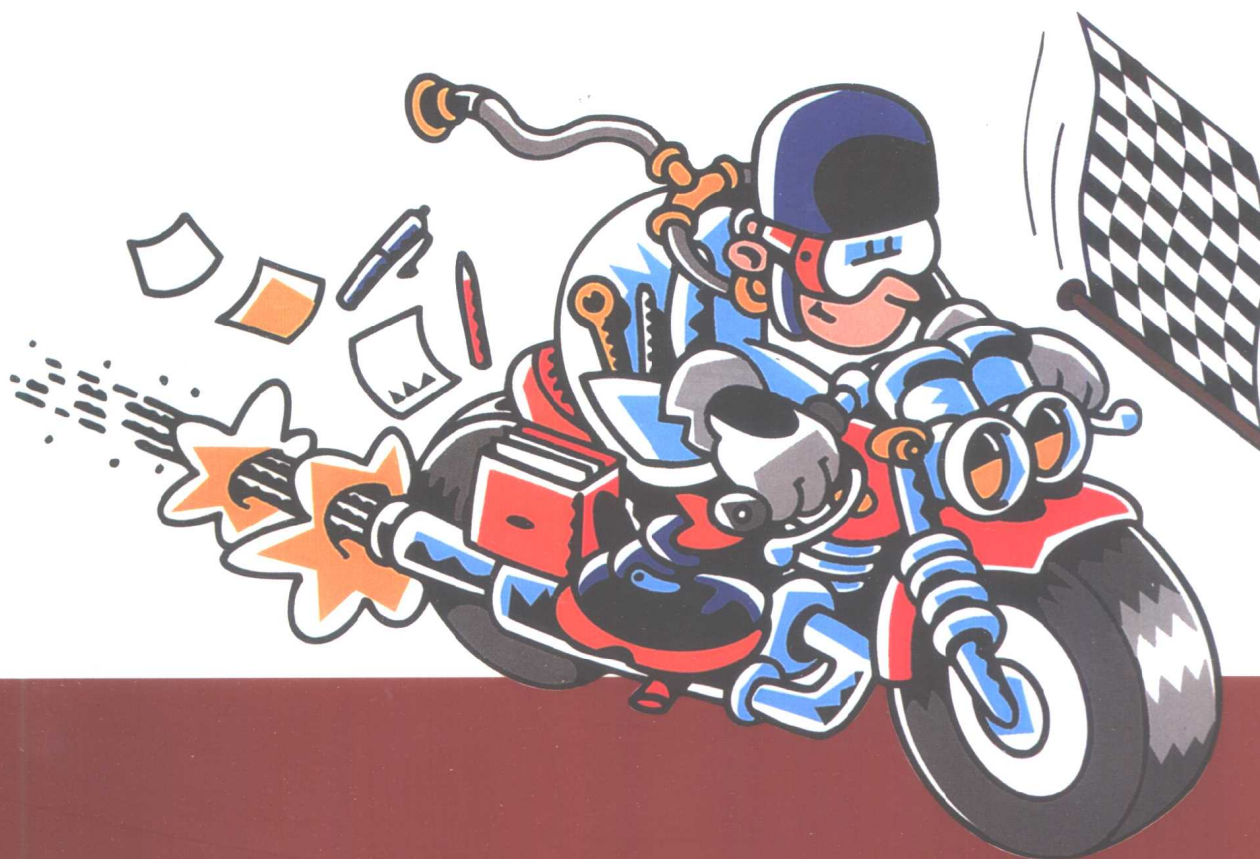


风暴式医学教程 *MOSBY'S CRASH COURSE* (原版英文医学教程)

外科学 *Surgery*

Helen Sweetland ◉ James Cook
with Wilfred Yeo as Series Editor



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(原版英文医学教程)

风暴式医学教程

Mosby's Crash Course

外 科 学

Surgery

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Helen Sweetland, James Cook: Mosby's Crash Course: Surgery

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Preface

Patients present to doctors with symptoms rather than diagnoses. Medical students are often amazed at the speed at which doctors can make a diagnosis, but it comes from the experience of seeing a wide variety of patients. As you spend time on surgical attachments you will see that surgeons spend some time operating, but a considerable period of time talking and examining patients to make a diagnosis.

The first part of this book deals with common presentations to a surgical outpatient clinic or as emergencies to surgical house officers. It will help you to ask relevant questions and plan investigations in a systematic way. The rest of the book gives background information on all the conditions mentioned.

This book should be helpful to students starting their first surgical attachment to give an overview of the topic and it can also be used later as a revision book. I hope that it will stimulate an interest in surgery so that you will want to read more about some of the topics.

Surgery is a fascinating subject that brings anatomy to life. It is a dynamic specialty and this book should help you to get involved and enjoy surgery.

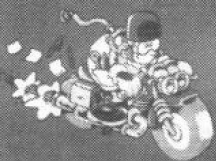
Helen Sweetland

Many, if not most, undergraduate text books in clinical specialties, provide the student with comprehensive information about specific conditions. It is often left to the student, however, to determine how this information can be extracted in the clinical setting to establish the diagnosis. Often the diagnosis can be clinched by asking just a few vital questions and performing the right investigation rather than a whole barrage of tests. (Just look at your consultants' outpatient notes for an example of this!)

Crash Course Surgery will be useful to both junior clinical students and those of you about to enter your first years as a doctor, by giving a helping hand in targetting your enquiries and investigations to gain more information for less effort. It also provides background information on conditions organized by organ system as well as management suggestions once the diagnosis has been established.

Surgery is a rewarding subject and I hope this book helps you get the most out your time in this specialty.

James Cook



Preface

So you have an exam in medicine and you don't know where to start? The answer is easy—start with *Crash Course*. Medicine is fun to learn if you can bring it to life with patients who need their problems solving. Conventional medical textbooks are written back-to-front, starting with the diagnosis and then describing the disease. This is because medicine evolved by careful observations and descriptions of individual diseases for which, until this century, there was no treatment. Modern medicine is about problem solving, learning methods to find the right path through the differential diagnosis, and offering treatment promptly.

This series of books has been designed to help you solve common medical problems by starting with the patient and extracting the salient points in the history, examination, and investigations. Part II gives you essential information on the physical examination and investigations as seen through the eyes of practising doctors in their specialty. Once the diagnosis is made, you can refer to Part III to confirm that the diagnosis is correct and get advice regarding treatment.

Throughout the series we have included informative diagrams and hints and tips boxes to simplify your learning. The books are meant as revision tools, but are comprehensive, accurate, and well balanced and should enable you to learn each subject well. To check that you did learn something from the book (rather than just flashing it in front of your eyes!), we have added a self-assessment section in the usual format of most medical exams—multiple-choice and short-answer questions (with answers), and patient management problems for self-directed learning. Good luck!

Wilf Yeo
Series Editor (Clinical)



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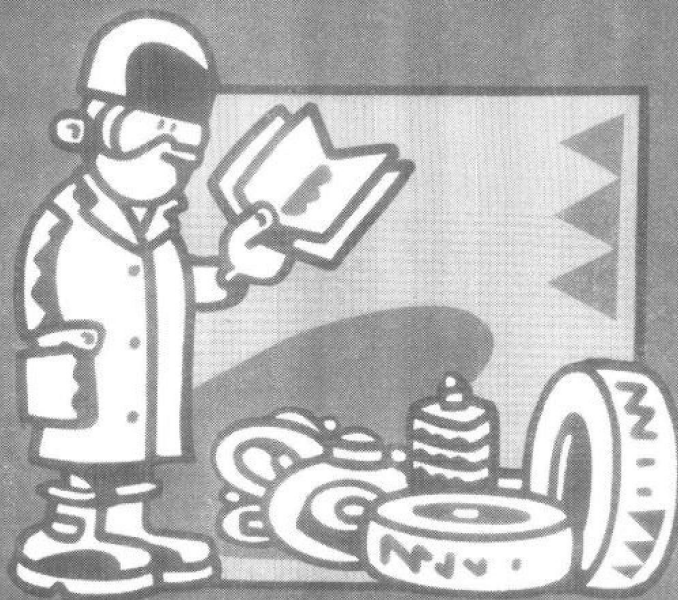
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1. Acute Abdominal Pain

Acute abdominal pain is the most common presenting surgical emergency. The main aim of the clinician seeing a patient who has acute abdominal pain is to recognize the serious causes from the not so serious. Many patients are admitted with abdominal pain, but only 20% will need any surgical intervention to speed their recovery. The rest may need investigations to find out the cause of the pain, but there is a group of patients who are labelled as having 'non-specific abdominal pain (NSAP) ? cause'.



Medical conditions mimicking acute abdomen include:

- Lower lobe pneumonia
- Inferior myocardial infarction
- Hypercalcaemia
- Hyperglycaemia

DIFFERENTIAL DIAGNOSIS OF ACUTE ABDOMINAL PAIN

There are many different diagnoses for acute abdominal pain and they can be categorized by site as follows:

- Right upper quadrant—gall bladder disease.
- Epigastrium—peptic ulcer, peptic perforation, pancreatitis.
- Left upper quadrant—splenic rupture.
- Umbilical—gastroenteritis, small bowel obstruction, early appendicitis, mesenteric ischaemia.
- Right or left flank—renal colic, pyelonephritis, leaking aortic aneurysm.
- Suprapubic—cystitis, acute urinary retention, pelvic appendicitis.
- Right iliac fossa—mesenteric adenitis, appendicitis, Crohn's disease of the terminal ileum, carcinoma of the caecum, ovarian cyst, salpingitis, ectopic pregnancy.
- Left iliac fossa—diverticulitis, carcinoma of the sigmoid colon, ulcerative colitis, constipation, ovarian cyst, salpingitis, ectopic pregnancy.
- Groin—irreducible hernia.

HISTORY TO FOCUS ON THE DIFFERENTIAL DIAGNOSIS OF ACUTE ABDOMINAL PAIN

A full and thorough history of abdominal pain will be the most useful guide to establishing a likely cause.

Site

Many abdominal pains change site as the disease progresses (Fig. 1.1). The abdominal viscera have no somatic sensation so the pain is often felt initially in the dermatome (usually indicated in the midline) that is related to the embryological development of the gut. It may be:

- Epigastric—indicating foregut pathology.
- Central—indicating midgut pathology.
- Suprapubic—indicating hindgut pathology.

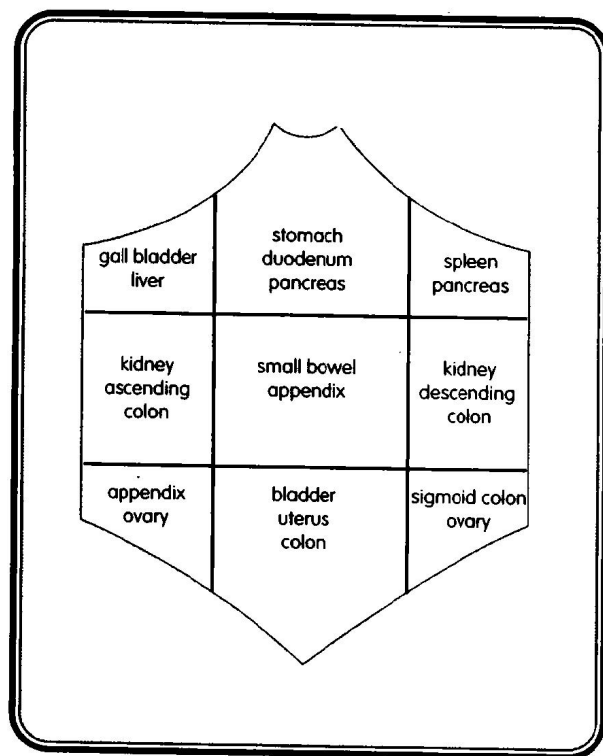


Fig. 1.1 Organs causing pain in the different abdominal regions.



This is often an important start to finding the cause.

As inflammation progresses the parietal peritoneum overlying the organ becomes inflamed and this causes a localized pain in that area, as listed in the differential diagnosis. For example in acute appendicitis the pain is initially vague and in the central abdomen and then moves to the right iliac fossa when the peritoneum becomes inflamed.

Onset

Is the pain sudden in onset or more insidious?

- An inflammatory condition tends to produce a gradual onset of pain that increases as the inflammatory reaction progresses.
- A ruptured viscus typically causes a sudden onset of pain.
- Smooth muscle colic, as in bowel obstruction or ureteric colic, has a rapid onset
- Hormonally induced smooth muscle colic, such as biliary colic, has a slow onset because the hormone (in this case cholecystokinin) only gradually increases in concentration.

Severity

Ask the patient to grade the pain on a scale of 1 to 10.

Renal colic is said to be one of the worst pains. Many women say that it is worse than childbirth.

Nature

The pain may be described in many terms by the patient. The more common include:

- Aching—a dull pain that is often poorly localized.
- Burning—this may be used to describe symptoms of a peptic ulcer (see Chapter 2).
- Stabbing—a short sharp sudden pain, as may be felt with ureteric colic. (Note, however, that the pain associated with a stabbing is often described as burning in nature.)
- Gripping—often associated with smooth muscle spasm as seen in bowel obstruction. The patient will often describe it with a wringing motion of their hands (as if wringing out a cloth).

Progression

How has the pain changed over time?

- It may be constant—seen in peptic ulcer
- It may be colicky—each sharp pain may last seconds (bowel), minutes (ureteric) or tens of minutes (gall bladder).

- It may change character completely. Appendicitis starts as a colicky central abdominal pain that then localizes to the right iliac fossa as a sharp pain that is worse on movement.

Radiation

The pain may seem to 'go through' to another part of the body. Often this can be quite revealing as to the cause of the pain. Good examples of radiation and causative organs are:

- Back—pancreas and other retroperitoneal structures.
- Shoulder tip—referred diaphragmatic pain (C4 dermatome—phrenic nerve).
- Scapula—gall bladder.
- Sacroiliac region—ovary.
- Loin to groin—typical description of ureteric colic.

Cessation

Does the pain go away slowly or quickly?

- Colicky pains, such as ureteric colic or bowel colic, usually have an abrupt ending.
- Inflammatory pain resolves slowly.
- Gall bladder colic also resolves slowly.

Exacerbating and relieving factors

Abdominal pathology causing inflammation of the peritoneum causes pain on movement so the patient lies still.

Ureteric colic is neither exacerbated nor relieved with movement and patients roll around trying to get comfortable.

Food may relieve or exacerbate the pain (see Chapter 2).

Associated symptoms

These may include:

- Nausea and vomiting (see Chapter 3).
- Constipation—there is a sudden onset of constipation, especially absolute constipation (where neither faeces nor flatus is passed) associated with vomiting faeculent fluid and colicky abdominal pain in bowel obstruction. These same features in the absence of colicky pain may be seen in ileus.
- Anorexia—a sudden onset of loss of appetite can be associated with any intra-abdominal pathology and should always be investigated further.
- Rectal bleeding (see Chapter 6).
- Fever and malaise—associated with inflammatory and infective conditions.



- Menstrual irregularity—a gynaecological history should be obtained from all women who have abdominal pain as menstrual irregularity may indicate ectopic pregnancy or chronic salpingitis.

EXAMINATION OF PATIENTS WHO HAVE ACUTE ABDOMINAL PAIN

General appearance

The patient's general appearance can give clues to the underlying pathology:

- Sweating—may be associated with a pyrexia and is also seen in hypotension due to intra-abdominal bleeding or sequestration of fluid (as seen in peritonitis or pancreatitis).
- Pallor—the patient may be anaemic due to bleeding, but may also be 'peripherally shutdown' in hypotensive states.
- Peritonitic facies—pale sweaty face with sunken eyes and a grey complexion.

Attitude in bed

The clinician's first impression of the patient in bed may suggest the diagnosis. The patient may be:

- Restless—typically seen in colic (either of the gastrointestinal tract or ureteric colic).
- Still—with movement exacerbating pain (as in peritonitis).
- Drawing up his or her knees—this position is often associated with severe peritonitis.
- Sitting forward—this lifts retroperitoneal structures away from the spine so may be a feature of the patient who has pancreatitis.

Temperature

The patient's temperature may be:

- Low—in states of shock such as severe peritonitis or pancreatitis.
- Increased—if the patient has infective pathology, especially pyelonephritis.

Vital signs

Check the following:

- Blood pressure—may be low in cases of haemorrhage or more frequently in peritonitis, where large volumes of fluid can be 'lost' in the gut and there is no intake of fluid.

- Pulse—a rapid pulse also reflects hypovolaemia (usually before a drop in blood pressure) and the pulse may be increased in infective conditions.
- Respiration—shallow, rapid breaths are associated with generalized peritonitis.

Abdominal examination

Inspection

The abdomen should be carefully inspected for:

- Scars—there may be adhesions inside the abdomen from previous surgery causing obstruction. The previous operation may have been for malignant disease, making a diagnosis of recurrent tumour high on the list of differential diagnoses.
- Masses—large masses may be visible.
- Movement—the patient who has peritonitis breathes shallowly and minimizes abdominal movement.
- Pulsatility—epigastric pulsation can be seen in the normal resting abdomen, but very prominent pulsations may be associated with an aortic aneurysm.
- Hernias—check the hernial orifices because irreducible hernias can cause small bowel obstruction.

Palpation

Gentle palpation is very important for gaining useful information. Starting with deep palpation will cause the patient to voluntarily tense his or her abdominal muscles to avoid further discomfort. Examination may demonstrate masses and tenderness. Signs of peritoneal inflammation include:

- Rigid abdomen—the abdominal muscles are contracted involuntarily. This is a sign of generalized peritonitis.
- Guarding—a localized area of involuntary muscle spasm indicating underlying peritoneal irritation.
- Rebound tenderness—the release of pressure on the peritoneum causes irritation as the peritoneum rubs against the inflamed organ.

Percussion

Solid or fluid-filled masses and gas-filled structures can be distinguished by percussion. Percussion is also probably the best test for rebound tenderness and is far more gentle than pressing the hand into the abdomen and pulling away sharply.

Auscultation

Bowel sounds are absent in ileus due to peritonitis. Loud high-pitched bowel sounds are heard in bowel obstruction.



Rectal and vaginal examination

These form an essential part of the abdominal examination. Rectal examination may reveal:

- Tenderness of the appendix in a pelvic appendicitis.
- Boggy swelling of a pelvic abscess.
- A large prostate gland causing urinary retention.
- An obstructing rectal carcinoma.

Vaginal examination may reveal:

- Vaginal discharge in salpingitis.
- Cervical tenderness or excitation in salpingitis or ectopic pregnancy.

- Retained tampon causing toxic shock.
- Pelvic mass such as ovarian cyst, pelvic abscess or fibroid uterus.

INVESTIGATION OF PATIENTS WHO HAVE ACUTE ABDOMINAL PAIN

An algorithm for the investigation and diagnosis of acute abdominal pain is given in Fig. 1.2.

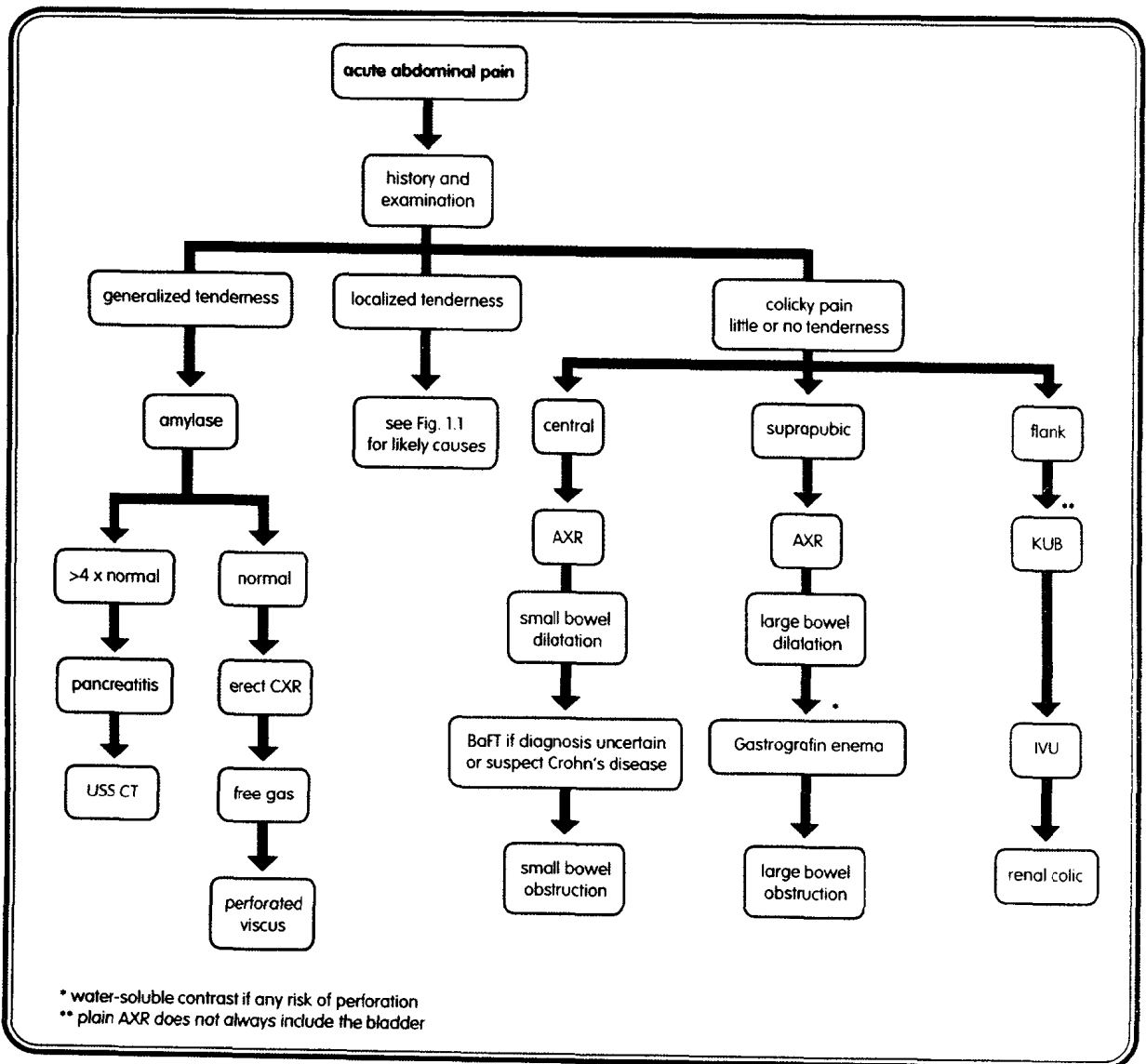


Fig. 1.2 Investigation and diagnosis of acute abdominal pain (AXR, abdominal radiography; BaFT, barium follow-through; CT, computed tomography; CXR, chest radiography; KUB, kidneys, ureter, and bladder radiography; IVU, intravenous urography; USS, ultrasound scan.)



Blood tests

Full blood count

Findings may include:

- Low haemoglobin in cases of gastrointestinal haemorrhage or chronic blood loss.
- High haemoglobin in patients who are severely dehydrated and have peritonitis or pancreatitis.
- Increased white cell count in infective conditions.

Urea and electrolytes

These are measured to assess renal function and reveal dehydration. The potassium level is important if anaesthesia is required for a surgical operation.

Liver function tests

Liver function may be deranged as a result of diseases of the gall bladder and biliary tree (see Chapter 8)

Amylase

This is primarily measured to diagnose pancreatitis. Typically the amylase level will be increased more than four times the upper limit of normal (normal ranges vary between hospitals). Other conditions such as a perforated duodenal ulcer or ischaemic bowel may also give rise to a high amylase level, so the test should not be used alone to diagnose pancreatitis.

Arterial blood gases

Acidosis may be a sign of severe sepsis or ischaemic bowel.

Group and save

Blood should be sent for a group and save pending the full blood count and if there is any possibility that the patient will be having an operation.

Urine

Urine should be tested with a dipstick for the presence of:

- Red cells—seen in ureteric colic and infection.
- White cells—seen in infection.
- Nitrites—a breakdown product of urea seen in infection.

If any of these are present in the urine then urine should be sent for urgent microscopy and culture.

All premenopausal women who could be pregnant should have a pregnancy test.

Radiography

Chest radiography

An erect chest radiograph may show:

- Subphrenic free gas—indicating a perforation of a hollow viscus.
- Subphrenic bubbles—may be seen in cases of a subphrenic abscess.
- Lower lobe pneumonia—may cause hypochondrial pain.



Approximately 30% of acute perforations are not evident on an erect chest radiograph.

Abdominal radiography

Plain abdominal radiography may show:

- Dilated loops of bowel associated with an obstruction—can give some idea about the level of obstruction.
- Free gas—may be seen outside the lumen of the bowel.
- Thick-walled inflamed bowel—is suggested by the presence of a widened space between adjacent loops of bowel.
- Stones may be seen—over 90% of kidney stones and less than 10% of gallstones are visible on a plain film.
- Gas in the biliary tree—seen in gallstone ileus with a cholecystoduodenal fistula.

Ultrasonography

This may demonstrate:

- Gallstones, dilated common bile duct, abnormal gall bladder.
- Inflamed pancreas or pseudocyst.
- Liver metastases or cysts.
- Aortic aneurysm.
- Large bladder.
- Dilated pelvicalyceal system in ureteric obstruction.
- Ovarian cysts.
- Hydro- or pyosalpinx.
- Abdominal or pelvic collections.
- Masses.