

Common Paediatric Emergencies

A guide for the GP and Casualty Officer

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Introduction

This pocket book is intended to mimic those useful notebooks passed down from one generation of house officer to another. It assumes general knowledge of adult medicine and is intended to fill the various gaps between adult medicine and paediatric medicine in the casualty department of a general hospital. We have included only those topics which are common, dangerous, difficult or unique to childhood.

All the information contained within these covers is available and discussed more widely elsewhere. However, for emergency use, most casualty officers do not have the time to study varied texts—hence this minibook.

Whenever you are in doubt about a sick child, ask anyone who knows. All hospitals have protocols and duty-rotas indicating the best person to contact. If the system breaks down, never let 'I couldn't contact Dr——' be an excuse for a child dying. If you have access to a telephone you can *always* obtain advice from a more senior person or from a registrar in a nearby district general hospital, or your old teaching hospital.

A list of common reference texts is included within the Appendices.

Handling babies and children

When parents bring a child to the casualty department they are always fearful for his health. They may be so afraid as to bring a troupe of friends and relatives to give support. The child, ill and in unfamiliar surroundings, will pick up his parents' anxieties and, even if in good health, will become increasingly fractious. A vicious circle of mounting tension is quickly completed and if not checked, the whole consultation becomes a trial for all concerned.

The casualty department and nursing staff must be prepared to accept children. This means having a cubicle decorated with posters and strewn with toys where the child may feel more at home. A small selection of infant feeds and nappies must be available and the staff must be prepared to allow children to 'jump the queue' as they should only be kept waiting for the absolute minimum amount of time. If the child is well a casualty department is, at best, a frightening place and you should aim to move the child out as soon as practicable. An unwell child may rapidly become very ill in the time it takes to treat an adult.

Try to be calm and polite even when minor complaints appear at the most unsociable hour or when father, or any member of the 'clan', refuses to accept simple reassurance. Parents are aware of fatal and dangerous conditions and are worried that their child, whom they love dearly, may be in danger. Try to discover what the underlying fear is to the presentation and when reassuring the parents explain that the child is not suffering from leukaemia, meningitis, a brain tumour or whatever is producing their unrealistic fear. Do, however, tell the truth and remember that while you are the child's doctor, you are treating the family as a whole and it is essential not to alienate his parents or your excellent advice will not be followed.

HISTORY TAKING

As distinct from adult medicine, for the most part in paediatrics, the history is taken from a third party—usually the mother. Whenever possible question the child, at least about the major complaint.

Usually, exhaustive systemic enquiry is not necessary but because of differences in disease patterns in childhood some additional history is necessary:

1. Social circumstances (*see below*).
2. Family history, at least of siblings and parents. Genetic and familial problems are common.
3. Perinatal history; maternal health during pregnancy; delivery; birthweight; any neonatal problems?
4. Routine immunizations, including BCG which is given to 'at risk' groups shortly after birth (Asian families, or positive family history).
5. Development: major milestones are—
 - Smiling
 - Sitting
 - Walking
 - Single words
 - Conversation
 Older children: ask about schooling
 (See Appendix II for milestones)

EXAMINATION

Older children are usually examined in much the same way as adults, though more reassurance and cajoling may be required. Babies can be pacified—often by a little finger in the mouth. Toddlers, however, may be impossible! The latter are more likely to co-operate when sitting on their mothers' knee rather than being forced to lie on a couch. Try to be relaxed and friendly and examine whatever is available rather than attempting everything in a set order. Always do the



Fig. 1.a. Ear examination



Fig. 1.b. Throat examination

unpleasant things last. Show the mother how to hold the child firmly while examining the ears and throat (see Fig. 1.).

SOCIAL CIRCUMSTANCES

A child's environment is dependent on that of his parents and is outside his control. Whenever you see a child consider, even if only briefly, his home and social circumstances. Don't think, 'Is this patient fit enough to go home?'; consider if his home is fit enough to accept him! Obviously, in the middle of the night, there is a tendency to err on the side of safety and to admit where there is doubt. Try to take a formal social history in a 'matter-of-fact', unembarrassed manner. Parents usually accept straightforward questioning, but if they object explain why you need the information. The more you learn about the family and the home the easier it becomes to interpret the history and signs elicited.

SECTION A

Abdominal Pain

Children are brought to the casualty department with complaints of abdominal pain. The causes are multiple and are often not related to the abdomen at all. Many toddlers will rub their tummies and say that it is sore when the pain actually originates in the left ear! Hence, although the list below indicates some of the sources of true abdominal pain, the child must be examined as fully as he allows.

ABDOMINAL CAUSES

1. **INTUSSUSCEPTION** (See section on vomiting)

2. **APPENDICITIS**

This can occur in infancy and is difficult to diagnose at any age of childhood.

3. **MECKEL'S DIVERTICULUM**

4. **HERNIATION**

5. **MESENTERIC ADENITIS**

6. **CONSTIPATION**

ABDOMINAL CAUSES, NON-GUT

1. **INFARCTION** (? Sickle-cell disease—*see* section on circulation)
2. **TESTICULAR TORSION** (including torsion of undescended testis)
3. **TORSION OF HYDROCELE**
4. **URINARY TRACT INFECTION** (*See* separate section)

EXTRA-ABDOMINAL CAUSES

1. **DIABETES** (*See* separate section)
2. **OTITIS MEDIA** (*See* separate section on ENT)
3. **PNEUMONIA** (*See* section on breathlessness)
4. **TONSILLITIS** (*See* section on ENT)
5. **EMOTIONAL STRESS** (*See* section on periodic syndrome under vomiting)

Breathlessness (*See also* Stridor and Asthma)

Shortness of breath in children may result from respiratory, psychological or cardiac conditions and may occur secondary to acidosis.

PSYCHOLOGICAL

Hysteria may cause overbreathing and hence 'tetany' and breathlessness. A calm and collected atmosphere and an increase in the carbon dioxide concentration in the blood by allowing the child to rebreathe through a closed container (e.g. paperbag) will restore the status quo.

CARDIAC CAUSES

Breathlessness usually results from pulmonary oedema. The condition should be recognised along with other signs of cardiac failure and referred to a paediatric cardiologist. Frusemide 1 mg/kg i.v. will remove excess oedema.

RESPIRATORY CAUSES

These are divided into three main groups:

- a. Acute bronchiolitis
- b. Pneumonia
- c. Asthma

These will be dealt with under separate headings below. (Asthma has separate chapter.)

BRONCHIOLITIS

This occurs in babies from a few days of age to 12 months. The history is of a coryzal illness with a 'runny nose' followed by a cough and increasing dyspnoea and tachypnoea, particularly on feeding. There is use of accessory muscles of respiration and severe rib recession. Auscultation will reveal widespread crepitations and wheeze. A combination of widespread crepitations and hepatomegaly may be confused with cardiac failure and the true case must be determined.

Chest X-ray and nasopharyngeal aspirate for respiratory syncytial virus are the usual investigations and the chest

radiograph will show evidence of emphysema and hyper-expansion. A pneumonia should be excluded.

Treatment is expectant, though it may be necessary to relieve nasal secretions by suction and a close watch should be kept on the food and fluid intake—nasogastric feeding or intravenous rehydration (q.v.) may be necessary during the acute phase. In severe cases blood gases should be monitored and endotracheal ventilation may occasionally be required.

PNEUMONIA

The child is unwell with a cough, chest pain and fever. The pain may be referred to the abdomen. A chest X-ray will reveal the nature, and initial treatment is by a penicillin (if lobar pneumonia). If the child is well, give oral medication; if vomiting or very unwell, use intravenous.

Bruising and Bleeding

BRUISING

A child may present to the casualty department with evidence of excessive bruising. It is important that extensive or unusual bruising should be differentiated from bruising due to specific trauma. Extensive bruising may have arisen from a non-accidental injury, or may be secondary to a clotting dysfunction or a blood dyscrasia.

EXTENSIVE BRUISING

1. Non-accidental injury (*see later section*)
2. Traumatic bruising. Has the child a known history of

extensive bruising after injury (or has he a male relation with haemophilia)?

Check: CLOTTING FUNCTION
PLATELET COUNT
FULL BLOOD COUNT
(GROUP AND SAVE)

If clotting is abnormal, then the haematologist should be consulted.

SPONTANEOUS BRUISING

This, of course, may not be 'spontaneous'. Actual injury should be excluded as should any underlying fracture. If truly spontaneous, then differentiation from an allergic or other rash should be made before undertaking a *clotting screen, full blood count, platelet count and film*. The child should be examined thoroughly for lymphadenopathy and splenic size noted.

LEUKAEMIA

Acute lymphoblastic leukaemia is the most common leukaemia in childhood and the peripheral blood count, usually, will show an increased white cell count of $(20-50 \times 10^9/\text{litre})$ with many immature white cells. The count may, however, not be so clearly defined. Most of these children are anaemic and have had a recent infection. It is important to exclude an infective cause as the initiator of a lymphocytosis and if sufficient suspicion is raised, a bone marrow test will confirm or discredit a diagnosis of leukaemia.

Many parents will have considered the diagnosis of leukaemia long before you do... the truth and reassurance will help them.

HAEMOPHILIA

This typically presents in boys in the toddler age group who exhibit abnormal bruising and, in particular, joint swelling.

Von Willebrand's disease presents similarly in either sex (see Appendix 12).

BLEEDING

1. Stop bleeding with direct compression/elevation/pressure point compression.
2. Exclude other bleeding sites (spleen/liver etc.).
3. Observe pulse rate and blood pressure. If pulse rises or blood pressure falls, elevate the foot of the bed and—
4. Establish intravenous access.
5. Take blood for—

CLOTTING FUNCTION

PLATELET COUNT

FULL BLOOD COUNT

(GROUP AND SAVE)

6. If bleeding is the result of a 'dirty injury' establish tetanus immunity and treat accordingly. (Most children will have had tetanus immunization from 3 months of age, but check that such was done. An older child may not have had any tetanus immunization for a number of years.)

If the degree of shock is greater than you would expect from the blood loss observed, then exclude internal injury and septic shock.

7. Consider transfusion. If a newborn baby then blood is cross-matched against maternal serum.

Burns and Scalds

The surface area of parts of the child's body varies with age and does not correspond to the 'rule of nine' that is applicable to adults.

ACTION

1. Resuscitation: airway/respiration/and circulation.
2. Cover the burned area with sterile dressing.
3. If burn area greater than 10%, then give fluid replacement by i.v.i. using:

PLASMA 1 ml/kg/% burn

then: 0.45% saline with 2.5% glucose at 1 ml/kg/% burn.

This should be infused over 24 hours with half the replacement volume being given in the first 8 hours. The remainder should be infused in 16 hours.

4. Analgesia: e.g. papaveretum 0.2 mg/kg 8-hourly.
5. Antibiotics: e.g. penicillin or local sulphonamide cream (e.g. "Flamazine" cream).

6. If burn area greater than 25%, then catheterize and consider using CVP line.

7. Check tetanus immunity. Immunize if not immune. (Normally the child has had immunization at intervals of three doses in first year of life and then a booster at age 5. If no booster given within 5 years, or status unknown, give 0.5 ml adsorbed tetanus vaccine.)

Alongside replacement fluids, normal maintenance fluids will be required and feeding should be instituted—possibly intravenously in the severely burned patient. Such children will require two or three times the normal protein requirements and have an increased calorie need.