PAEDIATRIC ACUTE CARE GUIDELINE	
Acute Abdominal Pain	
Scope (Staff):	All Emergency Department Clinicians
Scope (Area):	Emergency Department

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Acute Abdominal Pain

Abdominal pain is a symptom and can be due to many different underlying aetiologies across many different organ systems.

Background

- Abdominal pain is a common symptom in children
- Serious disease may sometimes present as abdominal pain and surgical causes must be considered
- Abdominal pain may be an indicator for a non-organic/psychological problem – exclude organic causes first
- A thorough assessment including a history and repeated abdominal examinations is vital

General

- Acute abdominal pain is a common reason for presentation to the Emergency Department
- Most abdominal pain in children is mild and transient, and represents minor illness (most commonly gastroenteritis, viral illnesses)
- Mild intermittent, central abdominal pain is usually not serious
- In a small percentage of children with abdominal pain, serious medical and surgical conditions may be the underlying cause
- A diagnosis may be suggested by the child's age, and other clinical features in history

and examination

Features That May Suggest a Serious Underlying Cause:

- Increasing severity of pain, pain becoming constant, inconsolable infants
- Re-presentation to hospital
- Requiring opiate analgesia
- Localised pain in the abdomen
- Signs of peritonism
- Associated shock
- Bilious vomiting

Assessment

- Children do not localise pain very well
- Referred pain from an extra-abdominal cause (e.g. basal pneumonia, testicular torsion) may present as abdominal pain
- Conversely, intra-abdominal problems may refer pain elsewhere (e.g. renal problems may present as testicular pain and sub-diaphragmatic problems may cause shoulder tip pain)
- It may be that no diagnosis is found after assessment in the ED

History

- A **thorough history** is essential in acute abdominal pain and can point to possible underlying aetiologies:
    - **Pain** pattern: character, location in the abdomen, onset, duration, constant or episodic, frequency of episodes
    - **Vomiting:** increasing frequency, vomiting blood or bile (dark green stained)
    - **Stool** pattern: constipation, diarrhoea (in gastroenteritis), incontinence (overflow in constipation)
    - Passing **urine**: decreased (in dehydration), polyuria and polydipsia (in diabetes)
    - Weight loss (diabetes, malignancy)
    - Episodes of pallor/screaming/drawing up of legs (possible intussusception)
    - Fever (infection)
    - Lethargy
    - Anorexia
    - **Viral** features: upper respiratory tract infection – consider mesenteric adenitis
    - **Urinary tract** symptoms: dysuria, frequency
    - Genital pain
    - Lower respiratory tract infection symptoms: cough, grunting, respiratory distress indicating a basal pneumonia
    - Gynaecological problems – ask about menarche, menstruation pattern and

associated symptoms
    - Sexual activity, use of contraception (adolescents)
    - Consider taking a dietary history
    - Past **surgical procedures** (abdominal adhesions, bowel obstruction)
    - Other medical conditions: nephrotic syndrome, cystic fibrosis, diabetes mellitus
    - **Social** history: school problems, family stressors, amount of missed school, sleep pattern

Examination

- General appearance and pain behaviour (lying very still in peritonism or very mobile in colicky pain)
- Gait, ability to move around the bed and undress, jumping, hopping
- Vital signs including blood pressure
- Cardiovascular system examination
- Respiratory examination – looking for signs of pneumonia
- Ear nose and throat examination – looking for signs of infection
- Skin – rashes, lymphadenopathy
- **Abdominal examination** – distension, bowel sounds, areas of tenderness (general, localised), palpable masses or faeces
- Assess abdomen for signs of peritonism – guarding, rigidity, rebound tenderness, ask the child to “puff out” their abdomen and “suck in” their abdomen
- Abdominal palpation often needs to be done on repeat occasions to fully assess the child
- Examine the genitals
- PR examinations are rarely required in children
- Assess fluid status – dehydration, shock

Investigations

- Investigations are not required in all patients – the aim of tests is to help exclude serious surgical or medical conditions
- Most children should have a urinalysis – check for glucose, ketones, haematuria, proteinuria, specific gravity, and β-hCG (in adolescent girls)
- Young children should have their urine sent to the laboratory for microscopy and culture (where appropriate)
- Other investigations should only be done if indicated, after discussion with a Emergency Department Senior Doctor, and directed towards the possible underlying aetiology

Investigation To Consider	Possible Indications
FBC	Septic, peritonitis

Blood culture	Septic, peritonitis
Stool microscopy and culture	Bloody stools
Electrolytes, urea and creatinine Blood gas	Profuse / prolonged vomiting, severe dehydration, diabetic ketoacidosis
Liver function tests	Hepatitis, cholecystitis, abdominal trauma
Amylase	Pancreatitis, abdominal trauma
Abdominal X-Rays	Bowel obstruction, peritonitis, constipation is **not** an indication
Abdominal ultrasound	Pyloric stenosis, intussusception, appendicitis, gynaecological problems, cholecystitis, cholelithiasis, renal colic, abdominal mass (possible tumour)
Abdominal CT scan	Abdominal trauma, mass (possible tumour)
Initial stream urine for Chlamydia and Neisseria gonnorrhoea	Sexually active adolescent

Differential diagnoses

Conditions Causing Abdominal Pain:

Neonates	Infant colic, Enterocolitis (e.g. cow's milk protein induced), Pyloric Stenosis
Infants & Children < 2 yrs	Viral illness, Infant colic, Intussusception, Malrotation with volvulus, Mesenteric adenitis, Enterocolitis (eg: cow's milk protein), Haemolytic uraemic syndrome, Reflux oesophagitis, Hirschsprung disease
2 – 5 yrs	Viral illness, Intussusception, Appendicitis, URTI (pharyngitis,tonsillitis), Mesenteric adenitis, Henoch Schonlein Purpura, Haemolytic uraemic syndrome, Genital – testicular or ovarian torsion, Pneumonia, Bacterial peritonitis
> 5 yrs	Viral illness, Appendicitis, URTI (pharyngitis, tonsillitis), Mesenteric adenitis, Henoch Schonlein Purpura, Haemolytic uraemic syndrome, Genital – testicular or ovarian torsion, epididymitis, Pneumonia, Inflammatory bowel disease, Cholelithiasis, Cholecystitis, Pancreatitis, Urolithiasis, Bacterial peritonitis, Abdominal migraine, Functional abdominal pain

Adolescents	Genital – ruptured ovarian cyst, testicular or ovarian torsion, epididymitis, relating to menstrual cycle, Sexually transmitted infections, Pelvic inflammatory disease, Inflammatory bowel disease, Pregnancy, Ectopic pregnancy, Cholelithiasis, Cholecystitis, Pancreatitis, Urolithiasis, Functional abdominal pain
All Children	Abdominal trauma (remember non-accidental injury), Gastroenteritis (viral or bacterial), Constipation, Urinary tract infection, Pyelonephritis, Sepsis, Diabetic ketoacidosis, Bowel obstruction (eg: abdominal adhesions), Hepatitis, Incarcerated hernia (e.g. inguinal), Malignancy (haematological or solid tumours)

Management

- Always give analgesia – this will **not** mask the underlying cause!

Initial management

- If there is a possibility of a surgical cause – ensure the patient is fasting
- Analgesia choice depends on the severity of the child's pain
- Oral analgesia is appropriate in the majority of cases
- Opiates may be considered in severe pain
- Consider fluids if dehydrated – nasogastric or intra-venous, consider IV fluid bolus
- If bowel obstruction is present, keep the patient fasted and insert an NGT and leave the tube on free drainage
- Consider anti-emetics: ondansetron 0.15mg/kg

Consider a **Surgical consultation** if there is:

- severe, persistent abdominal pain
- pain requiring parenteral opiate analgesia
- bile-stained vomiting
- abdominal distension
- peritonism
- localised tenderness
- inguinal/scrotal pain or swelling
- bloody stools
- palpable mass
- diagnosis is unclear

Further management

- Consider non pharmacological pain relief options: heat packs, distraction therapy, relaxation techniques

Medications

Analgesia Options: (see Analgesia Guideline)

Drug	Route	Dosage
Paracetamol	PO	15-20mg/kg
Ibuprofen	PO	10mg/kg
Painstop Day (paracetamol + codeine liquid)	PO	0.8mL/kg
Panadeine (paracetamol + codeine tablet)	PO	Paracetamol 15-20mg/kg
Oxycodone	PO	0.1-0.2mg/kg
Fentanyl	IN	1.5 micrograms/kg
Morphine	IV	0.1mg/kg

Admission criteria

- If the diagnosis is unclear, consider a short admission for observation and analgesia. This may be to the ED Observation Ward or under the General Surgical Team. A joint Medical/Surgical Team admission may also be considered.
- This will allow repeated abdominal examinations to be performed.

Discharge criteria

- A plan for return to the ED or follow up with a local GP must be in place when sending home children with abdominal pain in which the diagnosis is not clear.

Nursing

Observations

- All observations including blood pressure should be done on assessment
- Give analgesia early
- Apply EMLA cream if an IV cannula is likely
- Do a urinalysis in all young children or if symptomatic

Internal hospital links

- The General Surgical Registrar is on phone extension 8186 and is available 24 hours
- Please discuss with a Senior Emergency Doctor before referring to the General Surgical Team or ordering an abdominal ultrasound

Tags

abdo, abdomen, abdominal, ache, acute, appendicitis, belly, bile, constipation, DKA, gastro, gastroenteritis, intussusception, mesenteric adenitis, pain, pneumonia, RIF, right iliac fossa, shoulder tip pain, sore, testicular torsion, tummy, urinary tract infection, uti, vomiting

References

• The Emergency Medicine Manual 5th ed. Dunn, Robert et al. Volume 2 page 825. ISBN 978-0-9578121-5-4

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