Management of the Acute Abdomen

Contents

Introduction

The aims of this module are to consider the diagnosis and management of the 'acute abdomen' in the offshore environment.

We will be looking at:

- The anatomy of the abdominal region
- Causes
- Your Assessment of the patient
- Your on-going management and evacuation of the patient

Before we move on remember that the 'acute abdomen' is not a precise clinical diagnosis, it is more of a medically accepted term. As with many other medical conditions, a definitive diagnosis cannot often be reached in the early stages but will become more apparent after a period of observation that is both in your sickbay and onward at the receiving hospital.

Acute Abdomen - is a term used to describe a condition which presents with abdominal pain, often this is the principal and only initial complaint that presents.

Question A: There are many associated symptoms, can you think of any others that you might expect to find as you look for clues? We have started the list for you:

- Nausea
-
-
-
-
-
-
-

1. Anatomy

The boundaries of the abdominal cavity are the respiratory diaphragm (superiorly), the inferior ribs and bony pelvis laterally, and the pelvic diaphragm (inferiorly). There are three main organ systems within the abdominal cavity:

- The gastrointestinal tract
- The pancreatic and biliary tract
- The genito-urinary tract

Before you read any further you might like to have a look through the Anatomy and Physiology textbook of choice and refresh your knowledge of the anatomical position and function of all of the systems we have mentioned above. Take a look also at the Kidneys, Aorta, and Inferior Vena Cava in the intra-abdominal region.

2. Causes

In the offshore environment you need not be too concerned about getting the precise diagnosis because as a rule of thumb 'all abdominal emergencies' OFFSHORE are generally managed in a similar way, irrespective of the cause. Remember the explanation below whenever you are treating someone, and it will aid you in the diagnostic process:

Note: A disease is an interaction between a pathological process - the what - and an anatomical site - the where.

The Pathological Process

Includes:

- Trauma – Rupture of an organ leading to haemorrhage or a Viscus leading to Peritonitis
- Infection – Appendicitis, Gastroenteritis
- Cancer – Pain at the site possibly leading to an intestinal obstruction
- Inflammation – Such as Peptic ulcer disease
- Motility disturbance – Constipation, irritable bowel syndrome
- Metabolic abnormality – leading to the formation of kidney or gallstones
- Others – Strangulated inguinal hernia through weakness of the abdominal wall structures

Anatomical Site

When we consider the anatomical, we must consider the following - intra-abdominal organs are either 'hollow' or 'solid'. They have a different response to the same pathological process. For example, trauma to a solid organ such as the Liver may lead to haemorrhage, whereas Trauma to the intestine might lead to perforation with late onset peritonitis.

Note: Some disorders that present this way are potentially life threatening and require urgent surgical INTERVENTION. The 'acute abdomen' requires urgent and accurate diagnosis and treatment at an onshore hospital or medical facility.

Question B: We have listed cause and effects in Table 1 and you can use Table 2 to input your answers. The first one has been completed for you.

Cause	Effect
A. Penetrating injury	1. Jaundice
B. Ruptured Spleen	2. Vomiting
C. Perforated duodenal ulcer	3. Diarrhoea
D. Acute diverticulitis	4. Constipation
E. Ruptured Aortic Aneurysm	5. Peritonitis
F. Acute Gastroenteritis	6. Shock
G. Carcinoma of the large bowel	7. Glycosuria
H. Acute retention of urine	8. Bleeding from the rectum
I. Ureteric colic	9. Pyrexia
J. Biliary colic	10. Blood in the urine
K. Acute pancreatitis	11. Palpable mass
	12. Haemorrhage

	1	2	3	4	5	6	7	8	9	10	11	12
A					X	X		X		X	X	X
B											X*	
C												
D												
E												
F												
G												
H												
I												
J												
K												

X*

Prior to capsular rupture there might be a palpable mass in the left hypochondrium. After rupture no such mass will be palpable. Examination itself might precipitate rupture.

3. Patient Assessment

Remember what we said in the beginning, in the early stages of the acute abdomen, a definitive diagnosis often cannot be reached but becomes apparent after a period of examination and reassessment.

There are three essential elements to the assessment:

- Clinical history
- Physical examination
- Investigation

Clinical History

As a rule the patient who presents with an acute abdomen generally presents with pain as the main complaint, you will need to use your skills to define this complaint further. To do this you need to ask questions about the following, whilst making clear concise notes so you can discuss further with your Topside Doctor. See below for a guide as to what you might ask:

- First, get a clear picture of the location of the pain and the area of maximum intensity
- Any radiation of the pain, for example, does it radiate to the right shoulder, or perhaps kidneys
- Is the pain constant or does it come and go (colicky pain)
- Is the pain gradual or rapid in onset (nature of the pain)
- How long does the pain last (duration)
- What makes the pain easier (vomiting, passing wind (flatus), or defecation etc. (relieving factors)
- What if anything makes the pain worse (exacerbating factors)

Question C: There are many other features of the symptom complex which should be used in your line of questioning, what other questions might you ask? Give six examples.

Physical Examination

Once you have taken a full in-depth clinical history you will have some idea of what is going on with your patient. They will no doubt be feeling unwell and anxious at this point and probably sensitive to pain on movement. It is important at this is juncture that you ensure

your patient is feeling at ease and in safe (gentle) hands). The last thing they need at this point is rough handling during physical examination.

Your first task should be to expose the abdominal area and genital region in a warm environment ensuring patient's dignity at all times. If you have a female patient ensure you have a chaperone and vice versa if you are a female medic looking after a male patient. This is important for the protection of your patient and yourself! Ensure your sickbay has good lighting, this way you will be able to identify abdominal distension or hernia protrusion.

Gently palpate the abdomen to see whether the abdomen is soft or rigid (guarding). Remember to use gloves and explain what you are going to do before you attempt any physical examination (also get your patients consent). Don't be rough and continuously probe and prod the area, be gentle, remember that the abdomen will be very sensitive at this point.

Last of all gently apply a pre-warmed stethoscope to the abdomen, this way you will be able to hear active bowel sounds or the absence of them. Before you decide there are no bowel sounds you must auscultate the abdomen for at least a minute and listen for any changes.

There are other physical examinations you could perform such as rebound tenderness and percussion, however there are many who feel this will give you little help in your diagnosis but can cause much discomfort and stress to the already distressed patient.

Investigations

The only relevant investigation you can perform in your offshore environment is a urinalysis. The presence of blood and protein may increase suspicion of a urinary tract problem; this would seldom help in a diagnosis.

4. Presentation of case to your topside doctor

This is your next step after being a detective and collating all the relevant information from your in-depth questioning and physical examination of your patient.

You are the 'eyes, ears, and hands' of the physician who is sitting at the other end of the phone line. Your ability to relay the correct information will assist them with the decision of provisional diagnosis and treatment plan. There may be some use in certain circumstances to email photographs, (providing they don't show your patient's identity and you have their written permission).

Please see examples below of how to present your case presentation to another health care professional or your Topside Physician:

Important elements are as follows, this is standard practice wherever you work, check local protocols and procedures as some companies will provide you with a template:

- Name/age/sex/ occupation of patient
- Presenting complaint
- Relevant previous medical history and or family medical history
- Current or past medication (prescribed) or (over the counter)
- Examination findings including vital signs
- Your own initial assessment and depth of your concern (your thoughts and initial gut instinct are very important to the assisting the Doctor in reaching a plan of action).

Now have a look at the case history we have written for you, this has been taken from an actual event offshore. Then consider which points you would include in your referral letter. A referral letter follows the same structure as a case presentation whether it be for a hospital Doctor or the crewmembers own GP.

Case Study: Renal Colic

One evening you, as the Offshore Medic, is called to visit a man who is lying on his bunk. He is restless. He looks in considerable distress. He is complaining of pain in the right abdomen.

Medic - Hello, my name's George, I'm your Medic. What's your name?

JB - Joe Briggs (JB).

Medic - How old are you Joe?

JB - 25.

Medic - Can you show me with your hand where you feel the pain? (The patient places his right hand around his right loin.)
How long have you had it?

JB - About half an hour.

Medic - How severe is the pain?

JB - Awful. I've never had anything like it before.

Medic- Do you feel the pain anywhere else?

JB - Yes, it seems to be down my right side as well.

Medic - How do you feel in yourself?

JB - Sick. I think I'm going to throw up any minute. (The Medic retreats for a few moments and returns with a bucket).

Medic - Any other symptoms?

JB - Yes, I've got diarrhoea and it hurts to pee

Further questioning reveals that Joe is a scaffolder. He has been offshore for a couple of days. He has no relevant past medical history and he usually keeps in good health. He has lived in Saudi Arabia for a year and has just returned from a holiday in Spain.
Measurement of vital signs reveals a mild pyrexia, tachycardia, normal blood pressure and increased respiratory rate.
Examination of the abdomen reveals tenderness in the right lumbar region. Examination of the urine reveals heavy blood staining.
You make a working diagnosis of renal colic. You contact the Topside Doctor who agrees. The doctor authorises you to administer Morphine 15 mg by intramuscular injection to the patient. The nausea should be treated with Prochlorperazine, (Stemetil) 12.5 mg IM.

Note: Renal colic is the common expression used but is a misnomer. Stones in the Kidneys do not cause pain; the disorder is due to a stone being passed down the ureter. The pain of ureteric colic tends to be constant and not colicky.
Stones in the Kidney occur more commonly in hot climates where excessive sweating causes the urine to be more concentrated. The diarrhoea was probably contracted from the holiday in Spain.

Question D: It's now time for you to have a go at completing the letter to his GP -

Referral Letter
Date/Time

Dear Dr……
Re. Joe Briggs / DOB / Occupation

……
……
……

5. Patient Management and Evacuation

In general the management of a casualty in the pre-hospital phase can be considered under the following headings of:

- General measures
- Specific measures
- Management of the severely ill patient

General

Reassurance, a sympathetic manner and caring approach should not be underestimated as a measure to reduce a patient's pain and anxiety.

- NMB (Nil by mouth)
- Look after the patient in a position of comfort, patient may ask to draw knees up to their chest or lie on their side
- Keep them warm
- Monitor every 15 minutes and don't forget the initial base line observations

Specific

Specific medication will need to be given for symptom relief

- Analgesia, for example Morphine
- Antiemetic's, such as Prochlorperazine (stemital)

The dosage and administration route of any such medication will be ordered by the Topside Doctor, you must ensure you record this in your notes along with the Doctors name and time of call.

The patient might also require an intravenous infusion and the passage of an NG tube, if directed by Topside.

Note: in an emergency situation and or when communications are down you would be expected to act safely and inform Topside of your actions/drugs given as soon as possible.

Management of the severely / critically ill patient

In this instance the Doctor may well take the decision to fly out to the Installation to assist in the preparation of the casualty for medevac and then accompany them to shore and onward to the receiving hospital.

Any injured person who requires the above (is severely ill and vital signs are unstable) merits:

- Oxygen at 15 litres per minute (100%)
- Intravenous fluids (as prescribed by Topside)
- 15 minute vital signs prior to urgent medevac (5-10 minute observations if you see fit)

Note: All such cases will require at least a competent offshore first aider to act as an escort during medevac.

Questions for your tutor

Answers:

Question A: Nausea, vomiting, distension, altered bowel habit, abdominal distension, collapse, systemic effects, gastrointestinal bleeding

Question B:

	1	2	3	4	5	6	7	8	9	10	11	12
A					X	X		X		X	X	X
B		X			X	X					X	
C		X			X	X			X			
D		X	X	X	X	X			X		X	
E		X				X						
F		X	X						X			
G	X	X		X				X			X	
H		X								X	X	
I		X								X		
J	X	X							X			
K		X			X	X			X		X	

Question C: You should enquire and investigate more about the following:

- Vomiting, if they complain about this then check if there is fresh blood (bright red) or altered blood (coffee ground)?
- Have they noticed a change of bowel habit, for example have they had diarrhoea or constipation, has the colour changed, is there any blood or mucus present?
- Urination, do they suffer from pain on micturition, have they noticed any frequency (going more often and for longer periods), change in flow rate, discharge from the penis or vagina, discoloured or smelly urine, is

the urine blood stained and have they noticed any puss or deposits in the urine?

- You could also enquire about – have they noticed any painful lumps (such as inguinal hernia) or swellings in the scrotal sack:

Once you have completed your systemic enquiry, you should check whether there may be any other relevant factors in the:

- PMH (previous or past medical history)
- Medication (over the counter or prescribed by their GP)
- Family History

Question D:

25th January 1988 Time: 22:00

Dear Dr Harris,

Re Joe Briggs / DOB 20.05.1968 / Scaffolder

Mr. Briggs presented himself to me today at 20.10 with acute onset abdominal pain. The pain was located in the right lumbar region, radiating to the right groin. It had been present for half an hour and it was severe, associated with nausea. Mr Briggs also complained of diarrhoea and pain on micturition.

He has no relevant past medical history and usually keeps well. He tells me that he had lived in Saudi Arabia for a year and had just returned from a holiday in Spain.

On examination he was mildly pyrexial, had a mild tachycardia, normal blood pressure and raised respiratory rate. The abdomen was tender in the right lumbar region.

Urine heavily laden with blood.

As discussed, the likely diagnosis is renal colic.

At 20.45 he was given Morphine 15 mg IM and Prochlorperazine 12.5 mg IM.

Thank you for taking over his management.