**Abdominal Imaging I**

1. **Abdominal Abscess**
* Indicated for ANY ONE of the following:
	+ ALL of the following are present:
		- ANY ONE of the following symptoms:
			* Persistent abdominal pain
			* Unexplained fever
		- Suspected abscess due to the presence of ANY ONE of the following:
			* Fever of unknown origin, i.e., intermittent or persistent temperature of 101⁰F for > 3 weeks without other explanation
			* Recent abdominal surgery
			* Recent infection elsewhere
			* Diverticular disease
			* Recent trauma
			* Immunosuppression
			* Inflammatory bowel disease, i.e., Crohn’s disease or ulcerative colitis
	+ Follow-up of previously diagnosed abscess
1. **Abdominal Aortic Aneurysm**
* Indicated as an alternative to ultrasound for ANY ONE of the following:
	+ Symptoms suggesting a leak
	+ Preoperative evaluation before surgery to assess vascular anatomy or configuration (spiral)
	+ As a replacement for ultrasound when images are inadequate due to gas, obesity, or other causes for ANY ONE of the following:
		- Asymptomatic pulsatile mass
		- Initial screening if ALL of the following are present:
			* Male, 65 years of age and older
			* ANY ONE of the following:
				+ Significant smoking history
				+ Other atherosclerotic disease
				+ First-degree relatives with abdominal aortic aneurysms
		- A second screening test after an initial normal screening study, probably after at least 8 years
		- As follow-up test for known abdominal aortic aneurysms
			* Every 6 months if ANY ONE of the following is present; otherwise every year:
				+ Growth is >0.4 cm/year
				+ Persistently elevated diastolic blood pressure >90 mm Hg
				+ Patient continues smoking
1. **Abdominal Pain**
* Indicated for abdominal pain when ANY ONE of the following is present:
	+ Equivocal cases of suspected acute appendicitis, (helical)
	+ Palpable mass
	+ History of malignancy
	+ Diverticulitis with suspected abscess
	+ Suspected intestinal ischemia
	+ Suspected pancreatitis
	+ Suspected leaking abdominal aortic aneurysm (AAA)
	+ Intestinal obstruction, when plain films cannot identify obstruction
	+ Blunt or penetrating abdominal trauma
1. **Adrenal Mass**
* Indicated for ANY ONE of the following (enhanced only when unenhanced is indeterminate):
	+ Incidental mass seen on ultrasound with ANY ONE of the following:
		- Initial evaluation
		- Follow-up of benign adenoma
			* 6 to 12 months for lesions < 3 cm
			* 3 to 6 months for lesions between 3 cm and 5 cm
	+ Findings suggestive of ANY ONE of the following:
		- Pheochromocytoma (contrast risky if pheochromocytoma suspected)
		- Cushing’s syndrome
		- Hyperaldosteronism
1. **Appendicitis**
* Indicated for cases of suspected acute appendicitis when ALL of the following are present:
	+ After surgical consult
	+ ANY ONE of the following:
		- Uncertain diagnosis, but only after ultrasound for child, young female, or pregnant patient
		- Suspected abdominal or pelvic abscess, including suspected appendiceal perforation
		- Suspected renal calculi
1. **Bladder Cancer, Invasive**
* Indicated for staging of invasive bladder cancer
1. **Breast Cancer**
* Indicated for breast cancer staging when ANY ONE of the following is present:
	+ Abnormal liver function tests or hepatosplenomegaly
	+ Locally advanced breast cancer, i.e., lymph nodes matted or cancer extends to chest wall
	+ Lymph node involvement
	+ Distant metastases, known or suspected
	+ Bone symptoms
1. **Colon Cancer and Colonic Polyps**
* Indicated for ANY ONE of the following:
	+ During staging process for larger rectal carcinomas and all colon cancers
	+ Periodically after initial treatment, usually every 3 to 5 years
1. **Crohn’s Disease**
* Indicated for ANY ONE of the following:
	+ Acute flare-ups
	+ Symptoms unresponsive to medical therapy
	+ Suspected abscess
1. **Fever of Unknown Origin (FUO)**
* Indicated when ALL of the following are present:
	+ Intermittent or persistent temperature of 101⁰F for > 3 weeks
	+ NONE of the following diagnostic evaluations identify a source of the fever:
		- Blood culture
		- Urine culture
		- Chest x-ray
		- PPD skin test
		- Rheumatoid factor
		- ANA
		- Physical exam for ALL of the following:
			* Source of infection
			* Inflammatory process
			* Malignancy
1. **Hematuria**
* Indicated, increasingly as first choice, for ANY ONE of the following:
	+ As initial test for evaluation of hematuria
	+ Staging of bladder and renal tumors
	+ Evaluation of the renal parenchyma in trauma
	+ Evaluation of a mass seen on IVP or ultrasound
	+ Perirenal infections
	+ Suspected renal colic or calculi
1. **Hypertension, Renovascular**
* Indicated for ALL of the following (helical CT angiogram, unenhanced):
	+ ANY ONE of the following:
		- Hypertension and ANY ONE of the following:
			* Abrupt onset
			* Accelerated or malignant
			* Refractory to at least 3 drugs and a compliant patient
			* Onset of hypertension before 20 years of age
		- Unilateral small kidney
		- Epigastric or renal artery bruits
		- Recurrent, i.e., flash, pulmonary edema
	+ ANY ONE of the following:
		- Surgical planning after diagnosis by duplex exam
		- Negative duplex but suspected accessory renal artery
		- Inadequate duplex exam due to bowel gas or obesity
1. **Jaundice, Painless**
* Indicated when ALL of the following are present (helical):
	+ Painless jaundice
	+ Negative or indeterminate ultrasound
	+ No other etiology for jaundice is present, e.g., medications or infectious hepatitis.
1. **Liver Cancer, Primary or Metastatic**
* Indicated for ANY ONE of the following (biphasic, with hepatic arterial and portal venous phases is necessary):
	+ Suspected metastatic lesion in the liver, due to presence of ANY ONE of the following:
		- Current or past history of cancer
		- Abnormal liver enzymes
	+ Indeterminate mass on ultrasound
	+ Surveillance after treatment for liver cancer
1. **Liver Cirrhosis**
* Indicated for patient with chronic cirrhosis due to any reason and ANY ONE of the following:
	+ Elevated alpha-fetoprotein (AFP)
	+ Palpable mass
	+ Change in clinical condition, i.e., weight loss, jaundice, or worsening anemia
1. **Palpable Abdominal Mass**
* Indicated for evaluation of palpable abdominal mass (standard or helical)
1. **Pancreatic Disease**
* Indicated for ANY ONE of the following (with IV contrast):
	+ Acute pancreatitis as test of choice
	+ Chronic pancreatitis
	+ Evaluation of mass seen on ultrasound
	+ Pancreatic pseudocyst and ANY ONE of the following:
		- Initial diagnosis or suspicion
		- Periodic follow-up until resolved
		- Follow-up studies after surgical drainage
	+ Suspected neuroendocrine tumor, i.e., insulinoma or gastrinoma, due to presence of ANY ONE of the following (helical):
		- Suspected or known insulinoma due to presence of ALL of the following:
			* Fasting hypoglycemia
			* Elevated plasma insulin levels
		- Suspected or known carcinoid tumor
		- Suspected or known gastrinoma
	+ Pancreatic cancer and ANY ONE of the following:
		- Suspected pancreatic cancer due to presence of ANY ONE of the following:
			* Painless jaundice
			* Weight loss
			* Abdominal pain
		- Follow-up of pancreatic cancer
1. **Pyelonephritis**
* Indicated for ANY ONE of the following (helical):
	+ Lack of response to treatment within 48 to 72 hours, probably as second-line test after ultrasound
	+ Diabetic patient with severe pyelonephritis
	+ Recurrent infection, although ultrasound may better demonstrate anatomy
	+ Suspected renal stone disease
	+ Interventional procedures such as drainage of renal abscess or perinephric or para-renal collections is being planned.
1. **Renal Cell Cancer, Staging**
* Indicated for ANY ONE of the following (enhanced):
	+ Initial staging
	+ Follow-up after treatment
1. **Renal Mass, Incidental**
* Indicated for indeterminate mass seen on ultrasound (enhanced equals unenhanced)
1. **Renal Colic and Kidney Stones**
* Indicated as initial test for all patients with suspected renal stones, when ANY ONE of the following is present:
	+ Acute onset of severe, unilateral flank or lower quadrant abdominal pain
		- Radiation to the groin or genitalia is typical
		- Pain tends to be colicky
		- Unable to find a position of comfort when the pain is at its peak
	+ Nausea, vomiting, and diarrhea associated with hematuria
	+ Urinary frequency and urgency associated with hematuria
	+ Acute pyelonephritis poorly responsive to treatment
1. **Soft Tissue Mass, Abdominal Wall**
* Indicated for ANY ONE of the following:
	+ Calcium is seen on plain film
	+ Motion prevents ability to perform adequate MRI
1. **Testicular Cancer**
* Indicated for ANY ONE of the following:
	+ Staging of testicular malignancy
	+ Evidence of recurrence
1. **Trauma, Abdomen**
* Indicated after blunt abdominal trauma and ANY ONE of the following:
	+ Hematuria
	+ Falling hematocrit
	+ Hypotension
	+ Abdominal pain
	+ Clinical suspicion of intra-abdominal injury

**Reference:**

Milliman Care Guidelines, “Ambulatory Care”, 10th Edition.