



ThinkAskLearn
Health Professional Education

Abdominal Pain

Identifying the life threatening

David Corkill
Emergency Nurse Educator
MEmergN, MAdvPrac (Hth Prof Edu), BN, Dip App Sc

www.thinkasklearn.com.au



The Abdomen

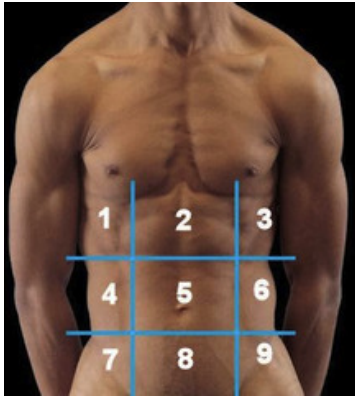


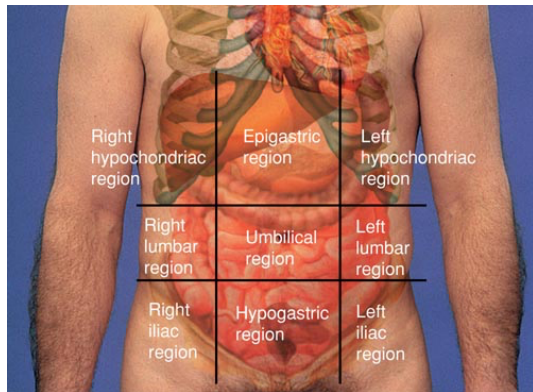
But Clearly most Abdo Pain....

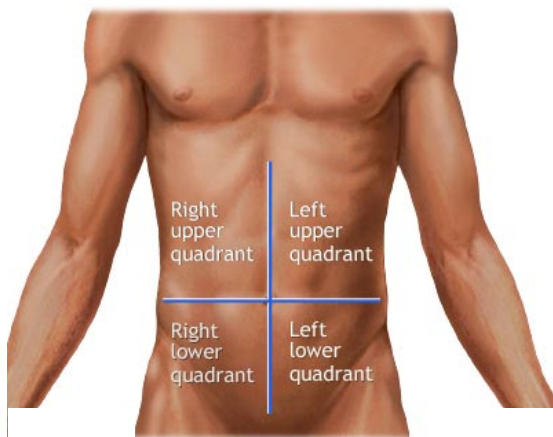
- Common presentation
- Diagnostic dilemma
- Spectrum from minor to extreme
 - 16 year old presents to ED with one episode of vomiting
 - 78 year old with central abdo pain tearing thru to back



A quick selfie







An approach

- Primary Survey
- Visual Assessment
- Note the vital signs
- Assess degree of discomfort
 - Provide analgesia immediately
 - In ED
 - Oral analgesia maybe ok
 - Have low threshold for IV opioids
 - Consider Ketorolac if possible



Analgesia Myth

- Sir Zachary Cope
- Assessment of the Acute Abdomen
- 1st edition 1921
- Describe withholding analgesia as it may mask signs of assessment
- Needed to be disproven multiple times



Cope's Early Diagnosis of the Acute Abdomen

- Still in publication
- Updated removed analgesia issue
- **History** is essential to assessing the abdomen



High Yield Historical Questions

- How old are you?
 - Advanced age means increased risk
- Which came first – pain or vomiting
 - Pain first more likely surgical condition
- How long have you had the pain
 - <48hrs more likely to be surgical cause



High Yield Historical Questions

- Have you ever had abdominal surgery?
 - Consider adhesions or obstruction
- Is the pain constant or intermittent?
 - Constant more likely to be surgical
- Have you ever had this before?
 - Nil previous more likely to be surgical



High Yield Historical Questions

- Are you pregnant?
 - Test for it!!!, Ectopic pregnancy
- Are you taking steroids or antibiotics?
 - Mask infection
- Did the pain start centrally and migrate to RLQ?
 - Highly specific for appendicitis



High Yield Historical Questions Older Patients

- Do you have a history of cancer, diverticulitis, pancreatitis, kidney failure gallstones or inflammatory bowel disease?
 - All suggestive of more serious disease
- Do you have HIV?
 - Consider occult infection, drug related pancreatitis
- How much alcohol do you drink?
 - Consider pancreatitis, hepatitis or cirrhosis



High Yield Historical Questions Older Patients

- Do you have a history of vascular disease or heart disease, hypertension or atrial fibrillation?
 - Consider mesenteric ischaemia or AAA



Right Upper Quadrant
Biliary colic
Acute cholecystitis
Hepatitis
Hepatic abscess
Hepatomegaly
Perforated duodenal ulcer
Acute pancreatitis
Myocardial ischemia
Pain of a pulmonary origin

Right Lower Quadrant
Appendicitis
Leaking aneurysm,
Regional enteritis
Meckel's diverticulitis
Abdominal wall hematoma
Incarcerated or strangulated inguinal hernia
Ureteral calculi
Endometriosis
Ruptured ectopic pregnancy
Twisted ovarian cyst

Pelvic inflammatory disease

Left Upper Quadrant
Gastritis
Splenic infarction or infection
Myocardial ischemia
Left lower lobe pneumonia

Left Lower Quadrant
Regional enteritis
Leaking aneurysm
Sigmoid diverticulitis
Incarcerated or strangulated inguinal hernia
Ureteral calculi
Ruptured ectopic pregnancy
Twisted ovarian cyst
Pelvic inflammatory disease





- Abdo pain is not a feature of uncomplicated gastroenteritis



Simple Gastroenteritis

- Nausea
- Vomiting
- Watery diarrhea
- Abdominal cramping
- Fever
- Headache
- Loss of appetite
- Weight loss
- Dehydration



<ul style="list-style-type: none">• Gastroenteritis Gastroenteritis is inflammation of the stomach and intestines.• Food poisoning Food poisoning can cause abdominal pain, nausea, vomiting, and diarrhea.• Medication reaction or side-effect Medication side effects include nausea, vomiting, and diarrhea.• Acute sinusitis Acute sinusitis, an inflammation of the sinuses, can cause nasal congestion, facial pain, and a runny nose.• Drug overdose A drug overdose can cause nausea, vomiting, and diarrhea.	<ul style="list-style-type: none">• Constipation (child) Constipation is having less than three bowel movements a week.• Constipation (adult) Constipation is having less than three bowel movements a week.• Viral pharyngitis Viral pharyngitis is a sore throat caused by a virus.• Viral gastroenteritis Gastroenteritis (stomach flu) is an inflammation of the stomach and intestines caused by a virus.	<ul style="list-style-type: none">• Chronic kidney disease Chronic kidney disease is a condition of the kidneys that can cause high blood pressure, fatigue, and weakness.• Cryptococcosis Cryptococcosis is a lung disease causing a wide range of digestive, respiratory and cardiovascular symptoms.• Thalassemia Thalassemia is a rare group of genetic blood disorders affecting red blood cells and leading to anemia.• Botulinum toxin (Botox) injection Botulinum toxin side effects may include pain and tenderness at the injection site, headache, and muscle weakness.
Diarrhoea, vomiting, headache symptoms		
<ul style="list-style-type: none">• Aseptic meningitis (child) Aseptic meningitis, or viral meningitis, is an inflammation of the meninges.• Sunburn Sunburn causes a reddened, inflamed, and painful skin.• Mumps Mumps is a viral infection that causes swelling of the salivary glands.• Sickle cell disease Sickle cell disease symptoms include pain, fatigue, and anemia.• Tension headaches Tension headaches, caused by muscle tension, are a common type of headache.• Traveler's diarrhea Traveler's diarrhea causes watery diarrhea.• Irritable bowel syndrome Irritable bowel syndrome is a common intestinal disorder.• Lactose intolerance Lactose intolerance, or the inability to digest lactose, causes bloating and diarrhea.• Coxsackie virus infection Coxsackie virus infection can cause fever, sore throat, and muscle pain.• Inflammatory bowel disease Inflammatory bowel disease causes bleeding, diarrhea, and abdominal pain.	<ul style="list-style-type: none">• Mononucleosis Mononucleosis is a viral infection that causes fever, fatigue, and swollen lymph nodes.• Crohn's disease Crohn's disease is a digestive condition that causes inflammation of the digestive tract.• Influenza (flu) child The seasonal flu is a common viral infection that causes fever, body ache, headache, and cough.• Influenza (flu) adults The flu is a respiratory tract infection and causes fever, sore throat, runny nose, headache, and cough.• An intracranial hemorrhage occurs An intracranial hemorrhage occurs when there is bleeding in the brain.• Heat exhaustion Heat exhaustion causes intense fatigue, dizziness, and nausea.• Hepatitis A Hepatitis A is an inflammation of the liver.• Hepatitis B Hepatitis B is an inflammation of the liver.• Giardiasis Giardiasis is an infection of the small intestine.• Iron poisoning Iron poisoning causes abdominal pain, vomiting, and diarrhea.• Lupus (systemic lupus erythematosus) Lupus is a chronic autoimmune disease that can affect many parts of the body.• Carbon monoxide poisoning Carbon monoxide poisoning causes headache, dizziness, and nausea.	<ul style="list-style-type: none">• Generalized anxiety disorder Generalized anxiety disorder is a condition in which a person has nearly constant anxiety.• Bacterial pneumonia Bacterial pneumonia is a lung infection caused by bacteria, and causes a cough, fever, weakness, and chest pain.• Gastritis Gastritis is an inflammation of the stomach lining, causes stomach upset, irritation, and pain.• Middle ear infection A middle ear infection puts pressure on the eardrum, causing pain and, sometimes, hearing loss.• Migraine headache (adult) Migraines are a common type of headache that can cause severe pain, aura or flashes in vision, and nausea.• Diabetes, type 2 Diabetes can make you feel hungry, tired, or thirsty; you may urinate more than normal and have blurry vision.• Roseola Roseola is a very common childhood infection and causes a very high fever followed by a rash.



But the stool sample may help....

- Some patients should be investigated regardless of the severity of disease
 - Returned travellers
 - Diarrhoea for more than 4–5 days
 - Pts with bloody stools
 - Immunocompromised Pt
 - Suspicion of an outbreak of enteric disease
- Food poisoning is not an indication for stool sample



Dehydration Assessment

	Mild	Moderate	Severe
Weight loss	Up to 5%	6-10%	More than 10%
Appearance	Active, alert	Irritable, alert, thirsty	Lethargic, looks sick
Capillary filling	Normal	Slightly delayed	Delayed
Pulse	Normal	Fast, low volume	Very fast, thready
Respiration	Normal	Fast	Fast and deep
Blood pressure	Normal	Normal or low	Very low
Mucous memb.	Moist	Dry	Parched
Tears	Present	Less than expected	Absent
Eyes	Normal	Normal	Sunken
Skin Turgor	Springs back	Tents briefly	Prolonged tenting
Fontanel (infant sitting)	Normal	Sunken slightly	Sunken significantly
Urine flow	Normal	Reduced	Severely reduced

Based on Duggan et al 1992



Original Investigation

Effect of Dilute Apple Juice and Preferred Fluids vs Electrolyte Maintenance Solution on Treatment Failure Among Children With Mild Gastroenteritis A Randomized Clinical Trial

Stephen B. Freedman, MDCM, MSc; Andrew R. Willan, PhD; Kathy Boutis, MD; Suzanne Schuh, MD

JAMA Published online April 30, 2016

- 647 kids aged 6months-60months with mild /moderate dehydration*
- Outcomes – IV rehydration, hospitalisation, ED/GP revisit, ongoing weight loss, other secondary outcomes



Dilute Apple Juice and preferred fluids vs Commercial ORT

- Treatment failure rate
 - ORT 25% vs Apple 16.7%
- Needed IV rehydration
 - ORT 9% vs Apple 2.5%
- No other outcome difference
- Benefit of apple juice/preferred fluids over electrolyte maintenance solution was most notable in children aged 24 months or older



Management of Vomiting

THE NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Oral Ondansetron for Gastroenteritis in a Pediatric Emergency Department

Stephen B. Freedman, M.D.C.M., Mark Adler, M.D., Roopa Seshadri, Ph.D., and Elizabeth C. Powell, M.D., M.P.H.



Management of Vomiting

THE NEW ENGLAND JOURNAL OF MEDICINE

ORIGINAL ARTICLE

Oral Ondansetron for Gastroenteritis in a Pediatric Emergency Department

Stephen B. Freedman, M.D., C.M., Mark Adler, M.D., Rossa Seshadri, Ph.D., and Elizabeth C. Powell, M.D., M.P.H.

- 215 kids 6mth-10 yrs
- Randomised to Ondansetron or placebo for mild to moderate gastroenteritis
- All had vomited within 4 hrs prior to enrolment
- 2mg – 8-15kg; 4mg 16-30kg, 8mg for over 30kg
- Oral rehydration as per department protocol 30ml every 5 minutes
- Vomiting - 14% vs 35%, Need IVT – 14% vs 31%
- Increased rates of diarrhoea in Ondansetron group



A quick case

- A 16 year old male, looks slightly unwell
- C/o Abdo pain
- Had one vomit
- Nil diarrhoea
- What is your approach???
- T37.7, P96, RR 24, SpO2 97% Rm Air BP 117/64



The acute appendix

- Common cause of the acute abdomen
- Most frequent indications for emergent theatre
- Common in younger adult
- Male to Female ratio 1.4:1
- 233/100 000 population



Pathophysiology

- Initial inflammation in appendix wall
- Followed by localised ischaemia
- Then perforation
- Development of contained abscess
- Or generalised peritonitis



Signs and Symptoms

- Abdo pain is most common symptom
- Classic Symptoms
 - RLQ pain
 - Anorexia
 - Nausea and Vomiting (Follow onset of pain)
- 50-60% have migratory pain
 - Starts around umbilicus then moves to RLQ
- Initial features maybe non specific

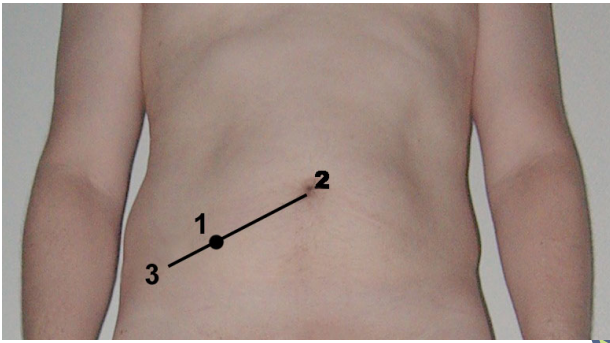


Other Clinical Signs

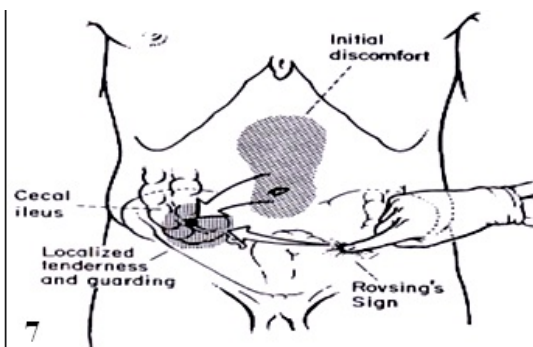
- Low grade fever ~38.5C
- Raised WCC
 - Unlikely if WCC normal
 - Higher WCC indicated perforated or gangrenous
- Palpate the abdomen
 - Guarding, Rebound tenderness



Tenderness at McBurney's point
up to 94% sensitivity, 86% specific,



Rovsing's Sign
up to 68% sensitivity, 96% specific



Psoas Sign
up to 42% sensitivity, 97% specificity



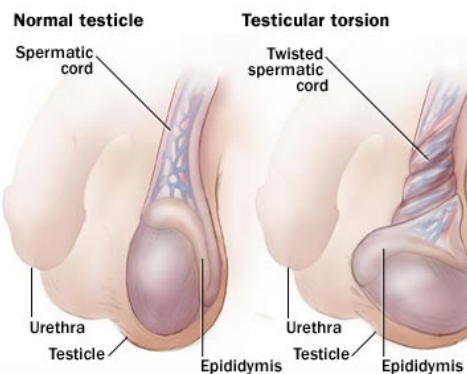
Management

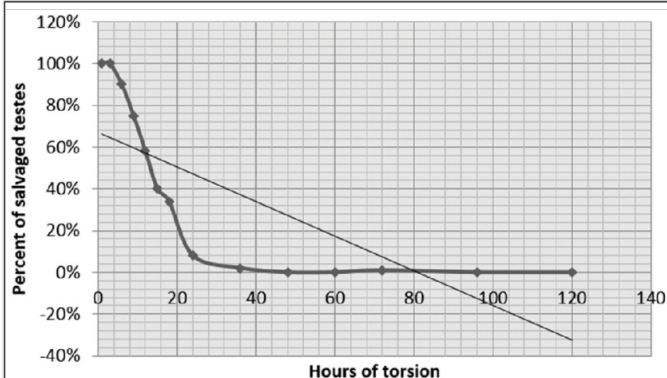
- Supportive care
 - IV fluids, analgesia, NBM
- Antibiotics
- Surgical treatment
- Conservative management
 - Controversial (Research for selection criteria)
 - ~25% of patient require surgery with 1 year



Another quick case

- A 14 year old boy presents to your clinic
- 12hr hx of Lt testicular pain
- Denies trauma
- SL nausea but nil vomiting
- What are your concerns?
- O/E high riding, swollen Lt testis





Pogorelić et al 2016



Urgent USS

- Needs high triage – Usually Cat 2 especially in pain <6hrs
- Doppler USS
 - Check position and blood flow
- Urgent urological opinion and surgery
- Analgesia
- “Time is testis”



Conclusion

- Discussed the importance of history
- Identified some (not all) of the life threatening causes of abdominal pain
- Review care of
 - Gastro
 - Appendicitis
 - Torsion

