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Approach

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The Initial Approach to the Emergency Surgery Patient

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Introduction

Emergency surgical (ES) admissions in the UK are increasing. Between 1998 and 2006, there was an 18% increase in ES admissions resulting in more than half a million emergency general surgical admissions in the UK during the financial year 2005–2006. Many of these patients with relatively minor conditions were generally well and had short hospital admissions; however, a significant proportion were acutely unwell and required the full spectrum of surgical and critical care interventions and had prolonged hospital admission. In 2005–2006, there were more than 33,000 appendicectomies, more than 15,000 cases of acute pancreatitis and more than 3000 cases of diverticular perforation, taking up more than 300,000 hospital bed days. There were also a group of ES patients who were acutely unwell with sepsis and who progressed to severe sepsis and organ failure. In 2005–2006, 990 patients died of acute pancreatitis, 1671 patients died of either a perforated or bleeding duodenal ulcer and 1934 patients died of complications of diverticular disease.

Different models exist for the organisation of emergency surgery care both in the UK and internationally. Increasingly, US centres have integrated ES into the trauma service providing a single service for all acute surgical patients. In the UK, the Royal College of Surgeons of England (RCS) has long been advocating the separation of emergency and elective surgery in order to improve training and the efficiency of both work streams. Its 2007 publication 'Separating Emergency and Elective Surgical Care' contained recommendations about how services should be organised to maximise training of the future surgical workforce and, most importantly, improve patient care. Furthermore, in June 2007, the Association of Surgeons of Great Britain and Ireland (AS-GBI) published a consensus document containing essential service standards. It also discussed separation of specialist services and some institutions now divide the general on call between upper and lower gastrointestinal (GI) surgeons.

Emergency Surgery, 1st edition. Edited by Adam Brooks, Peter F. Mahoney, Bryan A. Cotton and Nigel Tai. © 2010 Blackwell Publishing.

There are a wide range of conditions that present on the ES on call (Table 1.1–Table 1.2) and it is important that all emergency surgery patients are evaluated with a standard approach to avoid omissions, provide timely resuscitation, effective investigation and efficient surgical intervention.

ES patients may present through the emergency department, general practitioner surgical admission area, medical wards or as acute complications in elective patients on the surgical unit. An approach must be broad enough to be applicable in all these diverse situations. In many of these areas it is unlikely that the patient will be referred with an actual diagnosis but rather with a symptom, sign or physiological derangement.

Approach

The initial challenge in ES is to decide whether the patient is acutely unwell. With a little experience it is relatively simple to differentiate between the extremes; the patient who is comfortable, sitting up and talking, is not in extremis and a more measured approach can be adopted. Alternatively, some patients are clearly acutely unwell with significantly deranged vital signs and may have an altered level of consciousness; these patients require combined assessment and resuscitation, a coordinated approach and a greater degree of urgency. This is really an end of the bed evaluation of the airway, breathing and circulation (ABC) – as the patient who is well, talking and sitting up has an adequate ABC. Occasionally, differentiation between these extremes can be more challenging, as some early signs of impending deterioration can be subtle. It is better to fully evaluate rather than under-appreciate a patient who rapidly decompensates (Figure 1.1).

Recognition of the patient's severity of illness allows you to prioritise their clinical management, commence resuscitation, correctly focus investigations and appropriately communicate with seniors, theatres and critical care.

Within the first few minutes of meeting the ES patients, you should be able to develop a feeling of how unwell they are as well as begin to recognise patterns and non-verbal

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Table 1.1 Emergency surgical conditions presenting to a teaching hospital.

Appendicitis	399
Obstruction	291
Pancreatitis	249
Abscess	226
Non-specific abdominal pain	225
Cholecystitis	177
Diverticulitis	167
PR bleed	157
Biliary colic	126
Trauma	98
Hernia	90
Perforation	82
Constipation	55
UTI	52
Stoma complication	42

A review of 2700 consecutive ES patients.

PR, per rectal examination; UTI, urinary tract infection.

signs that will assist in focusing the history, examination and investigations. For example, jaundice, fever and right upper quadrant pain would move you down a cholangitis pathway, the unwell patient who is lying rigidly on the bed with sudden onset of severe abdominal pain and a rigid abdomen suggests possible perforation and the well patient lying on their side with perianal pain is suggestive of a perineal abscess.

Resuscitation

All ES patients require some form of resuscitation, whilst this may only be intravenous (IV) fluid to replace intravascular

Table 1.2 ISCP mapping for emergency surgery.

- Manage patients presenting with an acute abdomen
 - Peritonitis
 - Acute appendicitis
 - Acute gynaecological disease
- Acute intestinal obstruction
- Manage infections of the skin including necrotising infections
- Strangulated hernia
- Manage the patient with multiple injuries
- Manage abdominal trauma
 - Especially splenic, hepatic and pancreatic injuries
- Manage perforated peptic ulcer
- Manage acute GI haemorrhage
- Manage acute HPB disease
 - Acute gallstone disease
 - Acute pancreatitis
- Recognise the acutely ischaemic limb

ISCP, Intercollegiate Surgical Curriculum Project; GI, gastrointestinal; HPB, hepato-pancreatic biliary.

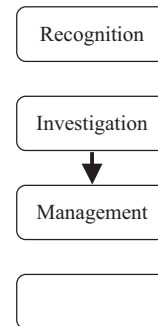


Figure 1.1 An approach to the emergency surgery patient.

losses, supplemental oxygen or appropriate analgesia, others will require full resuscitation, including airway management, central access and fluids.

Resuscitation can occur anywhere in the hospital and is not limited to the emergency room or the intensive care unit. The traditional ABC approach is tried and tested and is an appropriate pathway for the ES patient. Patients with small bowel obstruction or pancreatitis, for example, will have significant fluid losses and will require aggressive early fluid resuscitation, guided by measurement of urine output and/or central venous pressure. In the unwell or unstable patient, resuscitation must proceed at the same time as the evaluation and life-threatening conditions treated as they are discovered. It is vital to get senior help when looking after seriously ill patients and early referral to critical care and/or an outreach team will be valuable. Septic and peritonitic patients can decompensate rapidly and early involvement of critical care before surgery will be particularly valuable. The patient may need transfer to critical care before surgery for ventilatory and/or cardiovascular support. The surviving sepsis guidelines should be followed in septic patients and the sepsis care bundles commenced, however, the fundamental requirement is surgical drainage of the driving infection.

Investigations

It is important to focus the investigations towards the working diagnosis rather than to take a screening approach with the hope that a positive diagnosis will be thrown up. All investigations should be performed to either confirm or rule out the working diagnosis or as appropriate work up for anaesthesia. Investigations that do not add to the patient's care are inappropriate and add expense and can delay appropriate management. Investigations can be thought of as a ladder starting with basic urine and blood tests and progressing to advanced radiological investigations to confirm the diagnosis and plan surgery (Table 1.3).

CHAPTER 1 The Initial Approach to the Emergency Surgery Patient

Table 1.3 Investigations.

Urine	Blood	Radiology
Urobilinogen	Full blood count	Chest X-ray
White cells	Urea	Abdominal X-ray
Red cells	Electrolytes	Ultrasound
Microscopy and culture	Liver function tests	CT
	CRP	MRI
	Group and save	
	Cross match	

CRP, C-reactive protein; CT, computed tomography; MRI, magnetic resonance imaging.

Initial management

At each point in the patient’s care pathway it is important to reassess the patient and if required to revise the management plan in light of changes in their physiological condition.

At each stage it is important to ask yourself the following questions:

Does the patient require?

- Further investigation
- Further resuscitation
- A different treatment strategy (conservative or surgical)

A management plan needs to be made on every ES patient and documented as well as discussed with your seniors and all those involved in the patient’s care. This may be as simple as

Diagnosis	– Abdominal wall abscess
Plan	– Incision and drainage of abscess today – Nil by mouth until surgery – Analgesia

At other times the plan may be more complex and involved, e.g.

Diagnosis	– Acute severe pancreatitis – Severe sepsis and respiratory compromise
Plan	– Urgent referral/transfer to critical care – High flow oxygen – Arterial blood gases – Pancreatitis prognostic scoring – Full septic screen and cultures – Analgesia – IV fluid resuscitation – Urinary catheter – maintain urine output 0.5 mL/kg/hour

At each stage and after each set of investigations the plan needs to be revised and updated in the notes and changes communicated to staff.

Keep your seniors involved early and frequently. Do not be reluctant to ask for help. When talking to seniors make sure that you are clear and concise and that you know what you want to get out of the conversation. If it is simply to keep them informed tell them that; if you want them to come to assess the patient and help you, tell them directly.

Operative management

A significant proportion of ES patients will require surgical intervention to address their underlying pathology. The choice of procedure depends on a number of factors including the pathology, the skill set of the surgeons and equipment. It is important to ensure that a preoperative/pre-anaesthesia work up has been performed and the case discussed with the anaesthetists. Surgical issues in the pre-operative period that need to be addressed include consent, marking of the operative side and stomas, informing the theatre coordinator of the procedure and urgency of the case and liaising with critical care regarding pre- and postoperative care.

Summary

Emergency surgery is an acute speciality where decisions often need to be made urgently. Information needs to be gathered quickly and appropriate management started. A standard approach to ES patients provides a framework upon which to base resuscitation, investigations and management decisions.

Communication is a key part of the ES approach as many people in numerous departments are involved in the acute management of these patients (Figure 1.2).

The chapters that follow in this book address the common diagnoses in ES and trauma. We hope that they will guide trainees in the assessment and management of these patients.

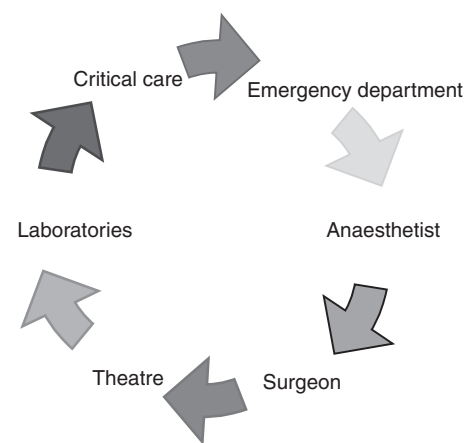


Figure 1.2 People involved in the acute care of the ES patient.