Management of a patient with acute abdominal pain

College of Surgeons of Sri Lanka 2007

AUTHORS

Dr M Ganesharatnam FRCS(Eng), Consultant Surgeon

Dr GS De Silva FRCS. Consultant Surgeon

Dr DS Liyanarachchi FRCS, Consultant Surgeon

Dr Semaka Jayasekera MS, Consultant Surgeon

Dr Aloka Pathirana MS, FRCS Senior Lecturer in Surgery

Contents

SECTION 1

Introduction

Definition sudden onset abdominal pain severe enough to seek immediate medical attention (and/or make him/her deviate from normal day to day activities)

One of the commonest reasons for seeking medical attention in the out patient department (need evidence). If not properly managed, could lead to significant morbidity and mortality. Age and sex is an important consideration in the diagnosis. Although investigations are helpful, management should be guided by clinical judgment. Investigations recommended should be performed according to availability, in the institution.

All patients presenting with acute abdominal pain should be assessed by a medical officer. For management purposes we have divided the conditions commonly causing abdominal pain in to two categories (A and B). Category A, has conditions which could be managed in a center without a specialist and referred subsequently. The conditions under category B, are more serious ones, which may need to be transferred to a center with a specialist after the initial management.

Traumatic causes of abdominal pain and abdominal pain specific to the paediatric age group are not dealt with in this document.

SECTION 2

Clinical evaluation will consist of the following.
History
Examination
Investigations
Observation
Treatment – may commence before investigations are performed.

Causes (see figure 1)

Colicky

- Ureteric colic
- Intestinal colic - gastroenteritis, acute appendicitis, intestinal obstruction, (hernia, adhesions, volvulus etc. **chronic constipation**)
- Biliary colic

Non-colicky

- Gastritis
- UTI
- Appendicitis
- Cholecystitis
- Pancreatitis
- Strangulated hernia
- Perforated viscus
- Torsion of testis
- Irritable bowel syndrome (rarely)

Non-surgical conditions

- Gynae conditions (eg. Ruptured ectopic pregnancy, twisted ovarian cyst)
- Medical conditions (eg. Ketoacidosis, basal pneumonia, porphyria)

Rare conditions

Ruptured aortic aneurysm

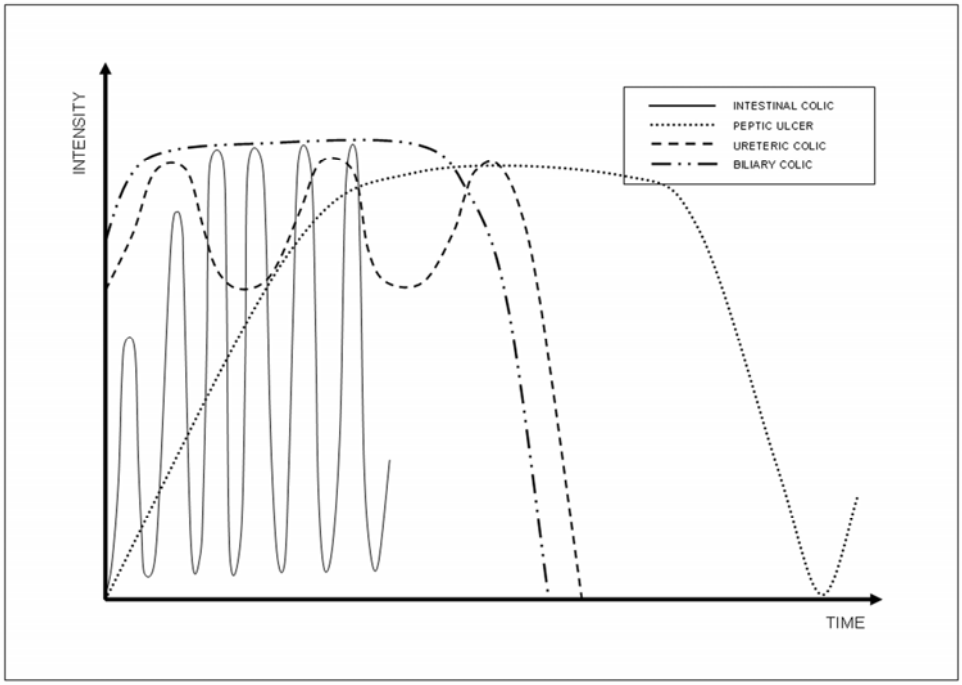

Figure 1. Different types of abdominal pain

History

1. age
2. sex
3. main site (region and depth)
4. radiation
5. onset/duration
6. type of pain / character
7. severity
8. periodicity / frequency
9. special times of occurrence (after meals, time of day etc.)
10. aggravating and relieving factors
11. Associated symptoms –**eg. Faintishness (particularly in females if a period of amenorrhoea is present)**

Past history – similar episodes, trauma, surgery or interventions, medical conditions
Drug history – Non-steroidal anti-inflammatory drugs (NSAIDS), steroids, anti-coagulants, antiplatelet drugs
Menstrual history – LRMP
Social history – smoking, alcohol, substance abuse
Systemic enquiry –change in bowel habits, urinary symptoms etc.
Last meal / drink
Possible intake of unhygienic food/drink
Allergies

Examination

General – hydration (see box), pallor, "Ill look", degree of distress (lying still or moving about), elevated temperature
CVS – pulse, BP

RS – rate, chest movements, air entry, added sounds

Abdomen

- Inspection
    - Movement with respiration
    - 'Cough test' **(aggravation of pain with coughing – site of pain more evident)**
    - Distention
    - Shape – asymmetry, scaphoid
    - Visible peristalsis - pulsations
    - Umbilicus – hernial orifices, genitalia
- Palpation –
    - guarding, rigidity,
    - tenderness (site of maximum tenderness – eg. McBurney's point),
    - rebound tenderness, lumps. "Murphy's sign"
- Percussion – liver dullness, free fluid
- Auscultation – bowel sounds (absence or exaggerated)

Peritonism – presence of tenderness, rebound tenderness and guarding – this is seen with perforation of viscus, inflammation or blood within the peritoneal cavity. Different organs within the peritoneal cavity, gives rise to maximum tenderness in different regions of the anterior abdominal wall. A guide is given in figure 2.

Rarely – signs of peritoneal irritation absent (eg. In Mesenteric ischaemia and intestinal obstruction). Signs may be masked in immuno-suppressed patients and those who are heavily sedated.

Symptoms and signs of dehydration

- Thirst
- Reduced passage of urine
- Loss of skin turgor
- Sunken eyes
- Tachycardia
- Hypotension (late sign)

Box 1

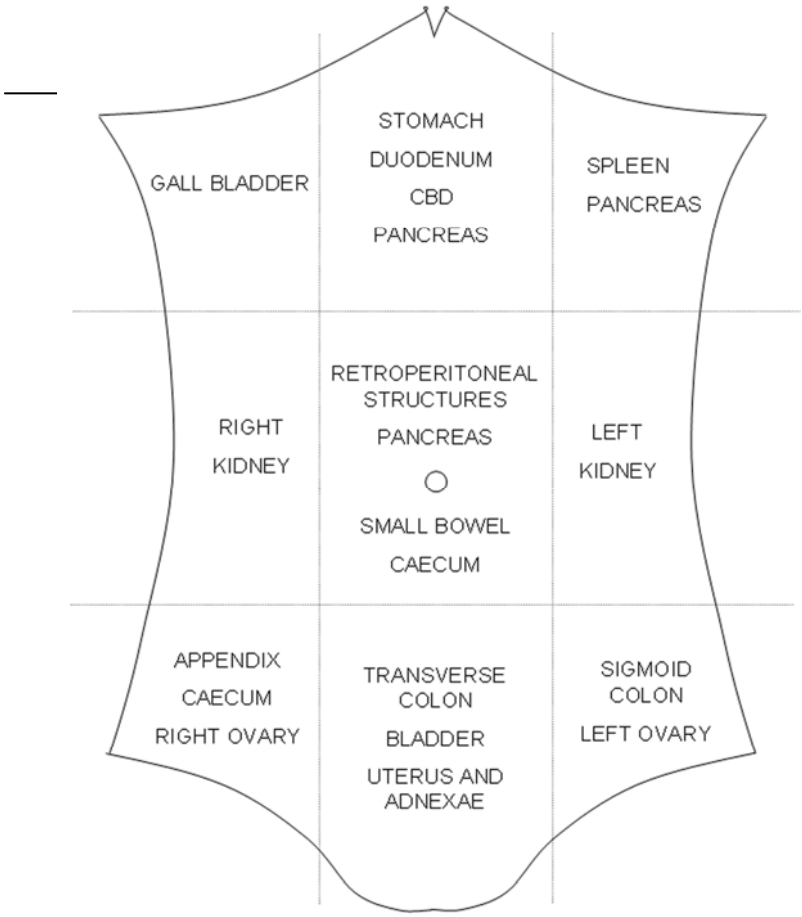

Figure 2. Regions of the abdomen

SECTION 3

Initial management

In most instances of acute abdominal pain, **management may have to precede investigations.** This is particularly true in patients who are ill or in severe pain. In these instances relief of pain, correction of dehydration etc. is more important than investigations to find the cause.

Admit (unless pain has settled)
Observe vital signs in a– Primary care unit or similar set up
Keep nil orally
IV access / fluids
Blood for – FBC, RBS, Amylase, U&E (if clinically indicated)
Analgesics – depending on severity
NSAID – suppositories – contra-indicated in renal failure, asthma, gastritis
Opioids –
Tramadol Suppositories – may cause vomiting (particularly in females)
Morphine/ Pethidine – if administered should monitor the patient.(Note: Morphine should be avoided in biliary colic and pancreatitis)
Paracetamol – suppositories useful if available
Antispasmodics (**for intestinal or biliary colic**)

Nasogastric tube insertion (see annexure 1) – if suspected of having intestinal obstruction
Catheterization (see annexure 2) – if acute retention or dehydrated as in shock

Analgesics

- **Mild to moderate pain**
  Diclofenac sodium suppositories 50mg tds

- **Severe pain**
  Pethidine 25 – 100mg IM, repeated every 4 hours
  OR
  Pethidine 25-50mg slow IV, repeated every 4 hours
  OR
  Morphine 10mg IM, repeated every 4 hours
  OR
  Morphine 2.5 – 5mg slow IV, every 4 hourst

Cautions and contra-indications to non-steroidal anti-inflammatory drugs(NSAID)

Cautions

- in the elderly,
- allergic disorders
- renal, cardiac and hepatic impairment

Contra-indications

- hypersensitivity to aspirin or any other NSAID (attacks pf asthma, urticaria, rhinitis or angiooedema precipitated by NSAID)
- during pregnancy and lactation
- coagulation defects

previous or active peptic ulceration

Monitor

- Temperature
- Pulse
- BP
- Respiration
- Input/Output
- Abdominal signs – girth

Initial Investigations

X ray abdomen – supine AP
CXR erect (or Lateral decubitus of abdomen)
UFR
Urine for HCG (if indicated)
USS abdomen if clinically indicated – renal colics, gynae pathology, cholecystitis, pancreatitis
Testicular Doppler – if torsion suspected and facility is available

Definitive management would depend on the provisional diagnosis. Senior opinion or referral to a center with facilities should be considered depending on the clinical diagnosis and the severity.

If the patient responds to the initial management, he/she may be discharged and subsequently referred to a specialized unit. This applies to the clinical conditions described in category A.

If the patient is to be transferred, the following details should be provided – summary of history, examination, investigations and treatment given with the time being indicated clearly. A responsible person should accompany the patient. Monitoring should continue and resuscitation facilities must be available during transfer.

Category A (conditions that may respond to initial management, requiring subsequent referral to a specialized unit)

1. Renal/Ureteric colic
2. Biliary colic
3. Gastritis
4. UTI
5. Irritable bowel syndrome

Category B (conditions that may have to be transferred to a specialized unit after initial management)

8. Intestinal colic (except when due to gastroenteritis)
9. Cholecystitis
10. Pancreatitis
11. Acute appendicitis
12. Perforated viscus
13. Strangulated hernia
14. Torsion of testis

SECTION 4 Category A (conditions that may respond to initial management, requiring subsequent referral to a specialized unit)

4.1. Renal/Ureteric colic

Clinical features	Investigations	Management
Sudden onset severe pain Loin to groin (or vice versa) radiation – may radiate to upper thigh, penis, scrotum Associated with vomiting Moves about in pain May have associated urinary symptoms <u>Examination</u> Minimal signs May have tenderness in the iliac fossa, lumbar region and/or renal angle	UFR – predominantly red cells X ray KUB – after bowel preparation USS KUB	Pain relief - Diclofenac sodium suppositories (if not contraindicated) Pethidine if no response to above Adequate fluid intake Follow up – necessary (if stone detected). Refer to a specialized unit

4.2. Biliary colic

Clinical features	Investigations	Management
Right hypochondrial or epigastric pain Radiation to back (or shoulder tip) Nausea / vomiting Not a typical colic (diagram) History of fat intolerance, flatulent dyspepsia Mild jaundice No fever <u>Examination</u> Tenderness in right hypochondrium	USS – gall stones. Distended GB, X ray abdomen – may show calcified gall stones thick wall Liver profile – may be altered FBC – for evidence of infection UFR – to exclude renal pathology	Admit Nil orally IV fluids Buscopan Diclofenac sodium / Pethidine Usually settles with conservative management May progress to cholecystitis Refer to surgical unit

4.3. Gastritis

Clinical features	Investigations	Management
Burning epigastric pain Distension – after meals NSAID intake, food intolerance, alcohol, steroids History of gastro-esophageal reflux disease (GERD), dyspeptic symptoms Localized tenderness only **Myocardial infarction may mimic the clinical features of gastritis**	S Amylase ECG – to exclude myocardial infarction UGIE – If age over 40 years or symptoms are recurrent	Antacids – should have prompt response H_2 receptor antagonists (H_2RA) OR Proton pump inhibitors (PPI) should be given (if severe, these may be commenced intravenously) If symptoms are recurrent, refer to a specialised unit

4.4. UTI

Clinical features	Investigations	Management
Commonly seen in females Pain – unilateral/ bilateral/supra pubic/ loins Lower urinary tract symptoms – frequency, burning sensation, fever (with chills) Examination Tenderness in the area of pain Febrile	UFR – >5 pus cells (in uncentrifuged urine) Urine for culture and ABST X ray KUB – USS KUB – particularly if pyo nephrosis is suspected (Is an emergency)	Increased intake of fluids orally Analgesics – Diclofenac sodium Antibiotics – Nitrofurantoin / Nalidixic acid/ Co trimoxazole May need to change the antibiotic according the ABST report Specialist opinion is necessary for all males (first episode) and females with repeated episodes of UTI

4.5. Irritable bowel syndrome

Clinical features	Investigations	Management
Periodic pain Associated with bowel symptoms Examination Patient not ill	Exclude – inflammatory bowel disease, intestinal obstruction ESR, Stools FR, faecal occult blood May need – Double contrast barium enema, colonoscopy (electively)	Reassure Symptomatic treatment – (eg – antispasmodics for colics) Identify and avoid precipitating factors (eg. Milk)

SECTION 5 Category B (conditions that may have to be transferred to a specialized unit after initial management)

5.1. Intestinal colic

Clinical features	Investigations	Management
Sudden onset pain Site – circum umbilical (small bowel) or hypogastrium (large bowel) Vomiting Diarrhoea (in gastroenteritis) Constipation Abdominal distension Dehydration – level should be assessed Lumps, ascites, scars of previous laparotomy Hernial orifices need to be checked (particularly for femoral hernia in females) DER – empty rectum, tumour, hard faeces	X ray abdomen supine AP – distended bowel loops USS – if mass is suspected U & E RBS FBC	Nil orally NG tube – if vomiting or gross distension+ IV fluids – type, volume, rate depending on level of dehydration Catheter – if close monitoring is needed Surgical referral is mandatory (except in patients having gastroenteritis) If evidence of possible strangulation of bowel – urgent surgical referral is indicated.

5.2. Cholecystitis

Clinical features	Investigations	Management
Right hypochondrial or epigastric pain – may be referred to the right shoulder / back Hyperaesthesia in the region of the inferior angle of right scapula (Boas sign) Vomiting Fever Low grade icterus may be present Murphy's sign	Ultra sound scan of abdomen FBC LFT X ray of GB area (particularly if USS is not available) CXR – erect PA (to exclude basal pneumonia / perforated peptic ulcer) Amylase (to exclude pancreatitis) UFR	Nil orally IV fluids Diclofenac sodium suppositories Pethidine (if pain is severe) Monitor – for evidence of peritonitis Antibiotics – ciprofloxacin or cefuroxime IV (if diabetic/immuno compromised – add metronidazole) Early surgical referral – particularly if deteriorating

5.3. Pancreatitis

Clinical features	Investigations	Management
Sudden onset Severe pain Epigastric – predominantly Radiates to back Vomiting Pain reduced when bending forwards History of alcohol, gall stones Examination Ill looking – in pain Tenderness, guarding and marked rigidity in the epigastrium Free fluid may be present Liver dullness present	Serum Amylase (four fold rise) CXR – PA (to exclude a perforated viscus) Late presentation – Serum lipase If confirmed – need to assess severity FBC LDH Blood urea RBS Blood gas Serum calcium US Scan CT – if severe	Nil orally IV fluids NG tube Analgesics – Pethidine Antibiotics – broad spectrum (if severe attack) Look out for complications (eg. MODS) in severe cases Obtain surgical opinion May need laparotomy – if diagnosis is in doubt

5.4. Acute appendicitis

Clinical features	Investigations	Management
Circumumbilical pain – later shifting to RIF Anorexia Nausea / Vomiting Fever (low grade – unless perforated) Examination Maximum tenderness/guarding/ rigidity in the iliac fossa Tenderness and guarding would be generalized if appendix has perforated	UFR – to exclude UTI WBC/DC – neutrophil leucocytosis Urine for HCG – in females to exclude ectopic pregnancy USS abdomen – particularly in females – when diagnosis is in doubt Laparoscopy – in females when diagnosis is in doubt	Nil orally IV fluids Analgesics – Diclofenac sodium suppositories Monitor – pulse, BP, respiration Broad spectrum antibiotics should be given after confirming the diagnosis Definitive treatment - appendicectomy

5.5. Perforated viscus

Clinical features	Investigations	Management
Sudden onset severe pain Generalized History of peptic ulcer disease/ NSAID ingestion/ diverticular disease/ bowel malignancy Examination Febrile Board like rigidity Absent bowel sounds Free fluid Impaired liver dullness	CXR PA – erect (if patient cannot be kept erect , X ray abdomen lateral decubitus view) Serum Amylase (to exclude Pancreatitis) FBC U & E RBS	Nil orally NG Tube IV fluids Analgesics – Pethidine or Morphine Antibiotics – broad spectrum plus metronidazole Monitor – Pulse, BP, resp, UOP Optimize before surgery Definitive treatment - surgery

5.6. Strangulated hernia

Clinical features	Investigations	Management
Previous history of hernia Symptoms and signs of intestinal obstruction preceding the persistent severe pain Examination Irreducible hernia – tender Tachycardia	FBC RBS ECG (if >40 years of age)	Nil orally IV fluids Analgesics – Narcotic Avoid forceful manipulation Needs surgery If the patient is to be transferred for surgery, place an ice pack on hernia, elevate foot end

5.7. Torsion of testis

Clinical features	Investigations	Management
Age – infants, 7 – 15 years Sudden onset lower abdominal pain (may not point to testis) Vomiting Examination Tender testis - lying high / horizontal Abdomen - soft	Doppler examination – if doubtful, time permits UFR	Immediate surgery

Section 6.

References

Bailey and Love's Short Practice of Surgery – 23rd Edition
British National Formulary
An introduction to the symptoms and signs of surgical disease – Norman L Browse

29th January 2007

Annexure 1

Insertion of a Nasogastric tube

1. Explain the procedure to the patient and obtain consent.
2. Select a Nasogastric tube of appropriate size. (It is helpful to stiffen the tube by placing it in a freezer compartment of a refrigerator)
3. Measure the length of the tube to be inserted (see diagram 3) – from the nostrils to the tragus and from the tragus to the xiphoid process(a+b)
4. Lubricate the nostril and the tip of the tube with 2% Lignocaine gel
5. Select the nostril which appears patent.
6. Pass the tube slowly and gently along the floor of the nasal cavity.
7. Ask the patient to swallow, when he feels the tip of the tube in the throat. This opens the upper oesophageal sphincter and facilitates the passage of the tube in to the oesophagus.
8. Push the tube in, until the mark (a+b).
9. Check the correct position by instilling air with a syringe, and auscultating over the stomach for a hissing sound. Appearance of gastric contents through the tube is also confirmatory of the correct position.
10. The tube has to be secured with a plaster attached to the face. It is important not to allow the tube to exert pressure on the nostril, but lie horizontal to the upper lip. This is to avoid pressure necrosis of the nostril skin.

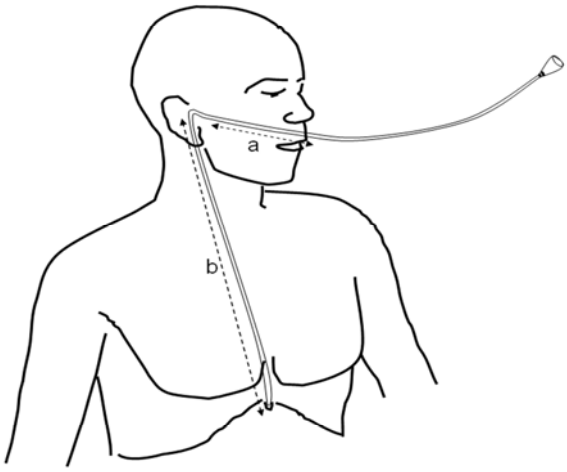

Figure 3.

Annexure 2

Technique of urethral catheterization of a male

- Explain the procedure to the patient
- Aseptic technique is important
- Select an appropriate catheter – Size 14F is adequate for an average male
- Wear gloves and retract the prepuce – clean the prepuce, glans and penis with an anti-septic solution
- Sterile drape should be placed around the penis
- 2% Lignocaine gel is introduced in to the urethra, using the nozzle provided in the tube (if new) or with a 2cc syringe (without the needle)
- Retain the gel in thee urethra for at least 2-3 minutes (may need to compress the glans)
- Insert the catheter by gradually stripping the polythene covering – should avoid direct contact with the catheter – penis should be held slightly stretched
- AVOID FORCEFUL INSERTION
- Pass the catheter until urine starts flowing through it, and until the shoulder of the catheter is at the external meatus– it is useful to connect a drainage bag prior to complete insertion. If urine does not flow freely, pressing the supra-pubic area would be useful
- Inflate the balloon of the catheter with the appropriate volume of sterile water – ONLY AFTER YOU ARE SATISFIED THAT THE CATHETER TIP IS WELL WITHIN THE BLADDER
- Pull back the catheter to ensure that it is secure within the bladder