INTRODUCTION

Abdominal pain is the most common complaint seen in Emergency Departments (ED).[1] The elderly account for 15% of these attendances. Mortality rises significantly in the over 50's as they can have atypical presentations and are more prone to catastrophic events.

Ambulance crews attend a variety of acute abdominal conditions e.g. appendicitis, renal colic, peptic ulcer perforation, abdominal ischaemia and peritonitis, plus chronic conditions such as irritable bowel syndrome (IBS), gastric and duodenal ulcers and cancer of various abdominal organs.[2] Approximately 25% of patients calling 999 with abdominal pain have serious conditions.

The specific cause of abdominal pain can rarely be determined in the pre-hospital environment. The history, nature, location and pattern of the pain with associated symptoms may point to the possible cause. The most important diagnoses to consider are those that are life threatening, either as the result of internal haemorrhage or perforation of a viscus, and sepsis.

Ruptured aortic aneurysm, ectopic pregnancy and traumatic disruption of the liver or spleen are examples of the former. ABC assessment and resuscitation of such patients may be required.

The most common diagnosis of patients presenting to ED departments with abdominal pain is non specific abdominal pain (NSAP). However there are many specific causes which are of a minor nature e.g. constipation, urinary tract infection (UTI).

ASSESSMENT AND MANAGEMENT

Rapid primary assessment of ABCD in order to evaluate any time critical features.

If time critical, initiate resuscitation and rapidly transport to the nearest appropriate hospital.[3]

Obtain a brief overview of pain history[4] and symptoms.

Fluid therapy

Early cannulation is desirable but should not delay on scene times and a limit of two attempts at cannulation should be made en-route.[3]

Current research shows little evidence to support the routine use of IV fluids in adult acute blood loss. In circumstances such as penetrating chest and abdominal trauma, survival worsens with the routine use of IV fluids.[5]

Fluids may raise the blood pressure, cool the blood and dilute clotting factors, worsening haemorrhage. Therefore, current thinking is that fluids should only be given when major organ perfusion is impaired.

Medical patients may present with significant dehydration resulting in reduced fluid in both the vascular and tissue compartments. Often this has taken time to develop and will take time to correct. Rapid fluid replacement into the vascular compartment can compromise the cardiovascular system particularly where there is pre-existing cardiovascular disease and in the elderly. Gradual rehydration over many hours rather than minutes is indicated.

If there is visible external blood loss (e.g. vomited blood) greater than 500mls, fluid replacement should be commenced with a 250ml bolus of crystalloid.

Central pulse **ABSENT**, radial pulse **ABSENT** is an absolute indication for urgent fluid.

Central pulse **PRESENT**, radial pulse **ABSENT** is a relative indication for urgent fluid depending on other indications including tissue perfusion and blood loss.

Central pulse **PRESENT**, radial pulse **PRESENT – DO NOT** commence fluid replacement,[3] unless there are other signs of poor central tissue perfusion (e.g. altered mental state, abnormal cardiac rhythm). If the clinical conditions suggest that major fluid loss (ruptured aortic aneurysm, anaphylaxis, gastrointestinal bleeding) has occurred then commence 250ml bolus of crystalloid.

Reassess vital signs prior to further fluid administration.

Continue patient management en-route, including:

- administer high concentration oxygen (O_2) (***refer to oxygen protocol for administration and information***) via a non-re-breathing mask, using the stoma in laryngectomee and other neck breathing patients. High concentration O_2 should be administered routinely, whatever the oxygen saturation, except for patients with chronic obstructive pulmonary disease (COPD) (***refer to COPD guideline***).
- titrated pain relief[1] tailored to needs of the patient.[6] (***refer to pain management guidelines***).
- obtain 12-lead ECG as standard for all elderly patients and all patients with cardiac risks presenting with upper abdominal pain.[1]
- provide a pre-alert to ED.

Abdominal Pain

HISTORY

Pain history:

- the site
- time of onset
- duration
- quality
- character
- ameliorating/provoking factors
- pain scoring (***refer to pain management guidelines***).[4]

Associated symptoms:[1,7]

- altered bowel habit
- nausea
- vomiting
- blood in vomit or faeces
- burning on urination
- menstrual and sexual history in females of child bearing age.

Past medical history:

- current drug treatment
- presence of similar symptoms in others should be ascertained.

EXAMINATION

Where time critical features are present there is no value in undertaking a detailed examination.

In other circumstances, the presence of tenderness, guarding, rebound tenderness and abnormal or absent bowel sounds may indicate the presence of a serious condition.

ANALGESIA

Entonox is worth consideration but may not be as effective in abdominal pain (***refer to Entonox drug protocol for administration and information***). There is the potential that the nitrous oxide may increase the volume of a gas pocket in the abdomen and it should be used with caution in patients with a markedly distended abdomen.[8]

Early narcotic pain relief has been controversial. No one has conclusively proven that narcotics mask pain and cause problems with subsequent surgical assessment.[9] Current common practice is to relieve pain on humane grounds.[1] Pain has been shown to cloud the patient's ability to concentrate and understand explanations.[10,11] The judicial and titrated use of analgesia prior to a surgeon's assessment of the abdomen is acceptable practice (refer to pain management guidelines).[9]

SPECIFIC CONDITIONS

Elderly and confused patients do suffer pain which may further contribute to confusion.[12] They are more at risk of catastrophic events. They also develop conditions such as diverticulitis rarely seen in younger patients.

Paediatric patients may present with conditions which are specific to childhood e.g. intussusception (inward telescoping of the bowel), pyloric stenosis and are prone to rapid dehydration from diarrhoea and vomiting.

Ectopic Pregnancy accounts for 13% of all pregnancy related deaths (***refer to haemorrhage during pregnancy (including miscarriage and ectopic) guideline***). Patients may present atypically but pain is almost always present. Therefore a thorough history of menstrual function, sexual practice, obstetric and gynaecological features cannot be over emphasised in females of child bearing age.[7]

Pelvic Inflammatory Disease (PID) is a common cause of abdominal pain in females but rarely presents as an acute collapse. The severe forms of pelvic infection with the formation of a tuboovarian abscess are rare but can present with features of systemic sepsis and abdominal pain. A history of PID predisposes to ectopic pregnancy.

Ruptured Abdominal Aortic Aneurysms (AAA) were responsible for almost 6,000 deaths in men and 3,500 in women in England and Wales in 1999. Most deaths occur in the elderly. Less than 25% of all AAA patients present with classic signs and symptoms with a consequential risk of misdiagnosis.[1] This diagnosis must be considered in anyone over the age of 50 who presents with sudden severe abdominal pain or back ache, hypotension with bilateral lower limb ischaemia or mottling (a late sign) especially if there is a history of smoking, hypertension and hypercholesterolaemia.[13]

Appendicitis is also frequently misdiagnosed[1] and up to one third of women of child bearing age with appendicitis are considered as having pelvic inflammatory disease or UTI.[7]

Immunosuppressed patients, for example, human immunodeficiency virus (HIV) and alcoholic patients can present atypically.[1]

Key Points – Abdominal Pain

- The most important diagnoses to consider are those that are life threatening, either as the result of internal haemorrhage or perforation of a viscus and sepsis.
- Myocardial infarction is often misdiagnosed as indigestion.
- Obtain 12-lead ECG for elderly patients and patients with cardiac risks presenting with upper abdominal pain.
- If a patient is in severe pain, adequate analgesia should be given.
- A precise diagnosis of the cause of abdominal pain is often impossible without access to tests and investigations in hospital.

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METHODOLOGY

Refer to methodology section; see below for abdominal pain search strategy.

Abdominal pain search strategy

Electronic databases searched:

Medline (Ovid)

CINAHL.

Search strategy:

Abdom$ / Stomach. exp /gastric. exp

Pain. exp / pain relief. exp / Analgesia. exp / narcotics

Prehospital care / Emergency care

Additional sources searched:

- British Medical Journal – http://bmj.bmjjournals.com
- Emergency Medical Journal – http://emj.bmjjournals.com
- British Society of Gastroenterology – http://www.bsg.org.uk
- American College of Emergency Physicians (ACEP) http://www.acep.org/webportal