral stones.
    - Ectopic ureters sometimes have characteristic changes.

- Rule out adrenal masses in Cushing's disease suspects. Evaluate for vascular invasion associated with adrenal gland masses.

- GI Ultrasound: Rule out intestinal masses, foreign body obstructions, and linear foreign bodies.
    - GI perforations
    - infiltrative diseases of the intestine such as lymphoma and salmon poisoning.
    - Intestinal infarction and ileus.

- Fine needle aspiration of enlarged abdominal lymph nodes to discriminate lymphoma or mast cell disease from inflammatory diseases. Also to diagnose nodal metastases of other tumors.

- Rule out infarction or torsion of the spleen, identify splenic changes associated with neoplastic infiltration, hematoma and systemic infections (e.g. rickettsia).

- Thrombus identification in the aorta, vena cava, portal vein or primary branches of these vessels.

- Diseases of the Genito-Urinary system: Pyometra, endometritis, ovarian tumors, prostatic disease, find non-palpable testicular tumors.
    - Differentiate prostatic hyperplasia from neoplasia with sonographic evaluation and fine needle aspiration or biopsy.
    - Paraprostatic cysts, prostatic abscesses
    - Diagnose causes of hematuria; tumors of the bladder vs. cystitis, stones or prostate disease.
    - Rule out trigone or urethral involvement of bladder masses.

- Echocardiography: Congenital heart disease, chronic valvular disease, endocarditis, DCM, HCM, pericardial effusion, etc.
    - Drain pericardial effusions with US guidance.
    - Evaluate for pulmonary hypertension.
    - Determine if myocardial failure is present.

- Determine vascularity and extent of invasion of masses prior to surgical intervention. Especially useful for masses in the neck or inguinal area!
    - Evaluate masses for evidence of abscessation and for guided biopsy samples, to maximize likelihood of definitive diagnosis.

- Neck Ultrasound
    - Evaluate the larynx for invasive non-palpable masses.
    - Assist in diagnosis of laryngeal paralysis.
    - Evaluate thyroid glands for evidence of enlargement, atrophy, or neoplasia.
    - Evaluate parathyroid glands for enlargement in hypercalcemia and rule out parathyroid tumor.

- Thoracic Ultrasound: Mediastinal masses, pleural effusion sampling and drainage, large pulmonary masses.
    - Mediastinal masses can usually be sampled.
    - Pulmonary masses can be visualized and sampled if they are peripheral enough to be near the pleural surface of the lung.
    - Diagnose diaphragmatic hernias

- Musculoskeletal Ultrasound
    - Chronic shoulder lameness: Diagnose bicipital bursitis, tenosynovitis of the biceps, supraspinatus or infraspinatus tendons
    - Look for brachial plexus tumors
    - Use ultrasound guidance to evaluate and sample bone tumors; get a diagnostic FNA instead of doing a bone biopsy.
    - Follow a draining tract to see where it leads, and sometimes even find the foreign body causing the drainage.
    - Evaluate muscle/limb swellings for the presence of an underlying mass or abscess.

- Diagnose hydrocephalus in puppies by scanning the brain through an open fontanelle.

Is Ultrasound expensive?

Practically speaking, ultrasound usually saves money. When performed by a board certified Radiologist, ultrasound provides high quality medicine and more accurately directed patient workup and therapy. The volume of information quickly gained from a thorough ultrasound exam can rule out many disease processes at once, narrowing the list of differentials and avoiding wild goose chases. In the end, a diagnosis can often be obtained more quickly and with less overall expense.