Left Upper Quadrant Pain

Synonyms: left subcostal pain, left hypochondrial pain

Description
Left upper quadrant (LUQ) pain means pain in the left upper abdominal region. There are related separate articles Right Upper Quadrant Pain, Abdominal Pain, Abdominal Pain in Pregnancy, Abdominal Pain in Children.

Presentation

History
- Pain: onset, nature, time course, radiation, exacerbating or relieving factors.
- Women: establish whether pregnancy is possible. Last menstrual period date - ask whether this period was normal.
- Related symptoms: dysphagia, vomiting, anorexia, micturition and bowels, bleeding, systemic symptoms, chest symptoms, weight loss.
- Past medical history, recent injury or surgery, medication (steroids may mask abdominal signs), allergies, last meal.

Examination
- Note if well or ill, vital signs; chest examination if appropriate.
- Abdominal examination including spleen size.
- If aortic aneurysm is suspected, check pulses and blood pressure in both arms.
- Rectal or pelvic examination: not usually required for initial assessment of LUQ pain; consider if it will aid diagnosis or management.
- Young children: examine ears, throat and chest also.
- Bedside tests: urine pregnancy test (consider pregnancy in any woman of childbearing age), urine dipstick, bedside glucose test.

Differential diagnosis
LUQ pain can originate from the chest, abdomen, diaphragm/peritoneum or from general 'medical' causes. Note that intra-abdominal organs may not localise pain accurately and diaphragmatic pain can be referred to the shoulder tip.

The crude differential diagnosis is vast but after adequate history and examination it should be very much smaller. The following order is not intended to indicate likelihood:

Possible causes of LUQ pain include

Thoracic causes
- Cardiac pain - angina or myocardial infarction (may have central chest pain).
- Lung - left lower lobe pneumonia or pleurisy.
Abdominal causes

- **Aortic aneurysm** - rupture or dissection (may have pain in the chest, back, loin or abdomen).
- **Splenic pathology:**
  - Ruptured spleen - due to chest/abdominal trauma:
    - Note that this can occur with minimal trauma in patients with glandular fever or haematological disorders.
  - Splenic infarction - eg, with sickle cell crisis.
  - Acute splenic sequestration - eg a child with sickle cell disease and acute anaemia.
  - Splenic infiltration - eg leukaemia or other malignancy.
- **Stomach (may have epigastric pain, LUQ pain or back pain):**
  - Gastric ulcer, gastritis.
  - Gastric carcinoma.
- **Kidney (may have loin pain):**
  - Renal colic or renal stones.
  - Pyelonephritis.
  - Kidney tumours.
- **Colon - left colon and splenic flexure (may have low abdominal pain or left flank pain):**
  - Diverticular disease.
  - Inflammatory bowel disease.
  - Ischaemic colitis.
  - Tumours in left colon or splenic flexure.
  - Irritable bowel syndrome.
  - Severe constipation.
- **Pancreas (may have epigastric or back pain):**
  - Pancreatitis.
  - Pancreatic tumours.
- **Diaphragm and peritoneum (location of pain depends on which area of peritoneum is involved; may have shoulder-tip pain if the diaphragm is irritated):**
  - Peritonitis or intra-abdominal bleeding from any cause.
    - Example - ectopic pregnancy may (rarely) present with abdominal pain referred to the shoulder tip, due to intra-abdominal bleeding irritating the diaphragm.
  - Subphrenic or pericolic abscess.
  - Perforated peptic ulcer.
  - Gas following laparoscopy.
- **Chest and abdominal wall:**
  - Localised musculoskeletal pain, eg Tietze's syndrome.
  - Referred pain from spine and spinal nerves, eg shingles, spinal pathology.
- **Remember 'medical' causes of abdominal pain (not necessarily LUQ pain):**
  - Diabetic ketoacidosis.
  - Septicaemia.
  - Hypercalcaemia.
  - Henoch-Schönlein purpura.
  - Hereditary angio-oedema.
  - Porphyria.
  - Young children may describe almost any pain as 'tummy pain', so look for causes other than LUQ - eg, ear infection.
Investigations[1]

- Blood tests - cross-match if bleeding; FBC, renal and liver function, glucose; consider serum beta-hCG, sickle test, amylase, calcium, hepatitis serology, ESR/CRP.
- ECG - for cardiac ischaemia or pre-operatively.
- Urine microscopy and culture; pregnancy test if appropriate.
- X-rays:
  - CXR (erect chest if there is suspected perforation - look for air under the diaphragm).
  - Plain abdominal X-ray.
  - Erect and supine films for obstruction (may show air-fluid levels).
  - Kidney-ureter-bladder (KUB) film for renal colic (although CT KUB may be preferred).

Further investigations[1]

- Abdominal and pelvic ultrasound are useful for renal, gynaecological or obstetric pathology, masses, organomegaly, ascites, or abscess. Ultrasound may show acute appendicitis.
- CT or MRI scanning: CT of the abdomen with or without contrast is the most common imaging employed, due to ease of availability. MRI is the preferred option in pregnancy, although CT scanning is increasingly being used in pregnancy in specific cases - eg, it is the most reliable method of diagnosing patients with suspected obstruction of the urinary tract due to calculus. Studies suggest that the risk to the fetus from the ionising radiation involved in CT scanning is minimal. If a risk-benefit analysis confirms that CT would be in the patient's best interests, it should not be withheld.[2]
- Endoscopy.
- Diagnostic laparoscopy (followed by laparoscopic surgery, if appropriate).

Approach to diagnosis and management[3]

In the primary care or A&E setting, the diagnosis may not be clear, so use 'management of uncertainty' principles. Aim to decide whether the patient needs admission, surgery or further investigation - and how urgently. General principles are:

- For serious emergencies, start resuscitation if needed, refer and transfer promptly.
- Have a low threshold for referring/admitting those where diagnosis may be difficult - eg:
  - Children.
  - The elderly.[4]
  - Those with learning difficulties.
  - Those with relevant pre-existing illness.
- Pain relief may be needed:
  - Diclofenac (intramuscular or suppositories) is useful for renal colic.
  - For severe pain, intravenous opiates are better tolerated by children and adults have demonstrated that administering intravenous opioids to patients with acute abdominal pain induces analgesia but does not delay diagnosis or adversely affect diagnostic accuracy.[5]
- The clinical picture can change over time: reassess if symptoms persist.
- Consider referral/admission if a patient re-consults with undiagnosed pain.
- If discharging the patient, ensure they understand when to seek help.

Further reading & references

- Acute abdomen; Paediatric Oncall Child Health Care
- Abdominal Pain; Pain Health Information
- Collins D; Differential Diagnosis in Primary Care, Lippincott Williams & Wilkins, ISBN: 9780781768122, 2007

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