

⌚ Coarctation of the aorta

This usually presents in infancy with heart failure. Refer for early surgery to remove the narrowed portion of the aorta.

Hernias and genital disorders

⌚ Inguinal hernias

These usually present in the first 3 to 4 months with an incidence of 1 in 50 males and 1 in 500 females (see FIG. 85.6). They may cause intermittent pain or crying.

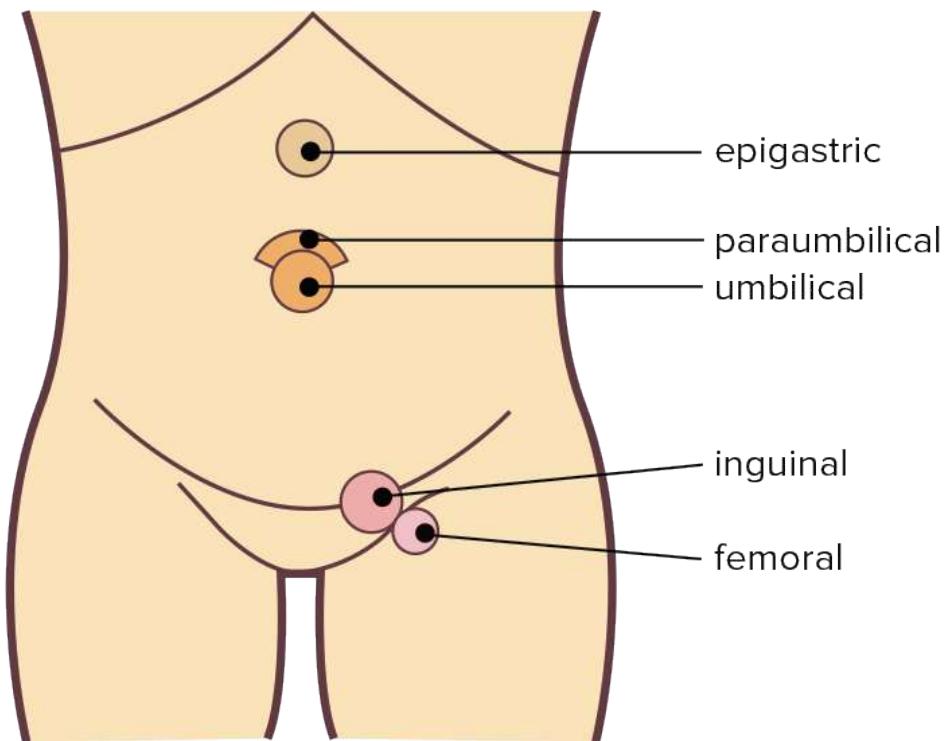


FIGURE 85.6 Sites of common hernias

Inguinal and femoral hernias should be referred urgently as early surgery is advisable to avoid the high risk of bowel incarceration or strangulation and ovarian entrapment and ischaemia in females.

Rules for surgical intervention

- General rule is ASAP, especially in infants and for irreducible ones
- Reducible herniae—the ‘6–2’ rule:

birth–6 weeks: surgery within 2 days
6 weeks–6 months: surgery within 2 weeks
over 6 months: surgery within 2 months

Hydroceles

Scrotal hydroceles are painless cystic swellings around the testis. The opening of the processus vaginalis is narrow and often closes spontaneously. Two types can be identified—slack, often bilateral, which disappear within 12 months, and tense, often unilateral, which often persist after the first year. Ninety per cent resolve by 18 months of age; for those that persist, referral is recommended with a view to surgical intervention if present for longer than 2 years.

Undescended testes

Testes can still descend up to 3 months after birth. Refer by 6 months with a view to correction between 9 and 12 months but definitely before 2 years (see [CHAPTER 104](#)).

Hypospadias

Refer to disorders of the penis (see [CHAPTER 105](#)). Look for other abnormalities. Refer as soon as possible if the child is not producing a good urinary stream. Non-urgent cases should be evaluated by 6 months with a view to surgery at around 12 months; these patients should not be circumcised.

The foreskin and circumcision

For more detail refer to penile problems (see [CHAPTER 105](#)). If not circumcised in the neonatal period it is best performed under general anaesthetic after 6 months of age following consultation, counselling and with the consent of both parents.

Phimosis

Real phimosis is uncommon and almost all cases of tight foreskin with narrowing of the preputial orifice resolve naturally. Treatment with corticosteroid creams should be considered (see [CHAPTER 105](#)). Probably the only indication for circumcision is persistent difficulty in passing urine.

Paraphimosis

Management of this painful condition is outlined in [CHAPTER 105](#) .

Umbilical hernia⁵

- Soft, round, skin-coloured lump in umbilicus, occurring in around 15% of infants.

- May increase in size in first few months
- Not painful, not tender to palpate, easily reducible
- Swelling disappears when child asleep

Surgery is not usually required for umbilical herniae as most close naturally by 12 months of age (95% resolve spontaneously by 2–3 years). Refer for possible repair if still present at 4 years of age. A good guideline is that if the hernial orifice is greater than 1 cm at 12 months then surgical intervention is a possibility. It is usual to operate at 4–5 years.

Page 983

Umbilical granuloma

Refer to [CHAPTER 84](#).

Para-umbilical hernia

This is due to a defect in the linea alba adjacent to the umbilicus proper. Most lie just above the umbilicus. The defect is felt like an elliptical slit with firm edges. Spontaneous closure rarely occurs and they are more likely to incarcerate. Refer for operation at any age preferably after 6–12 months.

Epigastric hernia

An epigastric hernia (not to be confused with divarification of the rectus muscles) lies between the umbilicus and the xiphisternum. It is unlikely to close naturally, is likely to incarcerate and causes pain by strangulation of herniated fat. Indications for repair are pain (reproducible on palpation of the hernia) and cosmetic.

Anal fissure

Anal fissures are often seen in infants and toddlers with uncomfortable defecation and minimal bright bleeding. The anal mucosa is split in the midline either anterior or posterior. It is caused by the passage of hard stool. The fissure usually heals within a few days.

Fused labia (labial agglutination)

Labial fusion is caused by adhesions considered to be acquired from perineal inflammation (see [CHAPTER 99](#)). They are certainly not present at birth. Most authorities recommend no treatment if the child can void readily and allow natural healing to occur.

Penile problems

Refer to [CHAPTER 105](#).

Childhood leg and foot deformities

Developmental dysplasia of hip

- Detected by clinical examination (Ortolani and Barlow tests) and ultrasound examination (see [CHAPTER 54](#)).
- Infants are usually treated successfully by abduction splinting (e.g. Pavlik harness).
- Open reduction may be required, especially in older babies and toddlers.

Bow legs (genu varum)

- Most are physiological (which are symmetrical) and improve with age.
- More obvious in toddlers when they begin to walk.
- Consider rickets in children at risk.
- Toddlers are usually bow-legged until 3 years of age.
- Resolve spontaneously by 3 years except in severe cases. A period of knock knees often follows.
- Monitor intercondylar separation (ICS): distance between medial femoral condyles.
- Refer when ICS >6 cm at 4 years, not improving or asymmetric (see [FIG. 85.7](#)).

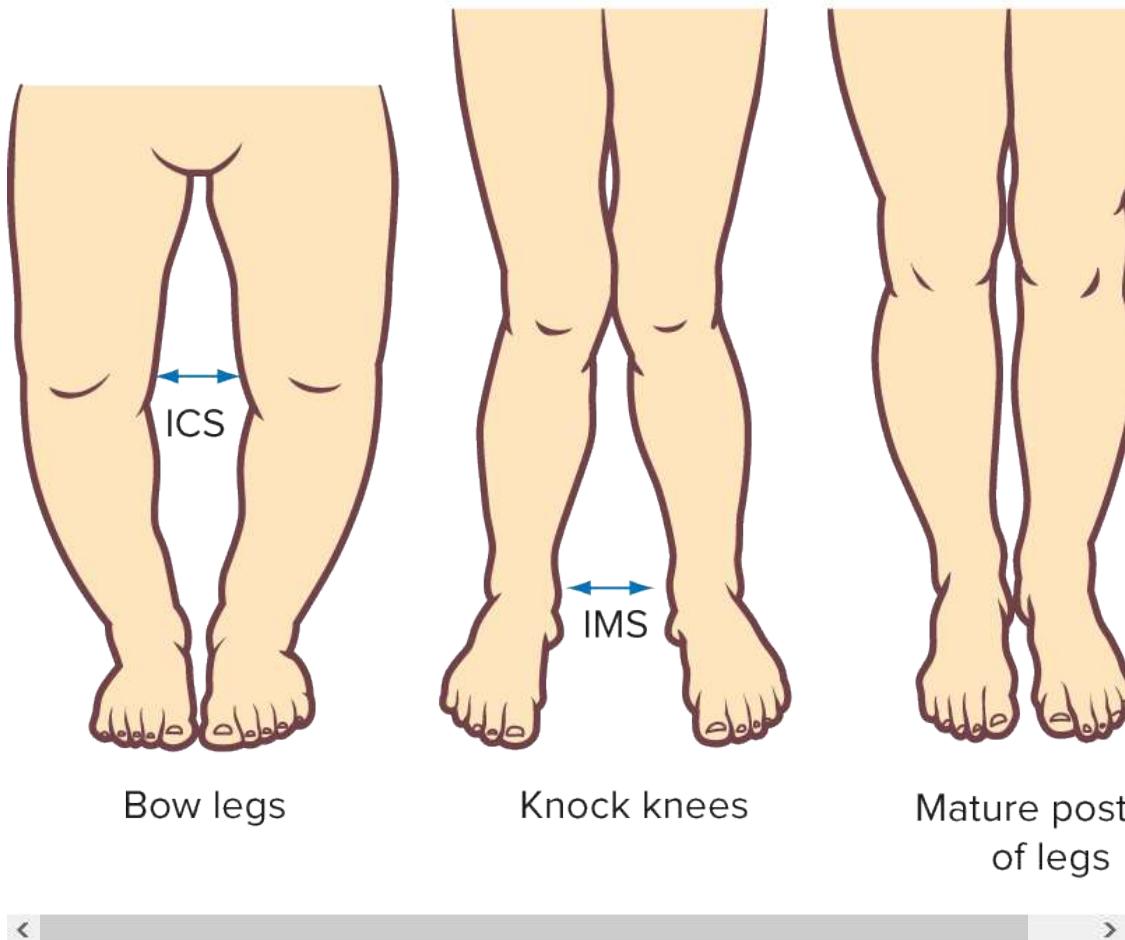


FIGURE 85.7 Postural variance of lower limbs

⌚ Knock knees (genu valgum)

- Most are physiological and children are usually knock-kneed from 2–8 years (maximal 3–4 years).
- Running is awkward, but improves with time.
- Reassure parents about spontaneous improvement, usually by age of 9.
- Monitor intermalleolar separation (IMS): distance between medial malleoli.
- Refer if IMS >8 cm (see FIG. 85.7), unilateral, worsening after age 9, limp or pain.

⌚ Tibial torsion

This can be external (lateral), which is rarely problematic, or internal (medial) twisting.

In-toeing (pigeon toes)

In-toeing does not cause pain or affect mobility.

Page 984

Causes of in-toeing (see FIG. 85.8) are metatarsus varus, internal tibial torsion and medial femoral torsion. Children with femoral torsion tend to sit in a characteristic 'W' sitting position (see FIG. 85.9). These features are compared in TABLE 85.1 .⁶

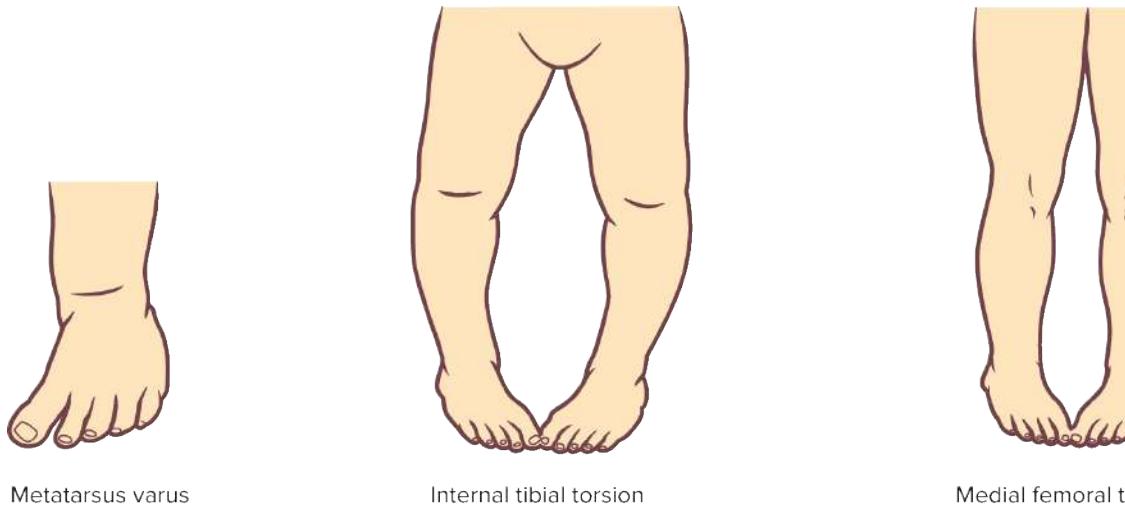


FIGURE 85.8 Causes of in-toeing



FIGURE 85.9 The classic 'W' position of femoral torsion (Inset hips)

Table 85.1 In-toeing in childhood

	Metatarsus varus	Internal tibial torsion	Medial femoral torsion
Synonyms	Metatarsus adductus		Inset hips
Age at presentation	Birth	Toddler	Child
Site of problem	Foot	Tibia	Femur
Examination	Sole of foot bean-shaped	Thigh–foot angle is inwards	Arc of hip rotation favours internal rotation
Management	Observe or cast	Observe and measure	Observe, rarely surgery
Resolution (usually by)	3 years	3–4 years	8–9 years

When to refer if not resolved	3 months after presentation	6 months after presentation	8 years after presentation
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§ Out-toeing

Infants

- Have restricted internal rotation of hip due to an external rotation contracture
- Exhibit a ‘Charlie Chaplin’ posture between 3 and 12 months—up to 2 years
- Child weight-bears and walks normally
- No treatment required as spontaneous resolution occurs

Surgery may be necessary in older children.

§ Club foot (congenital talipes equinovarus)

Most abnormal-looking feet in infants are not a true club foot deformity; the majority have postural problems referred to as ‘postural talipes’ such as talipes calcaneovalgus, metatarsus varus and postural talipes equinovarus. Such conditions are usually quite mobile and mild, and all resolve spontaneously without treatment. True club foot deformity is usually stiff and severe, and requires orthopaedic correction.⁶

Page 985

§ Inset hips (medial femoral torsion)

In children with inset hips, the femur tends to rotate inwards especially when the child is about 5–6 years old and is normal up to 12 years. The children tend to sit in a ‘W’ position (see FIG. 85.9). Fortunately, most children outgrow this condition before the age of 12.

§ Flat feet (pes plano valgus)

The majority are physiological and are usually hereditary. All newborns have flat feet but 80% develop a medial arch by their sixth birthday and most by 11 years.⁶ The presence of the arch can be demonstrated to parents by the tiptoe test. The arch can be seen better when the feet are hanging in the air and even better still when the child is standing on tiptoes (see FIG. 85.10). Flat feet are present in about 10% of teenagers. No treatment is required unless painful and stiff. Good roomy footwear is important. Studies in California have shown no benefit from wearing orthoses or other forms of arch supports. Arches develop naturally.

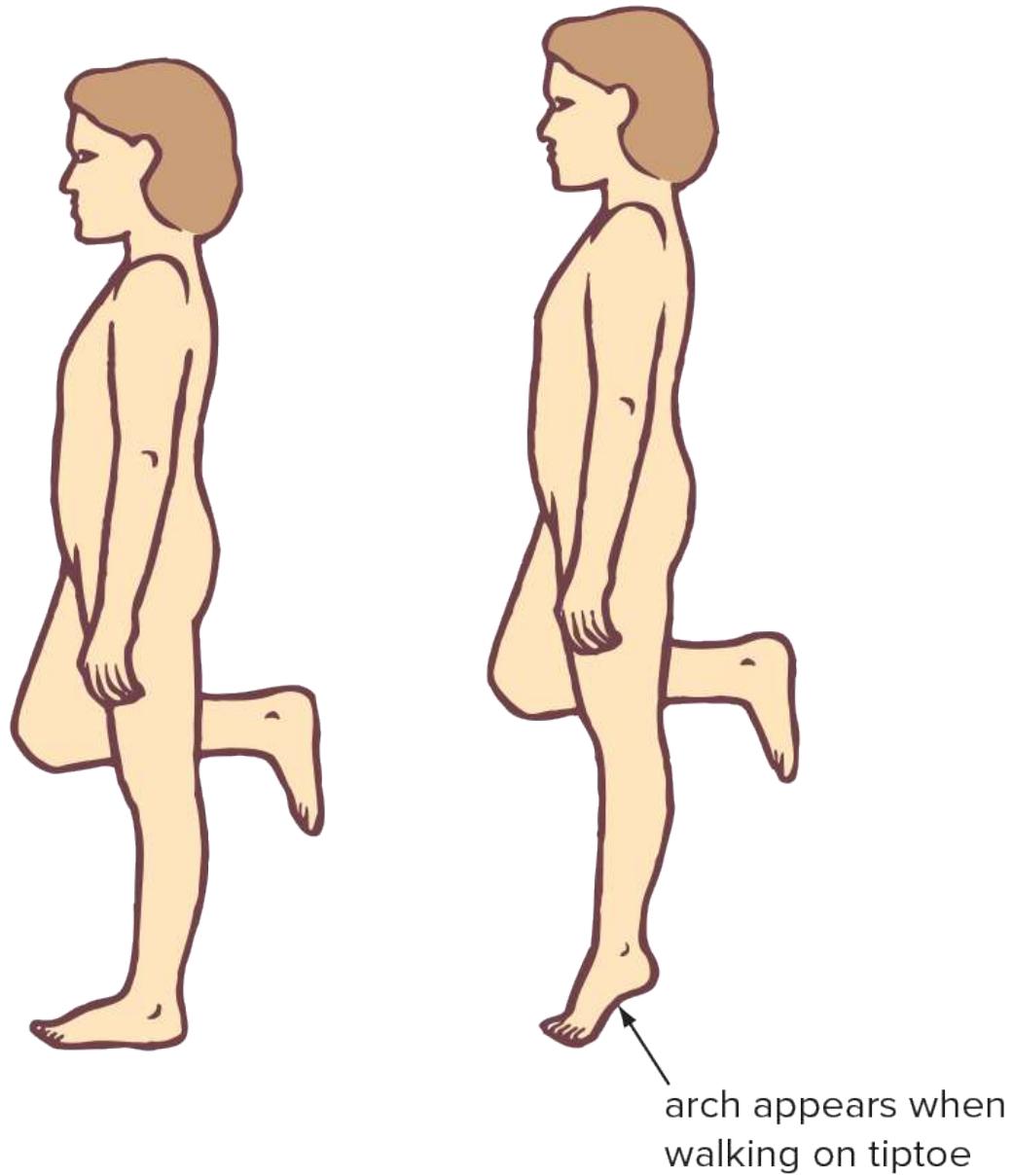


FIGURE 85.10 The tiptoe test for flat feet

⌚ Curly toes

Usually the third toe curls inward under the second toe so that the second toe lies above the level of the first and third toes. The toes can usually be straightened if necessary, so ignore the problem until 2 years. Refer if necessary to have a severe deformity corrected by flexor tenotomy.

A summary of optimal times for surgical intervention in children's surgical disorders is presented in [TABLE 85.2](#).

Table 85.2 Optimal times for surgery/intervention in children's surgical disorders

Disorder	Surgery/intervention
Squint (fixed or alternating)	12–24 months: absolutely before 7 years
Tongue tie	3–4 months or 2–6 years
Ear deformity	After 6 years
Cleft lip	Less than 3 months
Cleft palate	6–12 months
Inguinoscrotal lumps:	Best assessed before 6 months
• undescended testes	Surgery best at 6–12 months Don't leave >12 months
• inguinal hernia	ASAP, especially infants and irreducible hernias Reducible hernias: the '6–2' rule Birth–6 weeks: surgery within 2 days 6 weeks–6 months: surgery within 2 weeks Over 6 months: surgery within 2 months
• femoral hernia	ASAP
• torsion of testicle	Surgery within 4 hours (absolutely 6 hours)
• hydrocele	Leave to 12 months, then review (often resolve; if not, repair by 2 years)
• varicocele	Leave and review
Other hernias:	
• umbilical hernia	Leave to age 4 Surgery after 4 if persistent (tend to strangulate) Never tape down
• para-umbilical hernia	Any age—best after 6 months
• epigastric hernia	Any age—best after 6 months

Leg and foot development problems:

- | | |
|-------------------------------|---|
| • developmental dysplasia hip | Most treated successfully by abductor splinting (e.g. Pavlik harness) |
| • bow legs (genu varum) | Normal up to 3 years
Usually improve with age: refer if ICS >6 cm |
| • knock knees | Normal 3–8 years, then refer if IMS >8–9 cm |
| • flat feet | No treatment unless stiff and painful |
| • internal tibial torsion | Refer 6 months after presentation if unresolved |
| • medial femoral torsion | Leave to 8 years, then refer if unresolved |
| • metatarsus varus | Refer 3 months after presentation if unresolved |
-

Appendicitis in children

Refer to [CHAPTER 24](#) .

Surgical causes of vomiting in children

Refer to [CHAPTER 49](#) .

Neonatal surgical emergencies

It is worthwhile knowing those non-traumatic conditions that demand immediate attention. Danger signs include excessive drooling of frothy secretions, bile-stained vomiting and delayed passage of meconium.

Neonatal gut obstruction—consider meconium ileus, volvulus, small bowel atresia.

Neonatal emergencies^{7,8}

- Oesophageal atresia: rattling respiratory distress + excessive drooling and secretions + choking with feeding (passage of 10F catheter stops about 10 cm)

Action: nil orally, oropharyngeal suction, IV fluids

- Diaphragmatic hernia: severe respiratory distress + barrel-shaped chest + scaphoid abdomen (X-rays of chest/abdomen show loops of bowel in chest)

Action: give O₂, nasogastric tube (avoid bag and mask)

- Bilious (green vomiting) = bowel obstruction or malrotation (abdominal X-ray)

Action: nasogastric drainage and refer (do not feed)

- Neonatal intestinal obstruction including volvulus, Hirschsprung disorder, atresia and meconium ileus: bilious vomiting (green bile) + distension + delayed stools

Action: nasogastric tube, IV fluids, refer

- Imperforate anus and rectum

Action: refer for surgery on day of birth, anoplasty for low lesions; complex surgery for high lesions

- Bile duct atresia: neonatal jaundice (conjugated bilirubin) (usually 4–6 weeks) → white stools

Action: refer early for precise diagnosis and surgical correction

- Congenital lobar emphysema: respiratory distress + cyanosis + signs of emphysema

Page 986

Action: refer early for urgent assessment and surgery to remove diseased lung

- Congenital cystic disease of the lungs: respiratory distress soon after birth

Action: as above

- Congenital heart disease (severe forms)

Action: refer early for medical treatment and assessment

- Exomphalos (intestinal contents in a sac)

Action: nasogastric tube, IV dextrose drip, temperature control, refer

- Gastroschisis (exposed bowel contents through anterior wall defect)

Action: as for exomphalos; cover with plastic wrap

- Pierre Robin syndrome: micrognathia + cleft palate + respiratory obstruction from tongue

Action: early referral

- Tension pneumothorax

Action: intercostal needle/catheter with aspiration

- Myelomeningocele and meningocele

Action: early neurosurgical referral

Note the importance of plain X-rays as urgent first-line investigations and early surgical referral.

Other important childhood emergencies

- Pyloric stenosis: projectile vomiting weeks 2–6, epigastric ‘tumour’ (see [CHAPTER 49](#))
- Torsion of testis: severe groin/low abdominal pain + vomiting
- Intussusception: pallor + abdominal pain (severe and intermittent) + inactivity
- Acute appendicitis: abdominal pain + a/n/v + guarding
- Peritonitis
- Intestinal obstruction: colicky pain + vomiting + distension
- Irreducible inguinal hernia
- Paraphimosis
- Cerebral abscess
- Meckel diverticulum—diverticulitis or haemorrhage
- Various neoplasias

[Page 987](#)

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86 Common childhood infectious diseases (including skin eruptions)

The physical signs of measles are nearly the same as those of smallpox, but nausea and inflammation is more severe. The rash of measles usually appears at once, but the rash of smallpox spot after spot ...

AVICENNA (980–1037)

⌚ Chickenpox (varicella)

Epidemiology

Chickenpox has become much less common since the introduction of the varicella vaccine in 2000 and its inclusion on the National Immunisation Program in 2005, because of both individual and herd immunity.¹ Prior to this, nearly all children acquired it (<80% of the Australian population were seropositive by their teens). Chickenpox has a complication of only 1%, and is often thought of as not being a serious disease—which mostly it isn’t—but because it was so common prior to the vaccine’s introduction it resulted in 1500 hospital admissions and 7–8 deaths a year.¹

Chickenpox is a highly contagious infection caused by the varicella zoster virus, a DNA virus within the herpes virus family. It is spread by airborne droplets or touching vesicles fluid. Primary infection causes chickenpox (varicella), with the virus establishing latency in the dorsal root ganglia. Reactivation leads to herpes zoster (shingles), which is relatively uncommon in children and can be more difficult to diagnose as it often presents with only a few lesions.

Note: Shingles *can* happen in childhood.

See [CHAPTER 114](#) .

Clinical features

The clinical features of varicella are shown in [TABLE 86.1](#) and the complications in [TABLE 86.2](#) . Children are not normally very sick but tend to be lethargic and have a mild fever.

Adults have an influenza-like illness. The typical distribution is shown in FIGURES 86.1 and 86.2 .

Table 86.1 Clinical features of varicella

Onset

Children: no prodrome

Adults: prodrome (myalgia, fever, headaches) for 2–3 days

Rash

Centripetal distribution, including oral mucosa (see FIG. 86.1)

Lesions, especially on the scalp, can become infected

'Cropping' phenomenon: vesicles, papules, crusting lesions present together

Pruritic (intense in adults)

Degrees of severity

Number of vesicles can vary from fewer than 10 to thousands (usually 200–500)¹

Mild cases can be missed

More severe in adults and the immunocompromised

Viral pneumonia rare in children, uncommon in adults

Death rare except in the immunocompromised and neonates with congenital varicella

Table 86.2 Complications of varicella

Common

Bacterial infection of cutaneous lesions (usually staphylococcal or streptococcal); can take form of cellulitis or bullous impetigo

Can leave pitted scars

Uncommon

Viral pneumonia

Eczema herpeticum

Thrombocytopenia

Birth defects with neonatal infection

Acute cerebellitis (ataxia, normal mental state)

Rare

Meningoencephalitis
Purpura fulminans



FIGURE 86.1 Varicella (chickenpox) in a 12-year-old girl showing a maculopapular vesicular rash with a centripetal distribution

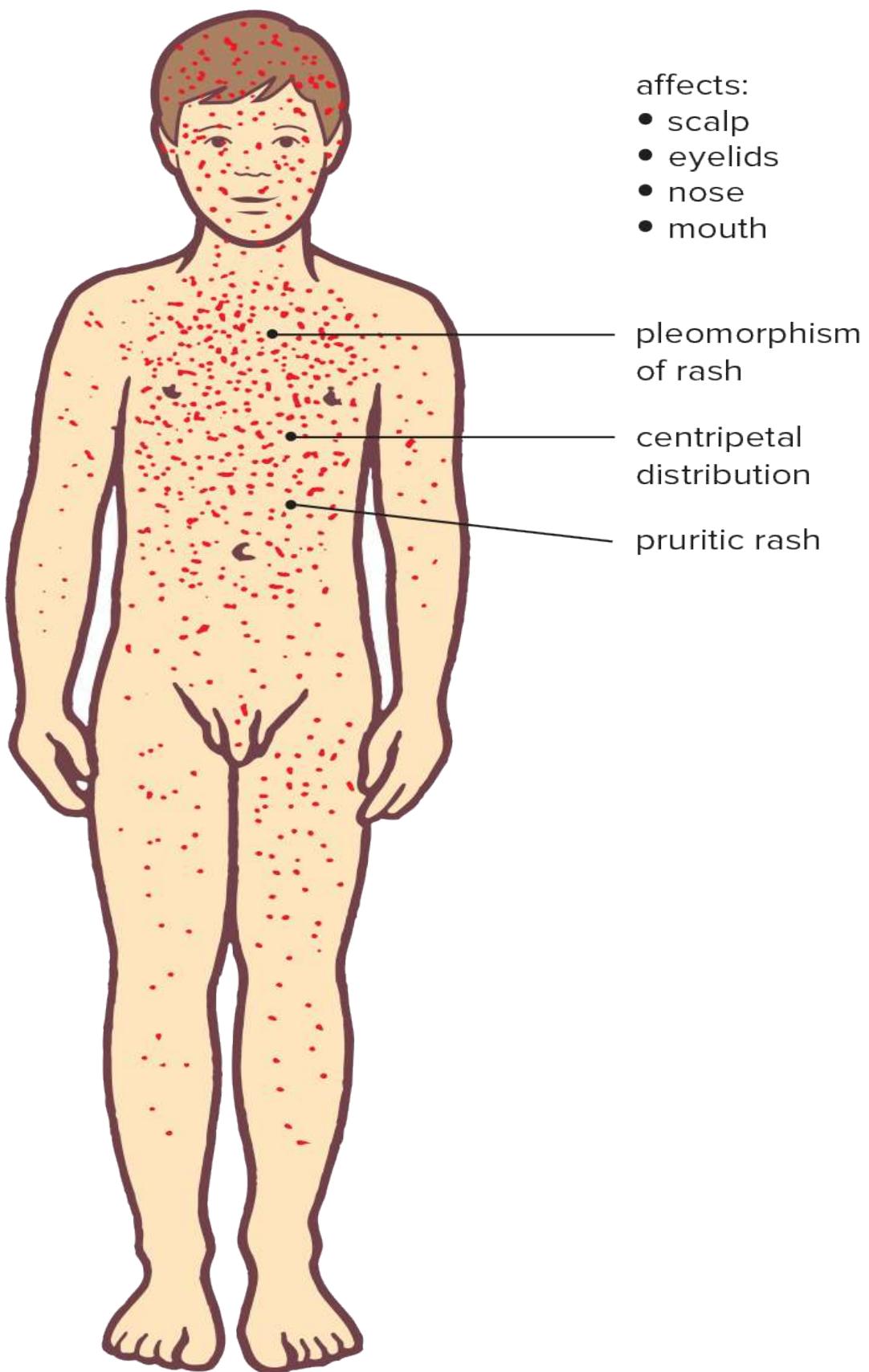


FIGURE 86.2 Chickenpox: typical distribution

Congenital varicella syndrome can occur from varicella in pregnancy, and may result in skin scarring, limb defects, ocular anomalies and neurological malformations, with the risk highest in the second trimester. Intra-uterine exposure also increases the risk of shingles in infancy. Severe neonatal varicella infection can result from perinatal varicella in the mother (especially if contracted from 5 days before the birth to 2 days after).

Treatment

Treatment is symptomatic and usually no specific therapy is required. Antiviral therapy, commencing only during the first 3 days of the eruption, is used in patients with complications or those at high risk (e.g. immunocompromised people, infants). Many people, especially parents, worry about scarring but the lesions invariably heal, leaving normal skin, unless they become infected.

Advice to parents

- The patient should rest, preferably in bed, until feeling well.
- Give paracetamol for the fever (avoid aspirin in children due to the possibility of Reye syndrome).
- Drink ample fluids and keep the diet simple.
- Daub solugel or a soothing lotion to relieve itching, although the itch is often not severe.
- Avoid scratching; clean and keep the fingernails short. Provide cotton mittens if necessary.
- Daily lukewarm bathing is advisable, with the addition of mild antiseptic or sodium bicarbonate if pruritic (add half a cup to the bath water). Pat dry with a clean, soft towel; do not rub.

Page 989

Medication

Antihistamines can be prescribed for itching. Aciclovir or similar agents can be life-saving in the immunocompromised host. Antibiotics (e.g. flucloxacillin/dicloxacillin) are reserved for bacterial skin infection. Use hydrogel for sore wounds.

Exclusion from school²

Exclusion is recommended for 7 days or until the blisters have dried, usually at least 5 days in change to ‘non-immunised’ children but possibly shorter in those immunised. Except for immunocompromised children, contacts should not be excluded from school.

Exclusion and incubation times for chickenpox (and other basic childhood infectious diseases) are given in TABLE 86.3 .

Page 990

Table 86.3 Basic childhood infectious diseases: incubation periods, minimum exclusion periods from school, preschool and child care centres (times in days)^{1,2}

	Incubation period (days)	Patient exclusion (least time from onset of rash or symptoms) (days)	Contact exclusion (days)
Measles	10–14	5	14 in non-immunised
Glandular fever	?30–50	Nil	Nil
Mumps	12–25	9	Nil
Pertussis	7–20	5 (after starting antibiotics) or 21 from onset of cough	Non-immunised household contacts—until have had 5 days of antibiotics or 21 days after exposure finishes
Parvovirus B19 (erythema infectiosum)	4–20	Nil	Nil
Roseola infantum	7–17	Nil	Nil
Rubella	14–21	4	Nil
Scarlet fever	1–7	24 hours (after starting antibiotics and feeling well)	Nil
Impetigo	1–3 for strep, 4–10 for staph	Until treatment commenced (cover sores)	Nil
Meningococcus	1–10 (commonly)	Until antibiotic	Check with consultant

	3–4)	therapy complete	
Varicella and zoster	10–21	Until blisters have dried	Only those immune deficient
Hepatitis			
A	15–50	7 or recovery	Nil
B	45–180	Nil	Nil
C	14–180	Nil	Nil
Infective diarrhoea	Varies	24 hours after cessation of diarrhoea	Nil

Prevention

Prevention in contacts who are immunocompromised or at high risk (e.g. neonates) and in contact with varicella is possible with zoster immune globulin (VZIG). An attenuated live virus vaccine is available and suitable for healthy children from the age of 12 months up to and including 13 years. It is given routinely at 18 months with the immunisation schedule. Vaccination of household contacts and post-exposure vaccination will reduce risk and also result in less serious disease if it does occur.

℞ Reye syndrome and aspirin

There is concern over children with febrile illness ingesting aspirin because of the suspected causal relationship between aspirin and Reye syndrome, particularly in those with varicella, influenza and other viral diseases. The syndrome includes nausea and vomiting with the rapid development of encephalopathy, hepatic failure, seizures and coma.

℞ Measles

Measles (rubeola) is a highly contagious disease caused by an RNA paramyxovirus. It presents as an acute febrile exanthematous respiratory illness with characteristic lesions on the buccal mucosa called Koplik spots (tiny white spots like grains of salt, opposite the molars).

The disease is endemic throughout the world and complications are usually respiratory in nature. If an acute exanthematous illness is not accompanied by a dry cough and red eyes, it is unlikely to be measles. Diagnosis is usually clinical. Laboratory diagnosis is by serology, with IgM rising 3–5 days after the onset of the rash, or best by PCR on nasopharyngeal aspirate or urine.

Epidemiology

Measles is transmitted by patient-to-patient contact through oropharyngeal and nasopharyngeal droplets expelled during coughing and sneezing.

Page 991

The incubation period is 10–14 days and the patient is infectious until about 4 days after the onset of the rash, but especially just before the appearance of the rash. Morbidity and mortality are high in countries with substandard living conditions and poor nutrition.

Immunity appears to be lifelong after infection. Measles, like smallpox, could be eradicated with public health measures. While vaccination programs have been very successful worldwide, there has been a recent resurgence of measles in developed countries due to falling vaccination rates in some areas.

Clinical features

The clinical presentation can be considered in three stages.

1. *Prodromal stage.* This usually lasts 3–4 days. It is marked by fever, malaise, anorexia, diarrhoea and ‘the three Cs’: cough, coryza and conjunctivitis (see FIG. 86.3). Sometimes a non-specific rash appears a day before the Koplik spots.
2. *Exanthema (rash) stage.* Identified by a typically blotchy, bright red maculopapular eruption; this stage lasts 4–5 days. The rash begins behind the ears; on the first day it spreads to the face (see FIG. 86.4), the next day to the trunk and later to the limbs. It may become confluent and blanches under pressure. The patient’s fever usually subsides within 5 days of the onset of the rash.
3. *Convalescent stage.* The rash fades, leaving a temporary brownish ‘staining’. The patient’s cough may persist for days, but usually good health and appetite return quickly, with recovery in about 7–10 days.



FIGURE 86.3 Measles showing the typical blotchy, bright red maculopapular rash on the face of a miserable child with the three Cs (cough, coryza and conjunctivitis)

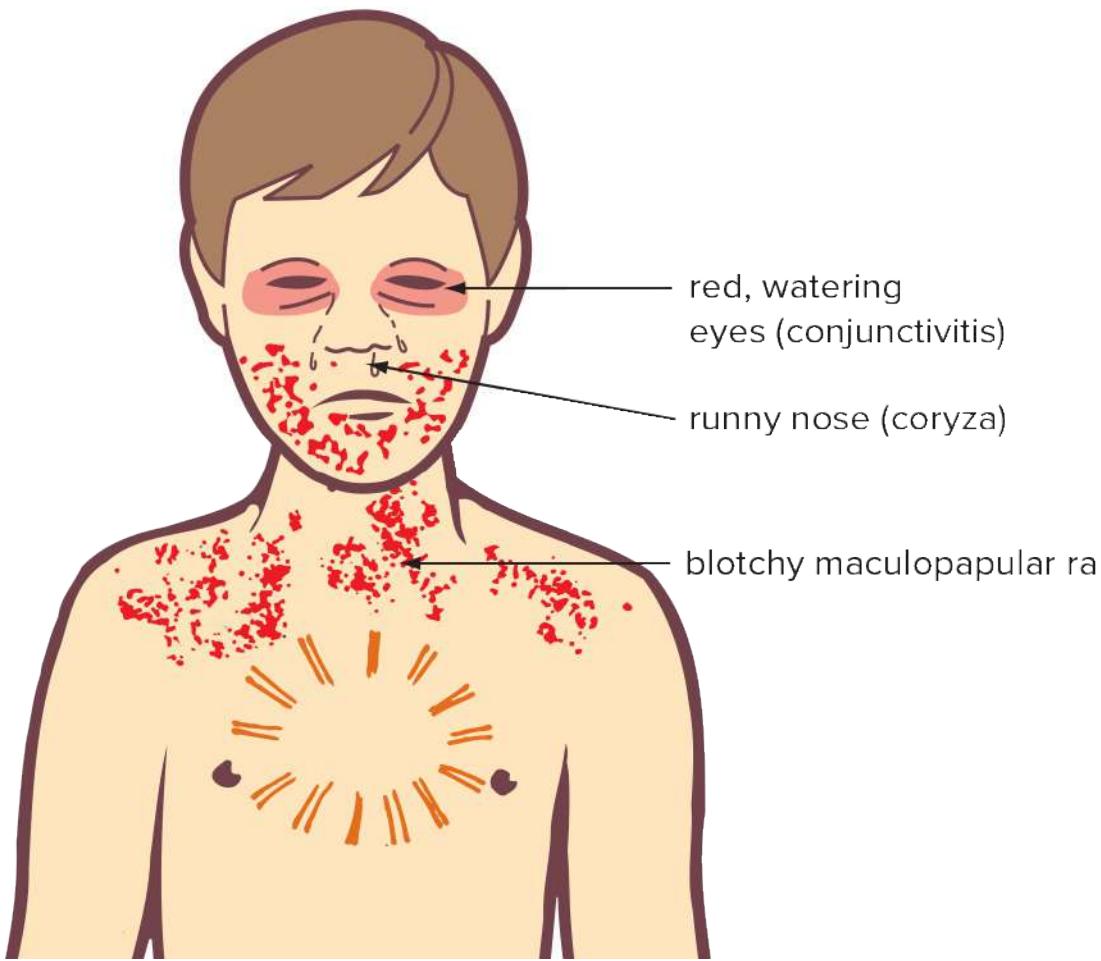


FIGURE 86.4 Measles typical symptoms. Note the 3Cs: cough, coryza, conjunctivitis.

Complications

Measles is often a serious disease, and complications are common.¹ These include bacterial superinfection, otitis media (9%), pneumonia (6%), diarrhoea (8%) and bronchitis. Children under 5 and adults and patients with chronic disease are more prone to complications. For every 1000 children who get measles, 1 to 2 will die,³ with the majority of deaths occurring from pneumonia. Infection during pregnancy can lead to miscarriage or premature delivery, but is not associated with congenital malformation.

Central nervous system

Encephalitis has an incidence of 1 in 1000, and has a mortality of 10–15% and also a high rate of permanent brain damage. Subacute sclerosing panencephalitis (SSPE) is a late complication, occurring on average 7 years after infection in 0.5–1/100 000 cases, and is

manifested by universally fatal progressive brain damage.

Treatment

There is no specific treatment, although some symptoms can be relieved (e.g. a linctus for the cough, paracetamol for fever). The patient should rest quietly, avoid bright lights and stay in bed until the fever subsides. Oral vitamin A has been reported to reduce complications. The patient should be excluded for 5 days and 14 days for non-immunised contacts.

Prevention

Vaccination should be given to any child over 12 months, or any teenager or adult born since 1966 who does not have a documented record of 2 MMR-containing vaccines (or serological evidence of protection for measles, mumps and rubella).¹ Live attenuated measles virus vaccinations combined with mumps and rubella (MMR) are recommended at the age of 12 months and then MMRV (with varicella) at 18 months. Consider normal immunoglobulin for infants under 12 months and the immunocompromised when MMR is contraindicated, given as soon as possible after exposure.

Rubella

Rubella (German measles) is a viral exanthema caused by a togavirus. It is a minor illness in children and adults, but devastating when transmitted in utero. Congenital rubella syndrome (CRS) occurs in up to 90% of infants born to mothers contracting rubella in the first trimester. Multiple features of CRS are usually evident, which include intellectual disabilities, cataracts, deafness, cardiac abnormalities, intra-uterine growth disorders (IUGR) and inflammatory lesions of the brain, liver, lungs and bone marrow. It is completely preventable. The risk declines rapidly after the first trimester.

All women of child-bearing age should have 2 documented doses of rubella-containing vaccines and if not their immune status should be assessed serologically. If not immune, they should be vaccinated and retested 6–8 weeks later and revaccinated if they have negative or low levels. No antibody response to 2 doses may represent a false-negative result. Rubella-containing vaccinations are contraindicated in pregnant women, and pregnancy should be avoided for 28 days after vaccination.¹ Once the baby arrives, postpartum vaccination of those mothers not fully immune should be done immediately (breastfeeding is not a contraindication).

Epidemiology

CRS is rare in Australia due to vaccination. Only 2.5% of women of child-bearing age are seronegative, though the risk is higher in women born overseas. Intra-uterine infection occurs via the placenta.

Approximately one-third of infections are asymptomatic (subclinical). Infection usually confers lifelong immunity. Incubation period is 14–21 days.

Clinical features

The clinical features of rubella are presented in [TABLE 86.4](#) and [FIGURE 86.5](#) and the complications in [TABLE 86.5](#).

Table 86.4 Clinical features of rubella

There is no prodrome.

A generalised, maculopapular rash, sometimes pruritic, may be the only evidence of infection.

Other symptoms are usually mild and short-lived.

There is often a reddened pharynx but sore throats are unusual. An exudate may be seen as well as palatal exanthem.

Fever is usually absent or low-grade.

Other features: headache, myalgia, conjunctivitis and polyarthritis (small joints).

Lymphadenopathy may be noted; usually postauricular, suboccipital and postcervical.

The patient is infectious for a week before and at least 4 days after the onset of the rash.

The rash

A discrete pale pink maculopapular rash (not confluent as in measles).

Starts on the face and neck—spreads to the trunk and extremities.

Variable severity: may be absent in subclinical infection.

Exaggerated on skin exposed to sun.

Brief duration—usually fades on the third day.

No staining or desquamation.

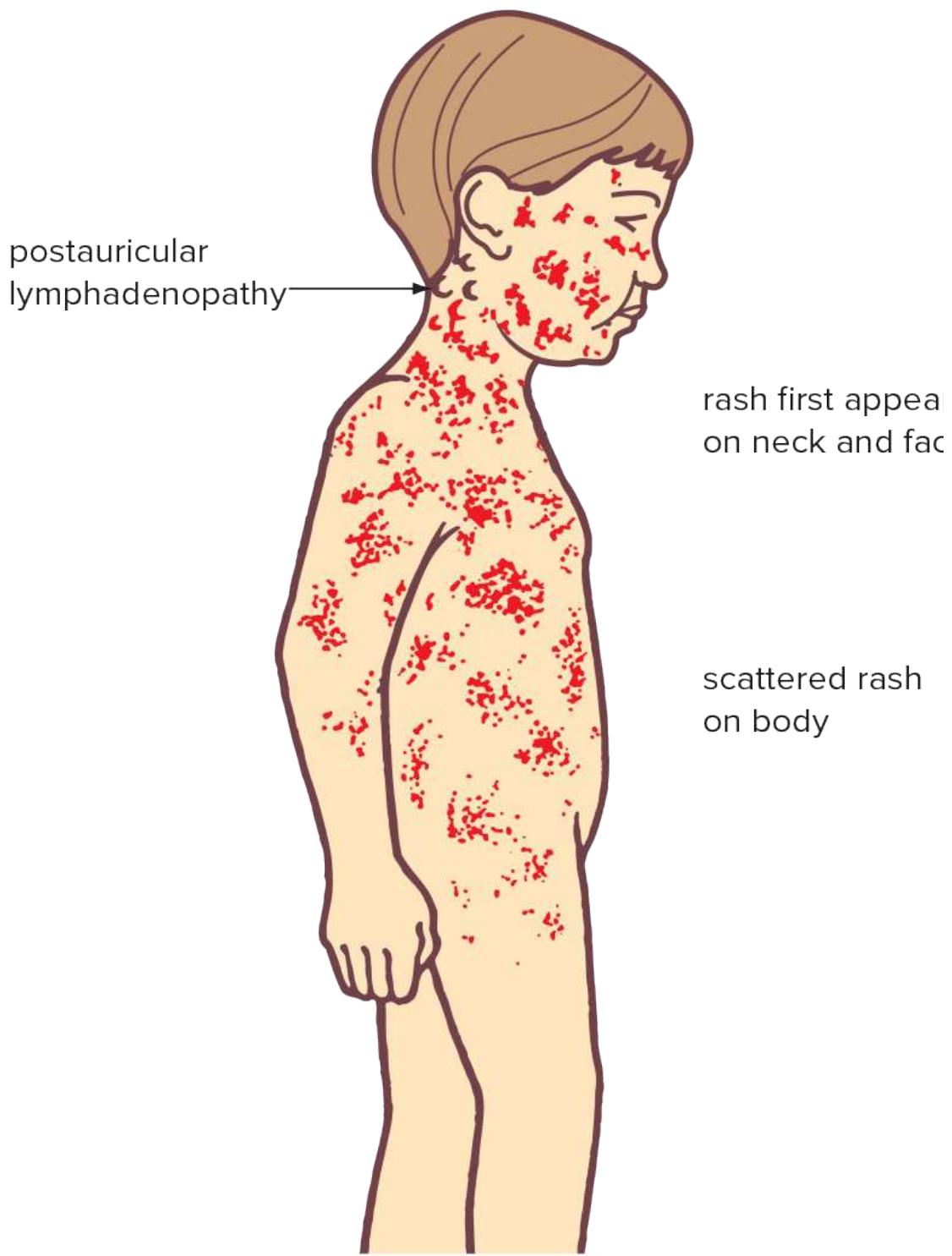


FIGURE 86.5 Rubella: typical symptoms

Table 86.5 Complications of rubella

-
- Encephalitis (rare)
 - Polyarthritis, especially in adult women (this complication abates spontaneously)
 - Thrombocytopenia (rare)
 - Congenital rubella syndrome
-

Treatment

Treatment is symptomatic, especially as rubella is a mild disease. Patients should rest quietly until they feel well and take paracetamol for fever and aching joints. Prevention is by vaccination, recommended at 12 and 18 months.

School exclusion

The child is usually excluded until fully recovered or for at least 4 days from the onset of the rash.

Viral exanthema (fourth syndrome)

This mild childhood infection may be caused by a number of viruses, especially the enteroviruses, and produces a rubella-like rash that may be misdiagnosed as rubella. The rash, which is usually non-pruritic and mainly confined to the trunk, does not desquamate and often fades within 48 hours (see FIG. 86.6). The child may appear quite well or can have mild constitutional symptoms, including diarrhoea. Treatment is symptomatic.

Page 993

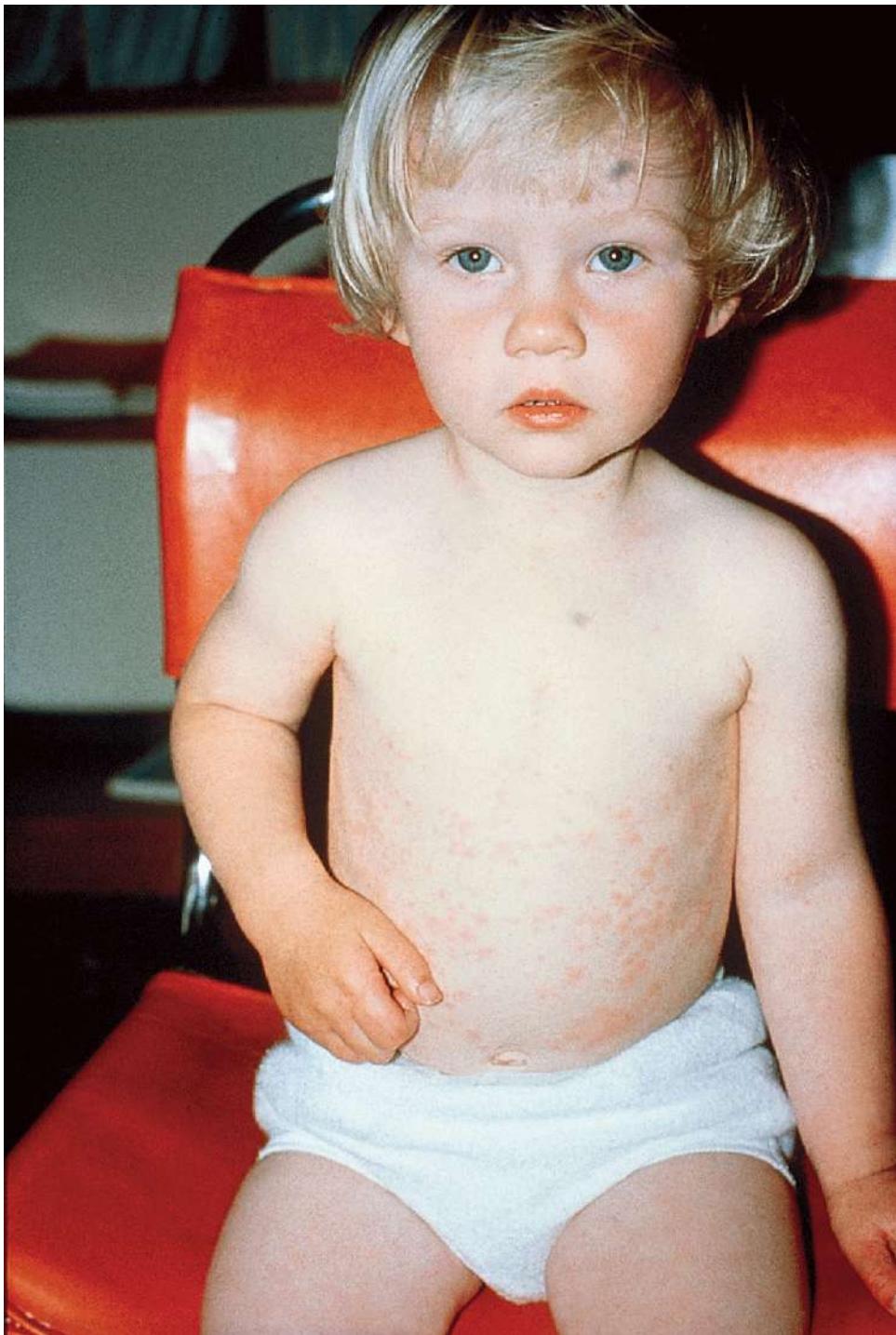


FIGURE 86.6 Viral exanthema (fourth syndrome). This mild rubella-like maculopapular rash, which may be caused by a number of viruses, is usually non-pruritic.

⌚ **Parvovirus B19 (erythema infectiosum, fifth disease)**

Parvovirus, also known as ‘slapped cheek’ syndrome, is a childhood exanthem caused by parvovirus strain B19. It occurs typically in young school-aged children. The incubation period is 4–20 days. Non-specific prodromal symptoms (fever, runny nose, headache, nausea) are followed 2–5 days later by the rash. The bright macular rash erupts on the face first (see [FIG. 86.7](#)) then, after a day or so, a maculopapular rash appears on the limbs.¹ The rash lasts for only a few days but may recur for several weeks. By the time the rash appears the individual usually is no longer infective.



FIGURE 86.7 Parvovirus, showing the typical slapped cheek appearance

Clinical features

- Mild fever (30%) and malaise
- Runny nose, headache, nausea
- Possible lymphadenopathy (especially cervical)

The rash (see [FIG. 86.8](#)):

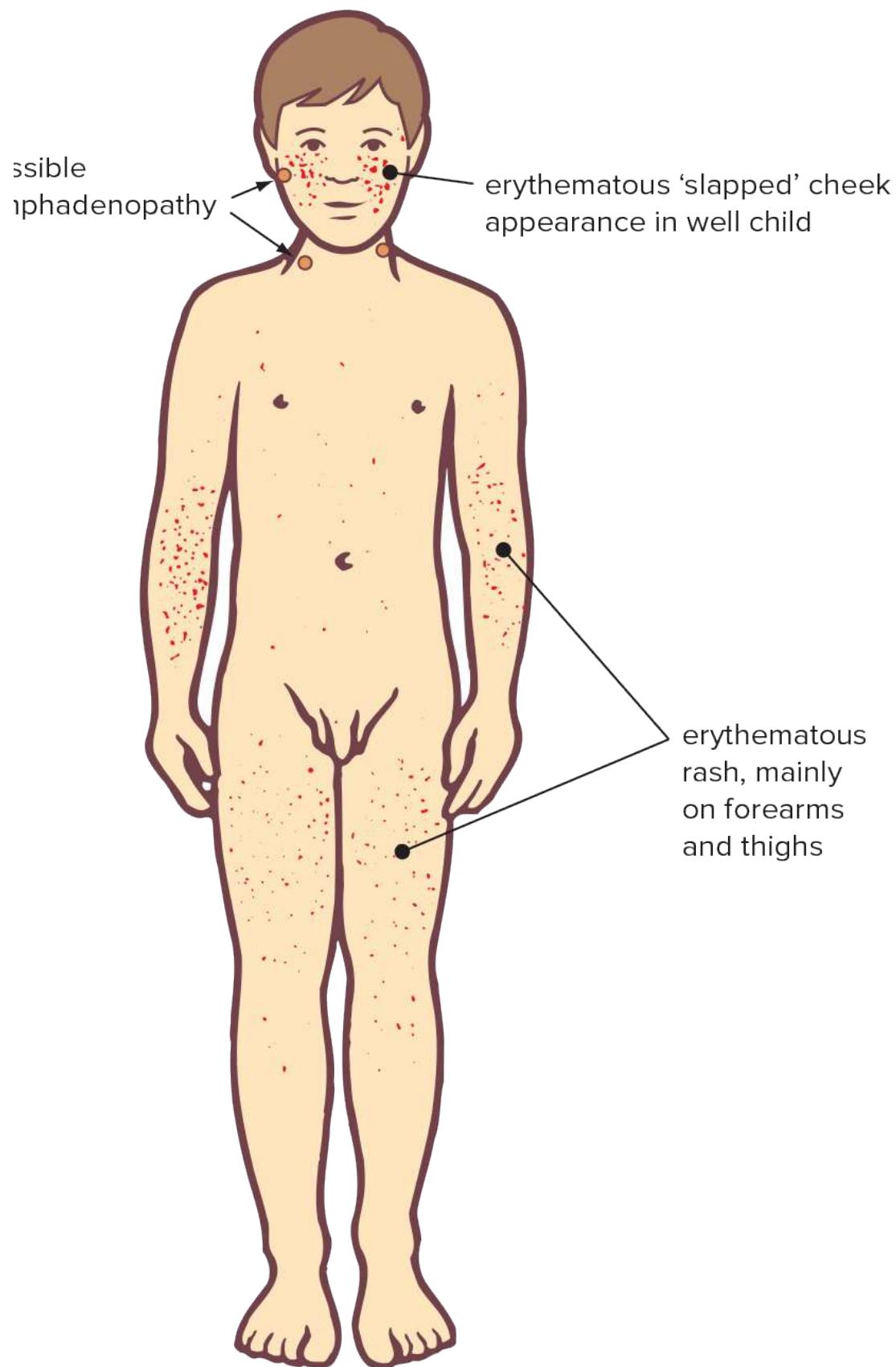




FIGURE 86.8 Parvovirus: typical distribution of rash

- bright red flushed cheeks with circumoral pallor for 2–3 days
- maculopapular rash on limbs (especially) and trunk (sparse)
- reticular appearance on fading
- may be pruritic

Typically, the cheeks become reddened again for the next few weeks on exposure to sunlight or wind or after a hot bath. Adults can be infected and the side effects, especially arthritis, can be quite severe.

Page 994

Parvovirus in pregnancy⁴

Erythema infectiosum is a mild illness but, if the parvovirus infection occurs during pregnancy, fetal complications including miscarriage can occur. It is advisable to avoid close contact with pregnant women (see CHAPTER 100). Some 50% of young adult females are susceptible to parvovirus infection. About 50% of susceptible household contacts will become infected, and around 20% of classroom contacts.

Pregnant women should be tested for parvovirus IgM and IgG if:

- in the same room as the infected person for >15 minutes
- face-to-face contact
- household contact

The results are interpreted as:

- IgG alone detected—immune
- IgM detected—false positive or early infection. Repeat in 2 weeks to see if rising IgG levels
- IgM and IgG not present—susceptible. If susceptible and becomes unwell, repeat test

If infection occurs in the first half of pregnancy, the fetus may become anaemic (the virus replicates in erythroid progenitor cells) and hydrops fetalis and miscarriage can occur. Women in this situation should be reassured that <5% of women will miscarry, though ultrasound monitoring is recommended. Parvovirus in pregnancy is not associated with fetal anomalies. If exposure or infection is suspected in the second half of pregnancy, investigation is still warranted as there may be errors in the gestational age and the risk to other pregnant women in health settings needs to be managed.

Treatment

Treatment is symptomatic.

- Ample fluid intake
- Paracetamol for fever
- If itchy, daub a soothing anti-itch lotion such as Pinetarsol or calamine lotion
- Wear a broad-brimmed hat when outside

Adults may need stronger analgesics or NSAIDs for arthralgia (more common in adult women).

Roseola (roseola infantum, exanthema subitum or sixth disease)

Roseola is a viral infection (human herpes virus 6) of infancy, affecting children at the Page 995 age of 6 months and 2 years (usually 6–12 months); 95% of children have had it by this time, and it is rare after this. Constitutional symptoms are generally mild.

Clinical features

- *Sudden* high fever (up to 40°C)
- Runny nose
- Temperature falls after 3 days (or so) *then*
- Red macular or maculopapular rash appears

The rash:

- largely confined to the trunk and limbs (see FIG. 86.9)

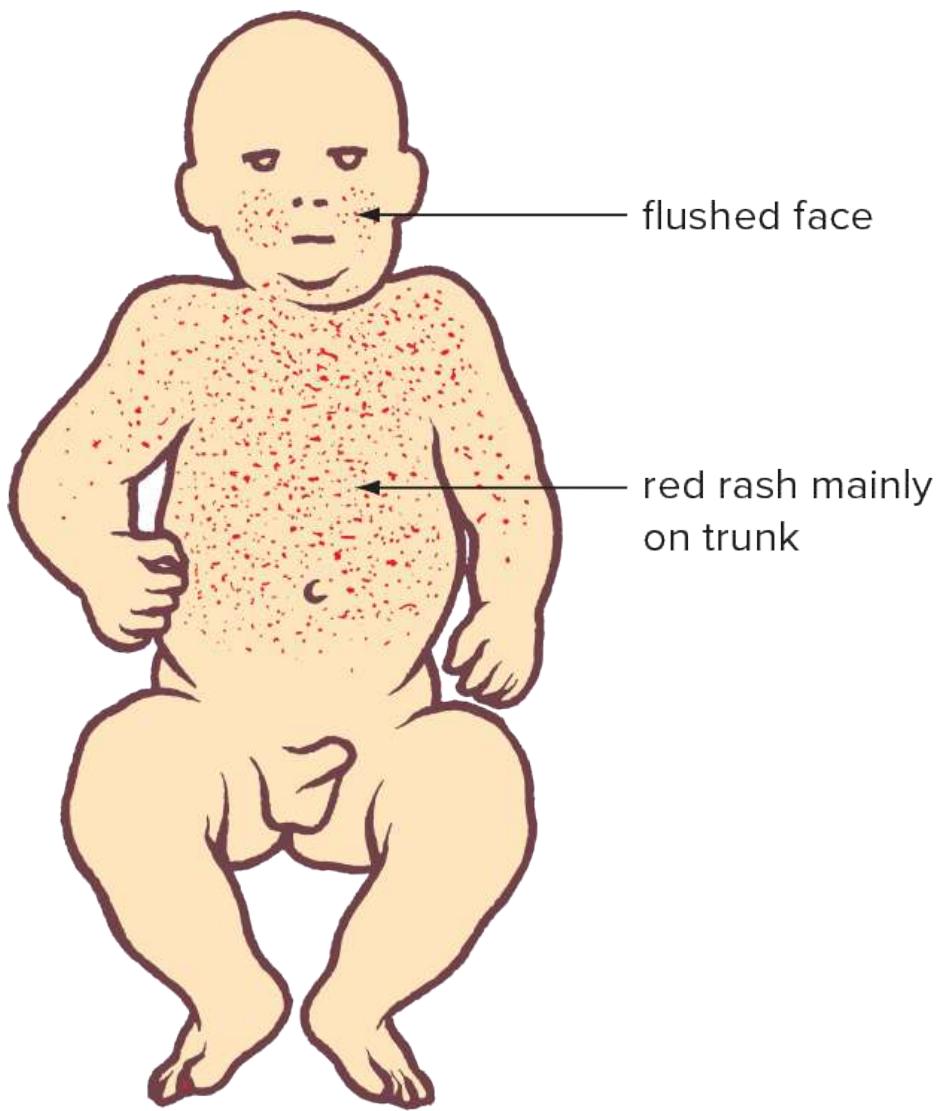


FIGURE 86.9 Roseola: typical distribution of rash

- usually spares face
- appears as fever subsides
- blanches on pressing
- disappears within 2 days
- no desquamation
- mild cervical lymphadenopathy

The infection runs a benign course, although a febrile convulsion can occur. The child will no

longer be infectious by the time the symptoms appear. Treatment is symptomatic. Encourage high fluid intake.

Hand, foot and mouth (HFM) disease

This is a mild vesicular eruption caused by enteroviruses, the most common being Coxsackie A-16, with EV-71 being less common. HFM disease affects both children and adults but typically children under the age of 10. Sometimes referred to as ‘crèche disease’, it often occurs among groups of children in child care centres. Transmission is through respiratory secretions, touch contact with the blistered areas or faeco-oral transmission (handwashing after changing nappies is important to reduce transmission).

Clinical features

- Incubation period 3–5 days
- Initial fever, headache and malaise
- Sore mouth and throat
- The rash appears after 1 or 2 days
- Starts as a red macule, then progresses to vesicles
- Vesicles lead to shallow ulcers on buccal mucosa, gums and tongue
- Greyish vesicle with surrounding erythema
- On hands, palms and soles (usually lateral borders)
- May appear on limbs especially buttocks and genitals
- Lesions resolve in 3–5 days
- Healing without scarring
- Virus excreted in faeces and saliva for several weeks
- Children are infectious until the blisters have disappeared
- Diagnosis is clinical, investigations usually unnecessary

Management

- Reassurance and explanation
- Symptomatic treatment

- Careful hygiene because very infective
- Exclusion not recommended

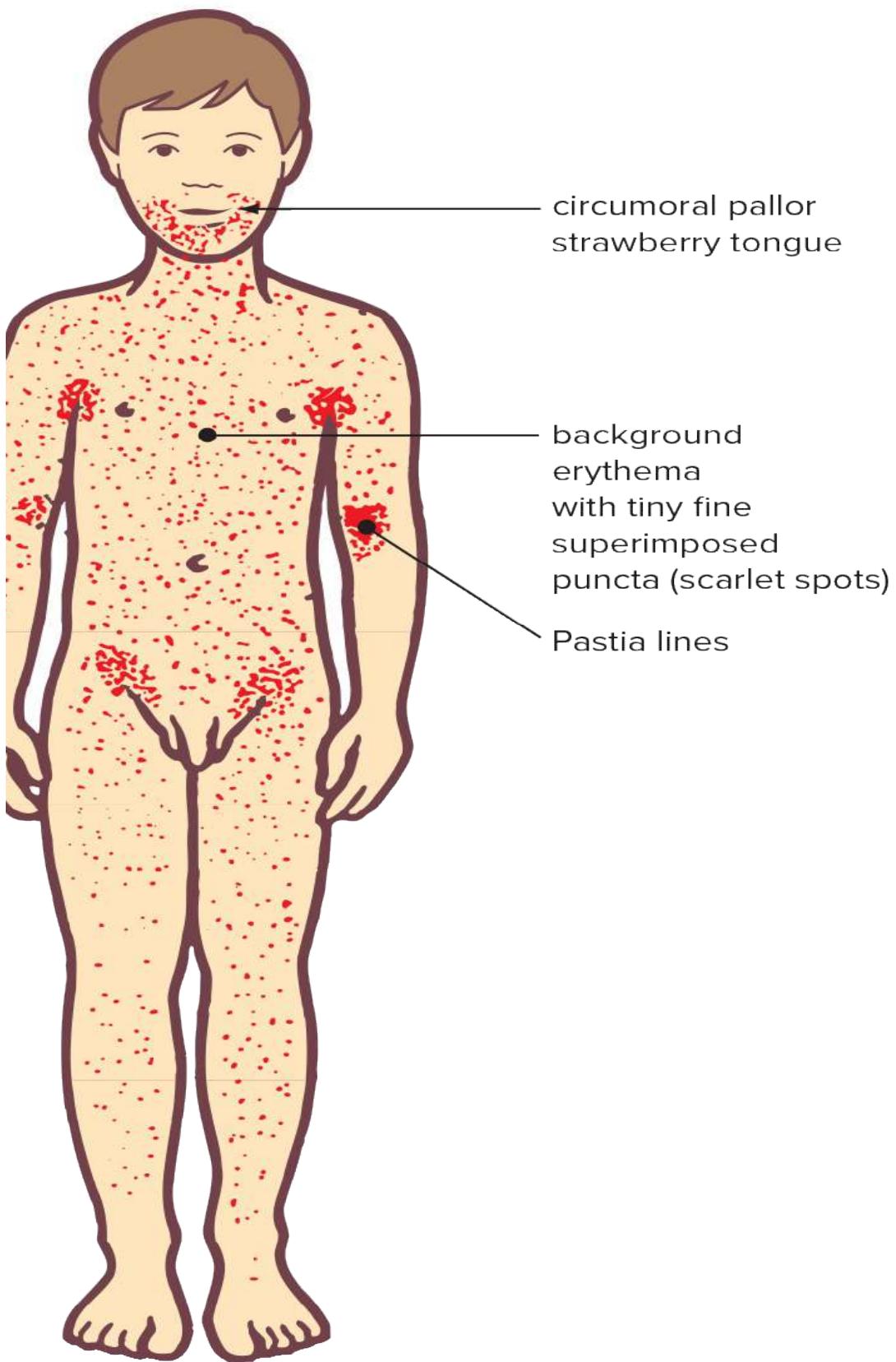
Scarlet fever

Scarlet fever results when a Group A *Streptococcus pyogenes* organism produces erythrogenic toxin. The prodromal symptoms prior to the acute exanthem comprise malaise, sore throat, fever (may be rigors), headache and vomiting. A throat swab should be taken.

Transmission is by droplet or direct contact.

Features of the rash

- Appears 12–24 hours after the start of the fever
- First appears on neck
- Rapidly generalised
- Punctate and red, a ‘boiled lobster’ or sunburnt appearance
- Blanches on pressure
- Prominent on neck, in axillae, cubital fossa (Pastia lines), groin, skinfolds (see FIG. 86.10)



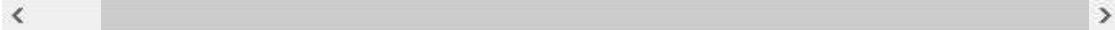


FIGURE 86.10 Scarlet fever: typical presentation of rash

- Absent or sparse on face, palms and soles
- Circumoral pallor
- Feels like fine sandpaper
- Lasts about 5 days
- Fine desquamation

Treatment

Phenoxymethypenicillin (dose according to age) for 10 days with rapid resolution of symptoms, although resistance is increasingly common. Children can return to school 24 hours after taking antibiotics and feeling well.

Page 996

Kawasaki disease^{5,6}

This is an uncommon but important multisystemic vasculitis that typically affects the coronary arteries, usually in children under 5 years of age and likely caused by an infection, though the presumed agent remains unknown. It is characterised by an acute onset of fever $>39^{\circ}\text{C}$ of 5 days or more and accompanied by 4 out of 5 of the following features:

- maculopapular polymorphous rash, mainly of trunk and genitalia
- bilateral (non-purulent) conjunctival infection
- mucous membrane changes, e.g. reddened or dry cracked lips, strawberry tongue, diffuse redness of oral or pharyngeal mucosa
- peripheral changes, e.g. erythema of the palms or soles, oedema of the hands or feet (and in convalescence desquamation)
- an ‘unusual’ nappy rash
- cervical lymphadenopathy (>15 mm diameter, usually unilateral, single, non-purulent and painful)

Also four of these features plus coronary aneurysm is diagnostic.

Diagnosis is basically a clinical one. Other diseases with similar signs should be excluded (e.g. staph or strep infections, measles, viral exanthems, drug reactions or JRA).

Kawasaki disease can be elusive as there are variations with atypical or incomplete manifestations. Think of it in a miserable child with a high fever ≥ 5 days and arrange for paediatric review if suspicious. No specific test but FBE will also help contribute to the diagnosis and management decisions (e.g. ESR and CRP usually raised, thrombocytosis often raised in second week, neutrophilia, normochromic normocytic anaemia, hypoalbuminuria, abnormal LFTs). Specific antibody tests, e.g. antiendothelial cells, may be helpful.

The disease is generally benign and self-limiting but it is important to make an early diagnosis because early treatment may prevent life-threatening complications (which also occur in the atypical cases). The major complication is vasculitis, which causes coronary aneurysms and ectasia in 15–25% of untreated cases, and which can lead to ischaemic heart disease and sudden death either at the time or years later. The aneurysms usually develop between the second week and the second month of the illness. Early treatment with immunoglobulin, oral aspirin and possibly IV methylprednisolone has been shown to be effective in reducing the prevalence of coronary artery abnormalities. Echocardiography is used to detect the aneurysms and determine prognosis.

Mumps¹

Mumps is an acute infectious disease caused by a paramyxovirus with an affinity for the salivary glands and meninges. It is usually transmitted by respiratory secretions or saliva. A third of infections are asymptomatic, and most of the others have non-specific symptoms, such as fever, headache, malaise, myalgia and anorexia. The classic parotitis occurs in only two-thirds of clinical cases and is usually bilateral. One gland swells first and in 70% the opposite one swells after 1–2 days. The submandibular and sublingual glands are less commonly involved. About 6% of patients will have presternal oedema resembling cellulitis of the neck.

Mumps can result in spontaneous abortion if contracted in the first trimester of pregnancy. Maternal infection is not associated with an increased risk of congenital malformations.

Page 997

Prior to vaccination, cases peaked in the 5–9-year age group; however, since 2000 it is now most commonly seen in adolescents and young adults. Recent outbreaks have occurred in the developed world in areas of declining vaccination rates.

Clinical diagnosis

Enlargement of the cervical lymph glands can be mistaken for parotitis but the correct diagnosis is indicated by the anatomy of this area. Lymph nodes are posteroinferior to the ear lobe; the parotid gland is anterior and, when enlarged, obscures the angle of the mandible.

Bacterial (suppurative) parotitis is associated with toxæmia and results in a high leucocyte count. The skin over the parotid gland is tense and shiny and the Stensen duct might discharge pus.

Rare disorders such as Sjögren syndrome can be misdiagnosed as mumps.

Complications

The complications are summarised in TABLE 86.6 .

Table 86.6 Complications of mumps

Common

- Orchitis
- Meningeal symptoms (10%)
- Abdominal pain (transient)

Rare

- Oophoritis
- Encephalitis
- Arthritis (one or several joints)
- Deafness (usually transient)
- Pancreatitis

Orchitis, usually unilateral, occurs in 15–30% of postpubertal males, developing 3–4 days after parotitis. Subsequent sterility is rare, even if both testes are affected.

Aseptic meningitis is common but benign. Many patients suffer transient abdominal pain and vomiting.

Management

Treatment is symptomatic, rest and ample fluid intake. Paracetamol may be prescribed for fever, meningitis and orchitis. The patient with orchitis should use supportive underwear. Children should be excluded until 9 days after the onset of the parotitis. Prevention is by vaccine (MMR) at 12 months and 18 months.

Epstein–Barr mononucleosis

Although glandular fever is more common in adolescents and young adults, it can occur in young children but is often asymptomatic or atypical. The differential diagnosis includes cytomegalovirus infection and acute lymphocytic leukaemia. Diagnosis is confirmed by specific antibody tests. Refer to CHAPTER 18 .

Pertussis^{1,7}

Pertussis (whooping cough) is a respiratory infection (a bronchitis) caused by *Bordetella pertussis* and occurs worldwide, mainly affecting infants <2 years. Other organisms (*Bordetella parapertussis*, *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*) can cause a pertussis-like syndrome. Despite vaccination, pertussis remains prevalent in Australia, and is the least well-controlled vaccine-preventable disease. Between 2000 and 2010 multiple epidemics caused over 139 000 confirmed cases.

The greatest risk of severe infection and complications is to infants with their soft and easily damaged airways, especially before the first 2 vaccine doses are administered. Adolescents and adults with waning immunity (both from vaccination and previous infection) are often the source of infection, in particular the parents (>50% of identified primary cases).

Clinical features

Pertussis is highly infectious, with *B. pertussis* spreading to >90% of household contacts. The incubation period is 7 to 20 days. The classical paroxysmal cough followed by an inspiratory whoop is less common in older children and adults, or children who have partial immunity from vaccination. A prolonged cough may be the only presenting feature, and in local epidemics every cough needs to be approached with the suspicion of pertussis.

B. pertussis accounts for 7% of cough illnesses in adults, and given that each year 25% of adults have a cough ≥5 days duration, many cases go undiagnosed. The primary goal of preventing complications and deaths is centred on protecting children, particularly infants (see Prevention below). The fatality rate in unvaccinated infants less than 6 months is 8 per 1000 cases. The most common cause of death is pertussis pneumonia, sometimes complicated by seizures and hypoxic encephalopathy. Apnoea and cyanosis from coughing spasms are also common in the very young.

Even in adults the cough can be very distressing and prolonged. Pertussis is also referred to as the ‘100 day cough’. This can lead to issues with sleep disturbance, work performance (especially when dealing with machinery or driving) and rarely rib fractures.

Page 998

Classic whooping cough is characterised by cough and coryza for 1 week (catarrhal phase) followed by paroxysms of a more pronounced cough (paroxysmal phase). Fever is uncommon, there are often no other clinical signs and children are well between coughing paroxysms. Vomiting may follow a coughing spasm (a ‘cough-vomit’).

Diagnosis

This is clinical, with a high index of suspicion with coughing patients (both immunised and non-immunised), particularly in outbreaks; any suspicion should lead to PCR testing of nasopharyngeal aspirate/swab.

Complications

- Neurological: asphyxia, hypoxia, seizures, cerebral haemorrhages

- Pulmonary: atelectasis, pneumonia, pneumothorax, bronchiectasis

Treatment^{7,8}

Treatment during the catarrhal phase or early in the paroxysmal stage may ameliorate symptoms. Treatment early in the disease will help reduce infectiousness; however, once the cough has been present for 3 weeks there is little risk of infectiousness. Options include:

- azithromycin

<6 months: 10 mg/kg daily for 5 days

>6 months: 10 mg/kg on day 1 (up to 500 mg) then 5 mg/kg (up to 250 mg) for a further 4 days

- clarithromycin

>1 month: 7.5 mg/kg (up to 500 mg) bd for 7 days

- erythromycin

>1 month: 10 mg/kg (up to 250 mg, or 400 mg if ethylsuccinate) qid for 7 days

- trimethoprim + sulfamethoxazole

Cough mixtures are ineffective. Good ventilation is important: avoid dust and smoke, and also emotional excitement and overfeeding during the paroxysmal phase.

All infants under 6 months and older children with complications (e.g. apnoea, cyanosis, pneumonia, encephalopathy) require admission to hospital.

Treatment of contacts⁸

High-risk contacts of a pertussis case (those with close/household contact and who may be vulnerable to complications, or transmit to others who are vulnerable) should be treated with the same medications, dosage and duration as above. There is little evidence that prophylactic antibiotic treatment of contacts reduces secondary transmission outside of household settings (i.e. not in child-care centres, preschools, schools or workplaces). State public health officers should be contacted to determine which contacts require prophylaxis.

Prevention⁸

Active immunisation with pertussis vaccine is given at 2, 4 and 6 months, then at 4 years and 12–13 years as per the NIP schedule. Other strategies to reduce the incidence of pertussis and its complications, particularly in infants, include:

- a ‘cocoon’ strategy of vaccinating any adults who are or will be in close contact with an infant. Fathers and other adult contacts can be vaccinated before the birth

- a pertussis vaccine should be given to pregnant women between 20 and 32 weeks (which will boost maternal antibodies that are transmitted in utero to the about-to-be-newborn fetus)
- a single booster dose of pertussis-containing vaccine is recommended in health care workers and other adults in regular contact with young children (booster required after 10 years)

Exclusion

For the patient, 5 days after commencing antibiotics; 14 days for non-immunised contacts. The family contacts should have 7 days of prophylactic antibiotics.

Herpes simplex⁹

Herpes simplex virus (HSV) infection is common and widespread. Primary HSV infection is usually a disease of childhood readily transmitted through direct contact, with the majority of the population being infected in early childhood. Many cases are asymptomatic or non-specific. The specific gingivostomatitis occurs in 25–30% of cases and can be severe and acute.

Clinical features

Typical clinical features of the primary infection:

- children 1–3 years
- fever and refusal to feed
- ulcers on gums, tongue and palate
- prone to dehydration
- may be lesions on face and conjunctivae
- resolution over 7–14 days

Pushing fluids and monitoring for dehydration is important. Topical lignocaine preparations can help. Paracetamol is often not useful, though if the child is very distressed, combined ibuprofen and paracetamol compounds can be considered. Topical antivirals usually do not contribute and are not recommended.

Serious complications (seek specialist advice):

Page 999

- encephalitis can develop in otherwise healthy children (see [CHAPTER 20](#))
- eczema herpeticum—children with eczema can get widespread severe herpetic lesions
- disseminated HSV infection in neonates (avoid contact until recovered)
- HSV can be a serious issue in the immunocompromised patient

Impetigo¹⁰

Impetigo (school sores) is a contagious superficial bacterial skin infection caused by *Streptococcus pyogenes* or *Staphylococcus aureus* or a combination of these two virulent organisms.

There are two common forms:

- 1. vesiculopustular with honey-coloured crusts (either strep or staph)
- 2. bullous type, usually *S. aureus*

Treatment

If mild with small lesions and a limited area:

- soak a clean cloth in a mixture of $\frac{1}{2}$ cup white vinegar and 1 L of tepid water. Apply the compress to moist areas for 10 minutes several times a day then wipe off crusts (alternatively just use soap and water)
- antiseptic (povidone iodine, chlorhexidine) or mupirocin (Bactroban), a small amount tds to crusted areas for 7 days. Topical antibiotics other than mupirocin 2% (Bactroban) are not recommended
- general measures while still oozing or crusted:

cover the sores

avoid close contact with others (especially touch and bathing contact)

regular handwashing

use separate towels and cloths

change and launder clothes and linen daily

If extensive and causing systemic symptoms:

flucloxacillin/dicloxacillin 12.5 mg/kg (o) up to 500 mg, 6 hourly for 10 days

or

cephalexin 12.5 mg/kg (o) up to 500 mg, 12 hourly for up to 10 days

Likely to be *S. pyogenes* in remote settings, add penicillin.

Boils (furunculosis) and carbuncles can use the same treatment as impetigo.

The child should be excluded from child-care settings until antibiotic treatment has commenced. Any sores on exposed skin should be covered with a watertight dressing.²

§ Head lice¹¹

Head lice is an infestation caused by the louse *Pediculus humanus capitis* (see FIG. 86.11). The head louse is about 1–3 mm in length, white to grey, wingless and has a flat elongated body. They spread through close contact, and do not jump or fly. The female louse lays eggs (or ‘nits’), which are glued to the hairs a few millimetres from the scalp. The nit moves away from the scalp as the hair grows. They hatch at around 8 days, mature into adults in about 10 days and live for about a month.

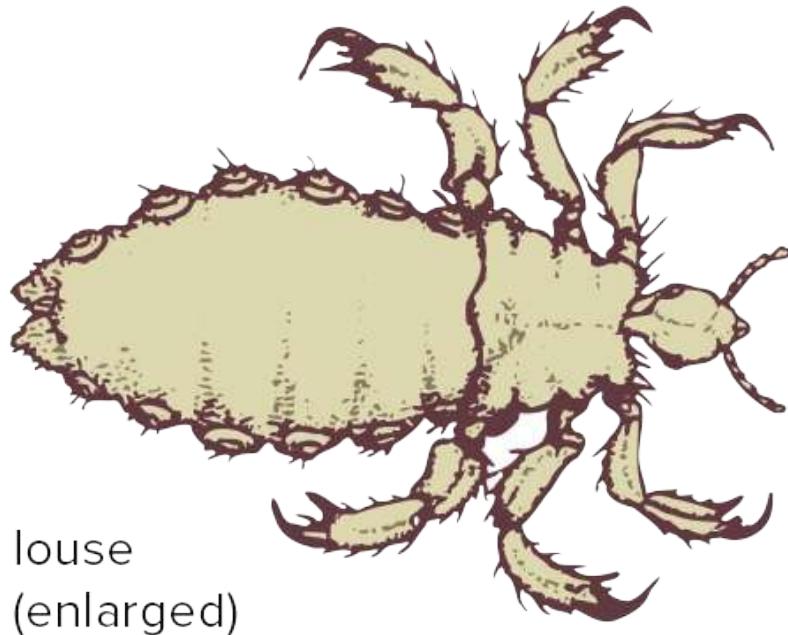


FIGURE 86.11 Louse (enlarged)

Head lice spread from person to person by direct contact, such as sitting and working very close to one another. They can also spread by the sharing of combs, brushes and headwear, especially within the family. Children are the ones usually affected, but people of all ages and from all walks of life can be infested. It is more common in overcrowded living conditions but is not a reflection of poor hygiene. Resistance to the usual agents is becoming a problem.

Clinical features

Infestations can vary from a few dozen to hundreds of lice and eggs.

- Asymptomatic or itching of scalp
- White spots of nits can be mistaken for dandruff

- Unlike dandruff, the nits cannot be brushed off
- Diagnosis by finding moving lice (or nits)
- Occasionally the eyelashes can be affected (use physical removal methods outlined below)
- ‘Wet combing’ (see below) improves detection rate

Treatment

Treatment can be based on physical methods, chemical methods or both (the most effective).

Physical methods

Wet combing:

- Inspection—look for both lice and nits behind and above the ears and at the back of the scalp.
- Treat all members of family at the same time.
- Have ready a fine metal nit comb (available at pharmacies), a good light, some paper towels or tissues and lots of cheap hair conditioner (temporarily inactivates lice). Sitting a child in front of the TV will help them keep still (it takes around 30 minutes). Page 1000
- Wet the hair with a handful or two of conditioner.
- Detangle the hair and work through in sections, removing resistant nits by combing down the hair towards the shaft.
- Wipe the conditioner onto tissues or paper towels, where the lice and nits will be visible.

Repeat the combing routine for at least 2 more consecutive nights. Repeat weekly until no lice are found on 3 consecutive nights (nits may persist but do not necessarily mean active infection—they may be empty or dead eggs). Other physical measures include:

- machine wash bed-linen, clothes, towels in hot water
- items that can't be washed such as soft toys/helmets should be placed in an airtight plastic bag for two weeks
- vacuum pillows
- spray hairbrushes and combs with fly spray

Chemical treatments

Insecticides used to treat head lice topically include:

- maldison 0.5% or 1% according to instruction
- permethrin 1%, leave 10 minutes, repeat in 7 days
- pyrethrins 0.165% + piperonyl butoxide 1.65%, leave 10 minutes, repeat in 7 days

These applications can be irritating to the scalp, so use caution in children prone to atopic dermatitis; following the manufacturer's instructions carefully is important. Wet comb after each treatment. A second application 7 days after the first may be required.

Many other methods are used and recommended for head lice, both commercially available or 'home remedies', which may or may not be useful. These include suffocating agents (e.g. mayonnaise, olive oil, petroleum jelly), natural oils and cutting the hair short (especially in boys, e.g. a No. 1 cut).

Treatment failure and/or reinfestation is common. The former can be from inappropriately applied treatments, resistance to chemical treatments or misdiagnosis of old nits as active infection. Cotrimoxazole can be trialled for resistant head lice. Community or school-wide education programs can also keep infestation rates down. Notify the school when detected. No exclusion necessary after initial treatment.

Body lice

Diagnosis is by demonstration of lice and nits in clothing, especially at the seams, and bed clothes. Treatment is as for head lice, applying the preparation to the entire body (with care). The fomites should be discarded or washed in a hot cycle or sealed in plastic bags for 30 days.¹⁰

Scabies

Refer to pruritis (see [CHAPTER 112](#)).

Patient education resources

Hand-out sheets from *Murtagh's Patient Education* 8th edition:

- Chickenpox (varicella)
- Hand, foot and mouth disease
- Lice: head lice
- Herpes simplex (cold sores)
- Impetigo
- Measles

- Mumps
- Roseola
- Rubella
- Scabies
- Slapped cheek disease
- Whooping cough (pertussis)

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87 Behavioural and developmental issues and disorders in children

Although the world is full of suffering, it is full also of the overcoming of it.

HELEN KELLER, 1903

Many behavioural issues in children arise because of (and in the context of) factors such as the child's temperament, parental schema and child-parent attachment. These factors determine, in the beginning, how the parent-child relationship will evolve, and also strongly affect the psychological development of the child.

Temperament

Temperament refers to the personality characteristics you are born with—what is innate rather than learned. An awareness of the fact that children are born with characteristics over which parents have no control can be liberating, especially for parents of children with challenging temperaments.

The best-known description of temperament is based on the work of Thomas and Chess from the 1970s¹ (see TABLE 87.1). They found that about two-thirds of children can be classified into one of three categories: easy, difficult and slow to warm up. Of these, about 15% were considered easy, 70% slow to warm up and 15% difficult. A child with a difficult temperament will be emotionally labile and have difficulty coping with new experiences. A child with a slow-to-settle temperament will have some difficulty coping with new experiences, but will eventually manage after repeated exposures. A child with an easy temperament will cope easily with new experiences and will have a calm nature.

Table 87.1 Easy and difficult temperament characteristics

Easy temperament characteristic	Difficult temperament characteristic
Generally happy	Generally serious

Goes with the flow	Inflexible
Laid-back	In-your-face
Patient	Impulsive
Flexible	Stubborn
Friendly	Shy
Calm body movements	Restless
Persistent	Gives up easily
Calm nature	Hot-tempered
Expressive	Reserved
'Even' mood	Up and down mood
Thick-skinned	Over-sensitive
Good concentration	Distractible
Regular body clock	Chaotic body clock
Tolerates sensations well	'Sensory defensiveness' (light, sounds, tastes, textures)

Easy doesn't mean good, and difficult doesn't mean bad. These children may just require more patience and a thoughtful and paced approach to parenting. Further, the characteristics that can make a child 'difficult' can be the flipside of other characteristics that lead them to achieve success (if appropriately nurtured and guided). A stubborn child may have good persistence, and a distractible child may be artistic and expressive.

Of course, most children will have a few 'difficult' characteristics, but some will have more than others. Raising parents' awareness of this, getting them to think about the innate characteristics of their child (which may or may not be similar to their siblings or one or both of the biological parents) and to adjust their parenting style accordingly will help them deal more effectively with the challenges of raising their child.

Parental schema

Schema is the view you have of the world based on your own experiences; it is the 'soup in your head'. Parental schema is how parents view how they should parent, and is often based on how they were brought up themselves. Parental schemas may not match, and this can cause relationship issues. Parental attitudes to issues such as communication, emotion sharing and discipline can fundamentally affect the behaviour and psychological health of a child. Parental schema can also commonly be influenced by cultural factors.

Child-parent attachment

An infant first has to learn how to connect with other minds. A child does this in their first relationship, usually with their mother. This is attachment. Page 1002

It's important to note that attachment is an ongoing phenomenon, even into adulthood. Children attach not only to their mother, but to other people from whom they can 'gather strength'. Children's attachment to their two parents may differ and can also change over time.

A secure attachment is achieved if a parent responds to a child's cries *promptly, consistently and appropriately*. The three main ways in which attachment can go wrong are:

- Carer not responding—this can result in a lack of emotional depth in the child.
- Carer responding inconsistently—this can lead to uncertainty and anxiety in the child.
- Carer responding inappropriately—such as with aggression or anger. This is obviously very damaging, and happens in situations of emotional abuse, particularly with mental health or drug and alcohol issues in the carer. It creates a terrible and *unsolvable paradox* for children, where the person on whom they are completely reliant to teach them how to relate to the world is also a threat.

Observing how carers, particularly mothers, respond and interact to their child can give the family doctor insight into this relationship. Gently advising and encouraging appropriate responses to the child's needs can be beneficial, particularly in a mother with poor parenting capabilities and/or difficult circumstances (e.g. very young mothers, socially isolated, postnatal depression, drug using or alcoholic parents, violence in the household). In high-risk situations, further referral to support services or even protective agencies may be required (see [CHAPTER 88](#)).

Child behaviour and discipline^{2,3}

Issues around child behaviour and how to deal with unwanted behaviours commonly arise and are often a source of conflict and angst. It is normal for children, especially toddlers, to have resistant and oppositional behaviour. The word 'discipline' comes from the Latin *disciplina*, which means 'to teach'. The purpose of disciplining a child is to guide and teach, so they know what is allowed and what is not allowed, what 'works' in the world and what will not.

Parents can teach children in a variety of ways. The most effective forms of discipline are actually praise and encouragement—of wanted behaviours. However, when children are doing something that they should not—an unwanted behaviour—they need to learn that this is the case. The challenge for parents is to get this message across to them clearly and effectively.

A simple equation sums up the best way to deliver this message:

$$\text{unwanted behaviour} = \text{unwanted (by your child) outcome}$$

Educating parents to recognise that the thing a child desires most in the world is the attention

(this is a survival instinct) and approval of their parents will help them understand how to reinforce desired behaviours, and extinguish unwanted behaviours. That is, pay attention to when the child is behaving, and even praise particularly wanted behaviours, and ignore unwanted behaviours.

Consequences³

Consequences work only with children >3 years of age, and should be used solely in response to a small fraction of a child's behaviour, regardless of the child's temperament. If consequences are overused, their effectiveness diminishes and family relationships can be damaged.

There are three types of consequences that work (in decreasing order of usefulness):

- *Natural consequences*: where there is a natural flow from the misdemeanour to the consequence. For example, if a child refuses to have dinner, he or she goes to bed hungry. Natural consequences have a momentum of their own and, assuming they do not result in harm, can provide many valuable lessons.
- *Related consequences*: where there is some link between the unwanted behaviour and the result. This is also sometimes called a 'logical consequence'. For example, if a child makes a mess, he or she must clean it up. Or, if two children are fighting over a toy, the toy gets taken away for a while.

Related and natural consequences allow a child to link the unwanted behaviour with the consequence.

- *Losing a privilege*: This can be a very powerful technique as it focuses the child's attention but is more punitive than natural and related consequences. Also, there is no logical link between behaviour and consequence. Parents should only withdraw a privilege with care as it can cause resentment, and the child should be warned beforehand that he or she is going to lose a particular privilege for a particular unwanted behaviour.

Page 1003

*Time-outs*⁴ are another response to unwanted behaviours. Time-outs are useful from 2–3 years of age, and can take the heat out of a situation, for both the parent and child. Time-outs should be consistent, enforced promptly and calmly, even with empathy, and short—a good rule of thumb is a minute per year of age.

Responses that don't work when disciplining children include: screaming, constantly explaining, repeatedly warning, threatening, pleading, arguing, bribing and giving in, as well as smacking.⁵ Most parents who are struggling with behaviour and discipline issues respond with relief when provided with a set of alternative responses for disciplining children, though care needs to be used when raising these issues, as they can be highly emotional and confronting topics for parents.

⌚ Maltreatment

GPs should consider maltreatment of the child if there is behaviour change inconsistent with age

or development and which is not explained by a problem such as autism or by a stressful situation such as parental separation.

Tantrums⁶

Tantrums are when we lose control of our feelings and behaviour. Everyone, including adults, is capable of tantrums. Tantrums are what we use to deal with an emotionally confronting situation when we have no other option—the emotional response of last resort. They are more common in toddlers (particularly between 18 months and 3 years of age) because they have not learned any or many other emotional responses to challenging situations, such as ignoring, negotiating, reconsidering or reframing a situation. There may be a dramatic protestation to frustration such as kicking, shouting, screaming, throwing or head banging. There is a lot of misinformation about tantrums, frequently over-emphasising control rather than guidance. They may be a pointer to autism.

Diverting a child from predictable tantrum triggers, ‘scaffolding’ (giving necessary support) to handle the event (e.g. a 5-minute warning), distraction or active listening in the build-up to a tantrum can be useful strategies to employ.

Once a child is mid-tantrum, any attempts at negotiation will be ineffective. Afterwards, an unemotional and calm response from the parent will tell the child that tantrums don’t work (though, of course, this can be difficult for a stressed parent). Skill-building toddlers in how to handle emotionally challenging situations (i.e. expanding their repertoire beyond tantrums) is best done either before or after (‘What else could you have done?’). Rousing a child is counter-productive; they are still learning to control their emotions, and this will just increase the risk of them becoming demoralised and losing self-esteem.

Appropriate advice for parents

Ignore what is ignorable; avoid what is avoidable; distract what is distractable; praise appropriate behaviour. Medication has no place in management.

Breath-holding attacks⁷

Breath-holding is common (around 5% of children do so at some stage), and occurs between 6 months and 6 years (peak at age 2). While frightening to watch, such attacks are harmless, and no treatment or action is required. There are two types:

- blue spells (more common)—these happen in response to being upset or angry. The child cries loudly then holds his or her breath at the end of expiration
- pale spells (white attack)—these anoxic ‘seizures’ happen in response to pain or a fright

They can last from 10–60 seconds, and can cause the child to faint or, rarely, fit. They cause no harm, and parents should be reassured. Approaches to discipline should not change because of them. There is no need to blow air or splash water in the child’s face, and the child should be

treated as if the breath-holding has not occurred (i.e. no discussion or punishment).

⌚ Head banging and rocking⁸

Head banging and rocking, which usually occur before the child goes to sleep, are common. Head banging occurs in up to 30% of normal infants and toddlers, and rocking is even more prevalent. They are more frequent in children with developmental disability and autism, where these behaviours may be more pervasive through the day.

Features

- Usually starts after 8–9 months, common at 3 years and is rare after 2 years of age
- Usually prior to going to sleep
- Child usually not distressed and rarely self-injurious

Management

There is no need to try to stop the behaviour, and attempting to do so is often not successful.

Page 1004

- Reassure parents that it's a self-limiting behaviour and usually settles by 2–3 years.
- Avoid reinforcing behaviour by excessive attention or punishment.
- Ignore the behaviour.
- Place the bed or cot in the middle of the room away from a wall (reduces disruption from noise).
- Monitor the condition of the cot, to ensure screws and hinges are not being loosened.

⌚ Sibling rivalry

Sibling rivalry is very common and can cause a lot of disruption in the family. A toddler may pinch, prod and even attempt to smother a new baby, so providing the toddler with attention from the mother and encouraging the child to see that it is his or her baby too can ease the jealousy. In school-age children the following tips are useful:⁹

- Be fair.
- Avoid making comparisons between your children.
- Encourage the children to work out their own differences.
- Avoid taking sides in sibling conflicts. Set guidelines on how children can disagree and

resolve conflicts.

- Discourage telling tales on each other.
- When it is necessary to punish or reprimand, do it with the child alone in a quiet, private place.
- Use regular family meetings to establish family rules and negotiate conflicts.

Stuttering/stammering

Stuttering (also known as stammering)¹⁰ usually begins at age 2–5 years, as children start to use more words and longer sentences. It can start suddenly or develop slowly. Up to 12% of children will stutter by the age of 4.

Stutters can be repetitions (of a sound, word or phrase), prolongations of a sound (e.g. ‘aaaand’), a block (where no sounds comes out) or combinations of these. There is no known cause, though it can run in families. Stutters are not associated with other disabilities, though they may cause psychological distress for the child. They are not caused by anxiety or stress, but can be more prominent when the child is excited.

A child developing a stutter should see a speech pathologist as soon as possible, as early treatment is more successful. The most common program used in Australia to treat stuttering is the Lidcombe Program, which is often successful and can even sometimes stop the stutter. However, evidence to support this and other interventions is not strong.

Habit cough

This is a common problem usually affecting school-age children and occurs in the absence of underlying disease. It occurs only when the child is awake—not during sleep.

There are two common types of habit cough:

1. A honking-type cough (heard from the waiting room) in teenage girls. There is no dyspnoea or sputum production.
2. A throat-clearing cough commonly seen in boys aged 7–10. This is related to a transient tic disorder.

Habit cough is a diagnosis of exclusion and there should be a careful assessment to exclude other causes such as respiratory disorders or pertussis. Underlying triggers include inter-family problems and bullying or other perceived stress or anxiety, e.g. school issues. Management includes explanation, reassurance and CBT.

Referral for resistant cases is appropriate.

Other functional respiratory problems:

- hyperventilation
- sighing dyspnoea
- vocal cord dysfunction (see [CHAPTER 46](#))

Sleep disorders in children

See [CHAPTER 60](#) .

Bullying^{11,12}

There are varying figures on how common bullying is, but most suggest more than a quarter of children are significantly bullied at some stage. It is more common in the early school years, but can happen at any age. Bullying differs from conflict, in that there is an imbalance of power between the perpetrator and the victim. It is a deliberate behaviour repeatedly done and intended to harm the victim. It is a power play, constructed on contempt, not anger, and this is what can make it so damaging.

Types of bullying include physical harm, verbal assaults, hidden bullying (e.g. exclusion or spreading rumours) and cyberbullying (now the most common form of bullying). The latter is particularly insidious as it is difficult to detect and follows the victim home and even into their bedroom via social media or phones. Bullying can lead to physical, psychological and social consequences, and in extreme cases depression and even suicide. Despite this, less than half of bullying is reported (with boys reporting less than girls) due to fear of retaliation or not being believed.

[Page 1005](#)

Bullies themselves tend to be assertive, impulsive and aggressive, with little empathy for their victims or remorse for their actions. They often come from dysfunctional backgrounds, and their bullying tendency may have been learned from being modelled by parents or peers.

If bullying is raised, the child should be believed, and a history carefully, gently and non-judgmentally extracted. Parents should be encouraged to stay calm, involve other adults in the environment (e.g. teachers at school) and to formally address the issue after educating themselves on the best approach. There are many good resources available for this, such as the National Centre Against Bullying at www.ncab.org.au. A vigilant approach to this common and serious problem by GPs and parents should be employed, especially in those particularly vulnerable to bullying, such as children who are shy, lacking in confidence, children with disabilities or who physically or socially stand out in some way (e.g. children with speech disorders). Indicative signs to watch out for include:

- school phobia: sham sickness and other excuses
- being tense, tearful and miserable after school
- reluctance to talk about happenings at school

- poor appetite
- functional symptoms (e.g. habit cough)
- repeated abdominal pains/headache
- unexplained bruises, injuries, torn clothing, damaged books
- lack of a close friend; not bringing peers home
- crying during sleep
- restless sleep with bad dreams
- appearing unhappy or depressed
- unexpected irritability and moods; temper outbursts

Referral to a psychologist should be considered in severe cases, in those that fail to be resolved or if there are other psychological or family issues. If child abuse is suspected, appropriate action should be taken (see [CHAPTER 88](#)).

Behavioural and developmental disorders

Developmental disability and delay

The family doctor is in an ideal position to recognise and initiate evaluation of the child with a developmental disability, whether it is a physical disability or delay, an intellectual disability or a learning disability. All children with a suspected developmental delay should be promptly evaluated by a paediatrician or a multidisciplinary developmental assessment team, and the family doctor should remain a key player in the long-term management both of the child and the family.

Many developmental problems will be obvious but others are subtle. Several disabilities may evade a diagnosis. Transient developmental delay may be associated with factors such as prematurity, family stress, physical illness and learning opportunities, while persistent delay can be caused by intellectual disability, cerebral palsy, autism and hearing and visual impairment.

Many rare dysmorphic syndromes are becoming more recognised and defined with the rapid advances in genetics, and referral to genetic disorder units will help in getting an appropriate evaluation.

Evaluation

An appropriate history includes a careful look at developmental milestones, social and behavioural issues, and family history (see [CHAPTER 6](#)). A new diagnosis of developmental

delay of any sort can have a massive impact on family members, especially parents, and the family doctor should keep a watchful eye on how they are coping and reacting to the diagnostic process.

The physical examination includes growth parameters, assessment of all developmental domains, looking for dysmorphic features, testing of hearing and vision, examining for neurocutaneous stigmata (e.g. café-au-lait spots, neurofibromas, hypopigmented macules) and careful systems examination, including cardiac and neurological examination. Eyes, ears, mouths (including teeth), hands, feet and genitals should all be examined.

Investigations are usually coordinated via specialist services, but often include bloods (including karyotyping and genetic tests), urinary metabolic screening and imaging, such as cerebral MRI (which may require a general anaesthetic).

Intellectual disability

Intellectual disability (ID) is a neurodevelopmental disorder characterised by deficits in intellectual and adaptive functioning that present before 18 years of age.¹³ The term replaces and improves upon the older term ‘mental retardation’. The term ‘global developmental delay’ (GDD) is usually used to describe children <5 years of age who fail to meet expected developmental milestones in several areas of development. Not all children with GDD will meet criteria for ID as they grow older.

Presentations include learning difficulties, language delay and behavioural problems. Page 1006

The two most common causes are trisomy 21 (see [CHAPTER 23](#)) and fragile X syndrome.

Fragile X syndrome, Prader–Willi syndrome and Williams syndrome are presented in [CHAPTER 23](#).

Cerebral palsy¹⁴

Cerebral palsy (CP) is a physical disability that affects movement and posture, and is the most common physical disability in childhood (2 in 1000 live births). Its cause is usually unknown, but CP is associated with numerous antenatal and perinatal factors, including antenatal infections (e.g. rubella, CMV), birth defects, preterm birth, IUGR, multiple pregnancy, perinatal hypoxia and postnatal head trauma or cerebral infection. It is more common with low birth weight or low socioeconomic status. It can vary from minimal to profound disability.

Definition

There are five key elements:

- 1. It is an umbrella term for a group of disorders.
- 2. It is permanent, but not unchanging.

- 3. It involves a disorder of movement and/or posture and of motor function.
- 4. It is due to a non-progressive interference, lesion or abnormality.
- 5. The interference, lesion or abnormality originates in the immature brain.

Associated impairments

- 3 in 4 are in pain
- 1 in 2 has an intellectual disability
- 1 in 3 cannot walk
- 1 in 3 requires a hip replacement
- 1 in 4 cannot talk
- 1 in 4 has epilepsy
- 1 in 4 has a behavioural disorder
- 1 in 4 has bladder control problems
- 1 in 5 has a sleep disorder
- 2 in 5 dribble
- 1 in 10 is blind
- 1 in 15 is tube fed
- 1 in 25 is deaf

Classification

Many different classification systems are used for CP. These include those based on:

- *severity*—mild (no restriction of activities and mobile without aids), moderate (some assistance/aids required), severe (wheelchair and marked restriction of activities)
- *topographic location*:
 - paresis (weakened) vs plegia (paralysis)
 - terms include: mono- (one limb), di- (two, usually legs), hemi- (arm and leg), para- (lower body), quadri- (four limbs) and penta- (four limbs and also head and neck/breathing issues)
- *motor function*—spastic (pyramidal) versus non-spastic (extra-pyramidal)

- *muscle tone*—hypertonic or hypotonic

Other terms used include ‘ataxic’, ‘dyskinetic’ and ‘athetoid’.

Diagnosis

Severely affected children are often recognised soon after birth, but mildly affected cases may not be diagnosed for years. A family doctor who has any suspicion of a disorder in movement or posture should refer the child for specialist assessment, which may include a paediatrician, a paediatric physiotherapist or a multidisciplinary team assessment.

Depending on the clinical presentation, multiple investigations may be undertaken, including visual and hearing tests, pathology tests (e.g. karyotyping, genetic testing, urine metabolic screening) or imaging such as a cerebral MRI.

Management

Management of motor and posture issues is largely the domain of therapists and specialist clinics such as a cerebral palsy clinic in a major hospital. Multiple team members may be involved, and the family doctor may be required to take a team management and coordination role. Other responsibilities that may be met by the family doctor include:

- facilitating access to funding streams and services
- diet and growth monitoring
- monitoring and treating bladder issues, including UTIs
- managing constipation issues
- dealing with pressure sores
- addressing sleep issues
- helping with behaviour issues
- looking at pain management
- addressing family issues, such as parents coping or sibling dynamics
- dealing with normal paediatric issues in general practice (e.g. immunisations, treating commonplace infections and injuries). These may present special challenges, depending on the level and type of CP

Autism spectrum disorder

In May 2013, the DSM-5¹³ made significant changes to autism terminology and classification that reflected recent research. Autism spectrum disorder (ASD) superseded autistic

disorder, pervasive developmental disorder not otherwise specified (PDD-NOS) and Asperger disorder, though the latter term is also still widely used by clinicians and the public. This resulted in a change in the way autism was diagnosed, with three domains (social deficits, communication deficits and repetitive behaviour) reducing to two (social–communication deficits and repetitive behaviour). Another change is a ‘severity’ criterion that is designed to better capture the ‘spectrum’ nature of the disorder: level 3 (very substantial support), level 2 (substantial support) and level 1 (some support).

ASDs are common, with the latest Australian data putting the incidence at 1 in 100 children.¹⁵ While autism diagnoses are much more common in recent decades compared to previously (it was first described as a disorder only in 1944), whether there has been a true increase in incidence is unknown, as increasing awareness and widened diagnostic criteria make comparison with previous prevalence data unreliable.

Identification

When an autism spectrum disorder (ASD) is suspected, a GP is likely to face one of three different scenarios:

- A A family member presents with his or her own concerns about their child’s development.
- B A family member reports that a third party, such as a child-care worker or teacher, has expressed concerns about their child’s development.
- C The GP himself/herself identifies concerns with a child’s social and language development through routine developmental screening or general observation.

Scenario A should always be taken seriously, as the concerns of parents are commonly justified. Many parents present to their GP during the second to third year of their child’s life when it becomes apparent that the child’s development has stalled compared with his or her peers. While social deficits of ASD (such as delayed or absent joint attention—see below) often present earlier, they frequently go unrecognised by parents and it is usually speech delay that prompts a visit to the doctor.

Other parents may request a hearing assessment, thinking their child is deaf because he or she doesn’t respond to their name. In about 25–30% of cases there may be actual regression, with the child beginning to say words but stopping, commonly between the ages of 15 and 24 months. Parents may also report loss of eye contact and gestures such as waving or pointing.

When to suspect ASD

A typically developing child should smile in response to a familiar caregiver’s smile or ‘baby talk’ by 2–4 months. At 8 months, an infant will follow a parent’s gaze, that is, look in the same direction as the parent is looking. Children should be able to follow their parent’s point by 10–12 months and start pointing themselves by 12–14 months. They then begin to point to share (‘look at this’) by 16 months. As they point, children will look back and forth between the object and their parent—it’s the shared social experience, not the tangible object, the child seeks. These

joint attention behaviours are often absent or reduced in a child with ASD.

Social deficits

Younger children with ASD often appear to have little desire to connect with others. They may have problems imitating actions (such as clapping). As they get older, individuals may have difficulty understanding the perspective of others, commonly called theory-of-mind, which in turn leads to difficulties with empathy and sharing. Affected children will often have few or no friends; higher-functioning children may desire friendship but approach peers in an inappropriate way. Inappropriate social behaviours (e.g. commenting loudly on someone's physical appearance) can lead to problems at school. Frequently, individuals become overwhelmed by social or sensory stimulation, such as loud sounds.

Communication deficits

Communication deficits in ASD include deficits in both non-verbal and verbal communication, and expressive and receptive language. Some individuals remain mute throughout life. Although present, language may not be functional—children may be able to rote learn shapes and numbers, but not follow one-step commands. Stereotyped and repetitive language, including echolalia ('parroting' of learned phrases or scripts) is common. Other signs include unusual vocal qualities, such as tone or speed, and pronoun reversal (e.g. saying 'you' instead of 'I').

Affected individuals frequently have a very concrete and literal understanding of language, such as not understanding idioms, lies or jokes, and miss social cues such as body language and tone of voice. Even relatively mildly affected children (and adults) may have difficulty initiating and sustaining two-way conversations.

Children with ASD tend not to play imaginatively (e.g. pushing the car along and saying 'brrm') and instead will engage in unusual repetitive play, such as lining up toys, or spinning the wheels of a car. They frequently show little interest in social play (e.g. peek-a-boo or pattycake) and their play is often object-focused (e.g. computer games) rather than people-focused.

Page 1008

The following red flags¹⁶ are absolute indications for referral for an autism-specific assessment:

Red flags for autism

- Lack of babbling, gesturing or pointing by 12 months
- No sharing of interest in objects or activities with another person
- No single words by 16 months, or no two-word (non-echoed) phrases by 24 months
- Any loss of language or social skills at any age

A GP-friendly screening tool for ASD is the Checklist for Autism in Toddlers (CHAT or M-CHAT (modified)—abbreviated version (see TABLE 87.2)).¹⁷ This can be administered at approximately 18 months of age and takes only a couple of minutes. Other screening tools include CARS-2, SACB and ADOS.

Table 87.2 Checklist for Autism in Toddlers (CHAT—abbreviated version)

Section A: Ask the parent	Section B: GP's observation
1 Does your child ever pretend, for example, to make a cup of tea using a toy cup and teapot, or pretend to do other things?	Get the child's attention, then give the child a miniature toy cup and teapot and say, 'Can you make a cup of tea?' Does the child pretend to pour out tea, drink it, etc.? (If you can elicit an example of pretending in some other game, score a YES for this item.)
2 Does your child ever use his/her index finger to point, to ask for something?	Get the child's attention, then point across the room at an interesting object and say 'Oh look! There's a (name of toy)! Watch the child's face. Does the child look across to see what you are pointing at? (To record a YES for this item, ensure the child has not simply looked at your hand, but has actually looked at the object at which you are pointing.) Say to the child, 'Where's the light?', or 'Show me the light'. Does the child point with his or her index finger at the light? (If the child does not understand 'light', repeat this with 'Where's the teddy?' or other unreachable object.) (To record a YES for this item, the child must have looked up at your face around the time of pointing.)

If a child fails all three items, referral is indicated, as the chances of *autism* are high. If a child fails only 1 or 2 items, still refer as the chances of *developmental delay* are high. However, diagnosis is by observation of a multidisciplinary team of health professionals.

Further assessment

If there are concerns that a child may have ASD, it is essential that the child is promptly referred to a general or developmental paediatrician, or to a developmental assessment unit, for an

autism-specific diagnostic assessment. Taking a ‘wait and see’ approach, or saying ‘come back in 6 months and we’ll reassess’, is not acceptable. Getting hearing checked or assessments from speech therapists, occupational therapists (OTs) or psychologists may also be done in this work-up phase. A recent diagnostic instrument for the older child is the RETEVAL-DR electroretinogram.

Management

Intensive early intervention for ASD, which is what guidelines¹⁸ recommend as gold standard and does improve long-term outcomes, involves intensive and often expensive behavioural/developmental therapies, and the earlier it commences, the better. However, this type of therapy may be beyond the organisational and financial capability of the family, so care should be taken in what is recommended. Parents should be directed to reliable information sources^{17,18} on these options, which they may find daunting. There is also a lot of misinformation on autism, particularly regarding complementary and alternative therapies, for which there is no evidence of efficacy.¹⁸ State-based autism associations can also help with advice. If the waiting times for diagnostic assessment are long (as is often the case), families should be referred to early intervention services while they wait.

Practice tip

The earlier diagnosis and initiation of early education and support, the better the outcome.

The role of the GP in management

A child being diagnosed with ASD can have a massive impact on the family. GPs should monitor how family members are coping, and provide a ‘medical home’ for reliable advice on management options. Children with autism also have particular vulnerability to certain medical issues, and the GP will be involved in the management of these. These include:

Page 1009

- minor traumas and injuries
- restricted diet (due to sensory issues or special diets used by some families)
- behavioural issues
- constipation (due to sensory issues causing voluntary faecal retention, or from medications used for co-diagnoses)
- dental issues (sensory issues making brushing difficult, or grinding)

When consulting children with autism, special tactics can be employed to help things run smoother. Alerting front desk staff so they are aware of potential behavioural issues, allowing easier access for families in stress (e.g. calling the patient from the car if behaviour in the waiting

room is problematic) and reassuring parents that challenging behaviour by the child is not an issue will help. The decreased eye contact and interaction means that the GP needs to work harder to engage these children, but it can be done, and parents will appreciate any effort made. Adjusting for sensory issues, for example, letting children hold and examine equipment before it is used, can also help.

Dyspraxia and apraxia

Dyspraxia (from the Greek, meaning ‘disorder of practising’) is a disorder manifested as difficulty of the planning, organising and carrying out of motor tasks. It can affect articulation and speech, perception and thought, though it is not associated with decreased intelligence. It can vary from difficulties with simple motor movements, such as waving goodbye or clapping, to more complex issues such as handwriting or riding a bike. It is more common in males. Another term that is used is developmental coordination disorder (DCD). Apraxia is an inability to perform these tasks. It is often classified as construction, dressing or gait apraxia/dyspraxia.

If there is an issue with motor skills being delayed (without associated social and communication delay beyond motor skills), then referral to physiotherapists, occupational therapists and speech therapists, depending on the type of motor issues involved, is advisable. A delay in fine and gross motor skills can become a barrier to socialisation (e.g. not being able to play or perform in team sports) or academic achievement (e.g. writing) and can have flow-on effects on self-esteem and mood.

Specific learning disorders

A specific learning disorder (SLD) is characterised by persistent difficulties in reading, writing, arithmetic and mathematical reasoning skills during school years.¹³ The difficulties must result in abilities well below what is expected in culturally and linguistically appropriate testing. The learning issues should not be explained by other developmental, neurological, sensory (such as vision or hearing problems) or motor disorders and must significantly interfere with academic achievement, occupational performance or activities of daily living. Dyslexia and dyscalculia are examples of SLDs.

Dyslexia

Dyslexia (from the Greek, meaning ‘disorder of words’) is an SLD of primary reading and spelling, while still having otherwise normal learning abilities. The condition was originally called ‘word blindness’. Also referred to as developmental reading disorder, it is not a problem of comprehension, but of the speed and accuracy of decoding (converting letters and words to sounds) and spelling (converting sounds to their correct written symbols). It can run in families. Individuals with dyslexia can have different or compensatory learning styles, but may also be helped with input from an occupational therapist or speech therapist and a dyslexia clinic. Treatment is basically educational management, especially in word recognition.

Attention deficit hyperactivity disorder

Attention deficit hyperactivity disorder (ADHD) is a disorder affecting attention, hyperactivity and impulse control.¹⁹ It can also affect children's learning, social skills and family functioning. It is very common, affecting 3–5% of Australian children. It is much more common in boys. There are three types: predominantly hyperactive/impulsive; predominantly inattentive; and mixed, with the latter being the most common. To meet DSM-5 criteria, symptoms must be present before the age of 12, and often persist into adulthood.

Criteria¹³

Hyperactive/impulsive—6 out of 9 of the following:

- often fidgets with hands or feet or squirms in a seat
- often leaves seat in classroom or in other situations in which remaining seated is expected
- often runs about or climbs excessively during inappropriate situations (in adolescents or adults, may be limited to subjective feelings of restlessness)
- often has difficulty playing or engaging in leisure activities quietly
- is often on the go
- often talks excessively
- often blurts out answers before questions have been completed
- often has difficulty awaiting turn
- often interrupts or intrudes on others (e.g. butts into conversations or games)

Page 1010

Inattentive—6 out of 9 of the following:

- often fails to pay close attention to detail or makes careless mistakes in schoolwork, work or other activities
- often has difficulty sustaining attention in tasks or play activities
- often does not seem to listen when spoken to directly
- often does not follow through on instructions and fails to finish schoolwork, chores or duties in the workplace (not due to oppositional behaviour or failure to understand instructions)
- often has difficulty organising tasks and activities
- often avoids, dislikes or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
- often loses things necessary for tasks or activities

- is often easily distracted by extraneous stimuli
- is often forgetful in daily activities

Mixed—meets both hyperactive/impulsive and inattentive criteria.

Diagnosis

While most young children have short attention spans and are impulsive, children who meet the above criteria will stand out, and the symptoms should be displayed in more than one environment (e.g. home and school). The issue is usually raised by the parents to the GP, and a query may have been raised by an early childhood worker or teacher. Symptoms often become apparent when the child starts school, or as academic expectations start to rise around age 7–8 years. The diagnosis should be made only by appropriately experienced psychologists, paediatricians or child psychiatrists, preferably in a multidisciplinary clinic, and will require information gathered from parents, teachers or other important adults in the child's life.¹⁹ An accurate diagnosis needs to be made before treatment is initiated.

Treatment

Children with ADHD often find their condition distressing and demoralising, and need support and understanding from family or carers and teachers. Behavioural strategies (see TABLE 87.3) should be offered to all children, even those who do not strictly meet the diagnostic criteria but have these types of behaviours. Individual or family counselling should be considered.

Table 87.3 Behavioural strategies for ADHD²⁰

Verbal instructions	Keep brief and clear State name or tap on shoulder before giving instructions Keep eye contact
Written work	Use highlighters Use *asterisks*, UPPER CASE, or bold layout techniques
Other learning strategies	Use one-on-one teaching where possible Use class 'buddies' to help Use activities with 'hands-on' involvement Most important learning is done when concentrating best (usually morning) Use checklists Sit front and centre in class, not near friends Homework done in clutter-free environment (no distractions, no unnecessary screens nearby or

	available)
	Organised bag, organised diary, organised desk, organised locker
	Regular scheduled homework time
Reduce overactivity/fatigue	Regular rest breaks Physically active breaks (e.g. delivering notes, taking lunch orders)
Keeping structure	Fixed routine Activities predictable (home and school) Display schedules and rules (home and school, in multiple places) Tell about changes to activities/schedules/rules in advance Use countdowns (e.g. 5-minute warnings) Keep choices to a minimum
Self-esteem	Set up for success (i.e. achievable goals) Acknowledge achievements (by written and verbal means) and regularly review achievements Acknowledge effort Ensure participation in classroom and positive feedback for effort Address any specific learning difficulties promptly
Social skills	Expose to small groups rather than large Reward appropriate social behaviour (e.g. sharing) Teach problem-solving skills when provoked Encourage 'supervised socialisation' (e.g. sport, Scouts/Girl Guides) Regularly discuss consequences of his or her actions Use visual prompts to think before acting (e.g. STOP, THINK, DO)
Communication between home and school	Have formal communication portal (e.g. diary, online parent forum) and use regularly Communicate positive and negative behaviours

Medication^{20,21}

Consider drug treatment if symptoms are causing significant functional impairment. Stimulants are the single most effective treatment for ADHD, and became the standard treatment in the

1980s. Controversy remains in the media, and the public are often wary, with concerns about addiction and other safety issues often raised by parents, but these fears are unfounded. While there are potential side effects, these are mostly not serious. Stimulants are often useful, and 1–2% of Australian children are put on them at some stage. Parents (and children) will frequently report a positive experience, reflecting that their previous concerns were unfounded. Eight out of 10 children will find a significant improvement in their concentration, impulse control and overactivity.

Medications (4 years and older: as a rule, avoid stimulants under 4 years) include:

- methylphenidate (Ritalin, short acting, effect duration 3–4 hours); therapy should be started with this immediate-acting preparation
- slow-release methylphenidate (Ritalin LA 6–8 hours, Concerta 10 hours)
- dexamphetamine
- atomoxetine (Strattera)
- clonidine

Combine medication with psychosocial interventions. Review regularly.

Issues related to medication²²

- Can normally be prescribed only by paediatricians, child psychiatrists or neurologists
- Mechanism of action—increases noradrenalin and/or dopamine at the synapse
- Common side effects:
 - decreased appetite
 - poor weight gain
- Uncommon side effects:
 - headache/dizziness
 - stomach aches
 - insomnia
 - irritable, withdrawn or highly emotional
- Slight growth stunting (rarely a problem clinically)
- Slight increase in heart rate/blood pressure (not an issue unless underlying cardiac issues)

Fish oil

- Sometimes suggested for ADHD, but research is unclear about existence of and/or extent of benefit
- Contains high amounts of omega-3 fatty acids
- May help improve symptoms in some children

Oppositional defiant disorder

Oppositional defiant disorder (ODD) is defined as an ongoing pattern of anger-guided disobedience and hostile and defiant behaviour towards authority figures that goes beyond the bounds of normal childhood behavior.¹³ In the DSM-5, symptoms are grouped into three types: angry/irritable mood, argumentative/defiant behaviour and vindictiveness, reflecting the disorder having emotional and behavioural symptomatology. While such behaviours are common in early childhood, ODD should be considered when they are consistently displayed, and are impacting the family and the child's social and educational functioning.

ODD is common usually at 2–4 years in school aged children (with an incidence estimated at 5–10%)²³ and often undiagnosed, and has a large incidence of co-diagnosis with ADHD, with many of the symptoms crossing over between the two conditions. The onset is usually gradual, becoming evident before the age of 8. Children with ODD have a higher incidence of child abuse, school dropout and long-term mental health problems. ODD is caused by a combination of difficult temperament traits (see earlier in this chapter) and environmental factors, such as poor attachment, parenting styles or family conflict/mental health issues in parents.

Page 1012

Management²¹

For parents:

- improve positive parenting skills
- enhance skills in problem-solving, conflict resolution and communication
- look for and praise or reward ‘good behaviour’. Praise (or chastise) behaviour rather than the individual

For the child:

- develop communication, problem-solving and anger management skills

For the family:

- counselling and support regarding relationships and home environment

In the classroom:

- teacher or school counsellor to provide social skills/conflict resolution skills training

There is strong evidence that psychological strategies and interventions reduce the impact of ODD on the child and family, and the earlier, the better. They can also prevent progression to more serious disorders¹³ such as:

- *Disruptive mood dysregulation disorder (DMDD)*—characterised by severe and recurrent temper outbursts greatly out of proportion in intensity or duration to the situation >3/week for >12 months
- *Conduct disorder*—where there is behaviour that violates the rights of others or societal norms, such as aggression directed towards people, animals or property, often with a callous manner and lack of empathy

Tic disorders²⁴

Tics are sudden, rapid, recurrent involuntary vocalisations or movements usually appearing in bouts that wax and wane in intensity, frequency and type of tic. They include behaviours such as grunting, blinking, shrugging shoulders, humming, yelling out a word or phrase or clearing the throat. Tic disorders are classified into:¹³

- *Tourette syndrome*—motor and vocal tics for >1 year
- *persistent motor or vocal tic disorder*—motor or vocal tics for >1 year
- *provisional tic disorder*—motor and/or vocal tics for <1 year

Characteristics of tic disorders:

- average age of onset 5–6 years
- average of 5 years from onset to diagnosis
- associated with psychosocial distress and poor functioning
- strong genetic component (first-degree relatives have 10–100-fold increased risk of tics)
- associated with ADHD and OCD
- can be simple (one muscle group) or complex
- examples of complex tics (which are different from compulsions in OCD in that they are not cognitive, preplanned or anxiety reducing) include:
copropraxia (making obscene gestures)

echopraxia (copying others)
wounding oneself
echolalia (repeating others)
palilalia (repeating oneself)
coprolalia (uttering obscenities)

- unknown aetiology
- 80% decrease in adolescence and adulthood to no longer be an impairment
- 20% do not decrease, and may increase
- habit reversal training treatment is based on psychosocial support and treating comorbidities, e.g. ADHD

Clonidine for those >5 years may have a place.

Patient education resources

Hand-out sheets from *Murtagh's Patient Education* 8th edition:

- Attention deficit hyperactivity disorder
- Autism
- Autism: Asperger's syndrome
- Bullying of children
- Stuttering
- Tantrums
- Tourette disorder

Resources

National Disability Insurance Scheme. Ph: 1800 800 110; www.ndis.gov.au/.

Amaze (Victoria). Ph: 1300 308 699; www.amaze.org.au.

Autism Spectrum of Australia (Aspect). Ph: 1800 277 328; www.autismspectrum.org.au.

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88 Child abuse

It is customary, but I think it is a mistake, to speak of happy childhood. Children, however, are often overanxious and acutely sensitive. Man ought to be man and master of his fate; but children are at the mercy of those around them.

SIR JOHN LUBBOCK, BARON AVEBURY (1834–1913)

Public and medical awareness of child abuse has markedly increased in recent decades, and the possibility of child abuse and neglect has to be kept in mind by the family doctor. It may surface in families from all walks of life and where a good trustful relationship exists between parents or children and doctor.

While reporting rates continue to increase (at 34 per 1000 Australian children in 2012¹), the true incidence of child abuse is much greater and also difficult to assess.

The various types of abuse¹ (and their estimated incidence²) are shown in FIGURE 88.1 .

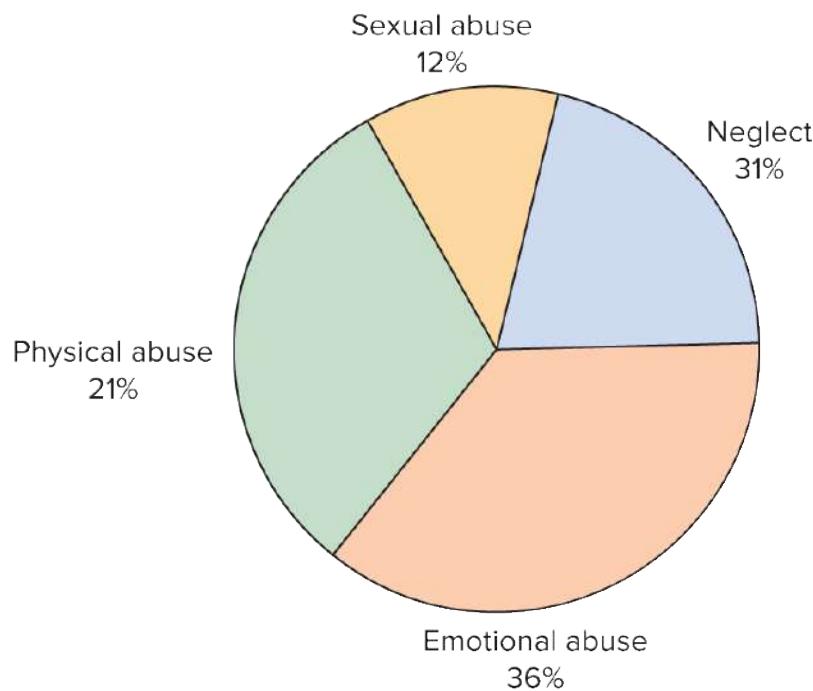


FIGURE 88.1 Percentage breakdown of primary substantiated harm types in Australia in 2011–2012³

Source: Based on Australian Institute of Health and Welfare material.

Facts on child abuse^{1,3,4}

- The younger the child, the greater the risk.
- The more disabled, the more vulnerable.
- Indigenous children are 8 times more likely to be the subject of substantiated abuse than non-Aboriginal children.
- The number of children who are deemed at risk and placed in out-of-home care (OOHC) has increased in recent years, with the rate in 2012 at 7.7 per 1000 Australian children nationally. Roughly half of these are in foster care, and half in relative/kinship care, with a small (5%) proportion in residential (paid workers) care.

Definitions⁵

Child abuse and neglect are collectively referred to as child maltreatment. This refers to any non-accidental behaviour by parents or other adults or adolescents that is outside the norms of conduct and entails a substantial risk of causing physical or emotional harm to a child or young person. Such behaviours may be intentional or unintentional, and can be through omission (i.e. neglect) or commission (i.e. abuse).

Deciding whether behaviour constitutes maltreatment can depend on:

- cultural issues (e.g. corporal punishment)
- developmental age of the child
- the severity, frequency and duration of the behaviour
- the behaviour itself, or the result of the behaviour (a definition issue)

Physical abuse (non-accidental injury)

Physical abuse is defined as the non-accidental use of physical force against a child that results in harm to the child. It includes behaviours such as hitting, shoving, slapping, shaking, throwing, punching, kicking, biting, burning, strangling and poisoning. Munchausen syndrome by proxy (see **OTHER TYPES OF CHILD MALTREATMENT**) is considered physical abuse.

Neglect

Neglect is defined as the failure by a parent/caregiver to provide a child (when they are in a position to do so) with the conditions that are culturally accepted as being essential for the child's physical and emotional development and well-being.

Emotional maltreatment

This is where a parent or caregiver conducts inappropriate verbal or symbolic acts towards a child, and/or there is a pattern or failure over time to provide a child with adequate non-physical nurturing and emotional availability. This can take the form of rejecting, isolating, terrorising, ignoring or corrupting, and can damage the child's self-esteem and social functioning.

Page 1015

Sexual abuse

Sexually abusive behaviour refers to any sexual activity between an adult and a child below the age of consent; non-consensual sexual activity between minors (e.g. a 14-year-old and a 10-year-old); or any sexual activity between a child under 18 years of age and a person in a position of power or authority (e.g. parent, teacher).² It is sometimes difficult to determine whether a behaviour constitutes sexual abuse, depending on variables such as age, development and cultural norms.

Behaviours can include fondling of genitals; masturbation; oral sex; vaginal or anal penetration by a penis, finger or any other object; fondling of breasts; voyeurism; exhibitionism; or exposure to pornography. In contrast to other forms of maltreatment, the labelling of an act as sexual abuse also depends on the relationship between perpetrator and victim (e.g. age difference, being related).

Other types of child maltreatment

- Munchausen syndrome by proxy—this is the term used when a parent or guardian creates an illness in a child so that the perpetrator can develop or maintain a relationship with medical staff or transfer his or her responsibilities. A ‘devoted parent’ may continually present a child for medical treatment yet deny the origin of the problem—namely, the parent. Often, the mother is the abuser. The abuse may be of physical or medical neglect. The masquerade may be simple or very sophisticated. Children may be indirectly abused by the lengthy or invasive investigations. Be cautious where there has been unexplained illness or death of a sibling.
- Incest—defined as intercourse between biological family members.
- Fetal abuse behaviour, such as smoking, drinking or illicit drug use, during pregnancy that endangers a fetus.
- Bullying, or peer abuse (see CHAPTER 87)
- Sibling abuse
- Witnessing community violence

- Institutional abuse
- Organised exploitation (e.g. child sex rings, child prostitution)
- State-sanctioned abuse (e.g. female genital mutilation in parts of Africa, the Stolen Generations in Australia)

Female genital mutilation

This comprises all procedures involving partial or total removal of the female external genitalia or other injuries to the female genital organs, whether for cultural or other non-therapeutic reasons (WHO definition).

It is also referred to as female circumcision.

Abuse: who and why?

The real cause seems to be a combination of several interrelated factors: personal, familial, social/cultural and societal stress. Abused children exist at all levels of society, although the majority of abused children who come to the attention of authorities are from families where there is high mobility, lack of education, loneliness, poverty, unemployment, inadequate housing and social isolation. Sexual abuse, occurring alone, does not follow these patterns and can occur under any socioeconomic circumstance.

Both men and women physically abuse their children. While women are the parents most responsible in cases of neglect and emotional abuse (probably because of a dominant role in childcare, social and economic disadvantage and being the only one responsible for the care of children in a single parent arrangement), men are more likely to abuse their own or other's children sexually.

The child can be abused at any age (even adolescents can be victims of abuse and neglect). It is important to keep this in mind—*it does happen*.

Underdiagnosing and under-reporting

Although the medical profession remains the foremost focus of child abuse reporting (they are the most likely to encounter injured children and are the most qualified to diagnose abuse), they still contribute only a small percentage of the total reporting to central registries.⁶ This could be because there is underdiagnosis of the problem, but it could also be because of under-reporting.

Reasons given⁶ as to why GPs don't report more cases of child abuse include:

- concern about drain on time and finances
- breaching doctor–patient confidentiality

- lack of undergraduate education on the topic
- risk of alienation and stigmatisation to the family
- the feeling by some GPs that they can work on the problem with the family without Page 1016 outside intervention
- a breakdown of the doctor–patient relationship
- uncertainty about *what* to do
- personal and legal risks (e.g. fear of court, libel suits, irate parents), especially if they ‘get it wrong’
- reluctance until absolutely certain of diagnosis

It will always be difficult to take the first step but it is important and it can help, no matter how small that first step is.

Interviewing parents or guardians

A skilled, sensitive, diplomatic interview is fundamental to management. Guidelines include:

- a relaxed, non-judgmental approach
- sensitivity to all people involved
- appropriate questions—open-ended, not leading
- using verbatim quotes from the child where possible and waiting silently for a reaction
- recording notes carefully

Physical abuse^{7,8}

Physical abuse should be suspected, especially in a child aged under 2 years, if certain physical or behavioural indicators in either the child or the parents are present. Inflammation, bruising, abrasions and lacerations are the most common presentations of the physically abused child, with equal incidence in boys and girls. As well as the consequences of the physical injuries, victims of physical abuse are more likely to develop a variety of behavioural and functional problems including conduct disorders, physically aggressive behaviour (e.g. become bullies), poor academic performance and decreased cognitive functioning. Children suffering traumatic brain injuries from physical abuse (e.g. hitting head or shaking) are at risk of disabilities including ADHD, seizures, spasticity, blindness, paralysis and developmental delay.

Parents and carers can tend to misinterpret normal child behaviours (e.g. crying and tantrums) and respond to them inappropriately. A vigilant GP can actually help prevent abuse by providing

‘anticipatory guidance’ to parents on normal child behaviour, educating them on appropriate responses to behaviours and offering themselves as a resource to which parents can turn if the child’s behaviour becomes unmanageable or overwhelming.

Risk factors:

- maternal smoking
- >2 siblings
- low infant birth weight
- unmarried mother
- poverty
- significant life stressors in parents
- caregiver role conflicts
- living in house with unrelated adult (50 times more likely to die from inflicted injuries)

Physical abuse indicators

Accidental injuries such as bruises or fractures are common in children, but tend to follow certain patterns. A GP should be aware of cases where the injury or injuries suggest a non-accidental cause is possible, when the history doesn’t match up with the injury or developmental age of the child, or when the behaviour of the parent and/or child is suggestive of non-accidental injury.

Bruises

Bruises are commonly found on the front of the body over bony prominences (e.g. forehead in toddlers, knees and shins in older children). Suspicious bruises include:

- finger-shaped bruises (e.g. thumb grip marks)
- multiple bruises/welts of different ages (the colour of a bruise doesn’t reliably indicate when it occurred)
- bruises in premobile children
- bruises away from bony prominences—face, scalp, neck, buttocks (see FIG. 88.2), genitalia, earlobes, behind the ears



FIGURE 88.2 Physical abuse: imprint of a boot on the buttock of a child

- abdominal bruising (consider damage to internal organs, including organ rupture)
- multiple bruises of uniform shape
- multiple bruises in clusters

[Page 1017](#)

Scalds and burns

Beware of:

- a scald of uniform depth, sparing flexures, uniform burn line demarcation, bilateral and no splash marks (suggests forced immersion)
- unusual position (e.g. back of hand, genitals)
- cigarette butt-type burns

Fractures

Look out for:

- metaphyseal fractures of the proximal humerus and proximal or distal tibia are highly suggestive

- other fractures commonly non-accidental: rib (especially posterior), clavicle, vertebral body, sternum, scapula
- multiple, especially bilateral
- complex or multiple skull fractures

Shaking and brain injury

Shaking a baby is a critically dangerous thing to do, a danger often underestimated by perpetrators. The relatively large head size and weak neck muscles can easily lead to serious injury. Suspicion of traumatic brain injury should be raised when there is:

- unexplained encephalopathy
- unexplained vomiting, irritability and apnoeas
- altered states of consciousness
- neurological symptoms and signs
- torn frenulum or retinal damage

History

- Unexplained injury
- Different explanations offered
- Vague or changing history
- Injury unlikely to have occurred in manner stated
- Unreasonable delays between injury and presentation
- Presentation inconsistent with child's developmental capabilities
- Evidence of neglect (clues include failure to thrive, dental caries, severe nappy rash, poor wound care)

Remember Munchausen syndrome by proxy.

Behavioural indicators

- Wariness of adult contacts
- Inappropriate clothing (e.g. long sleeves on a hot day)

- Apprehension when other children cry or shout
- Behavioural extremes
- Fear of parents
- Afraid to go home
- Child reports injury by parents or gives inappropriate explanation of injury
- Excessive compliance
- Extreme wariness
- Attaches too readily to strangers

Management

If suspected or disclosed, a thorough assessment, with detailed documentation (including measurement and photography of bruises/other injuries) of findings should be undertaken. A detailed history and thorough examination of all areas of the body is required. In a general practice setting, getting help with this difficult situation would often be useful. Discussing (immediately) with colleagues or child protection authorities is advisable, with the safety of the child (and other cohabiting children) being ensured at all stages. Verbatim comments should be written down and, if possible, information gathered from other sources or witnesses.

The family doctor should diplomatically confront the parents and/or carers and always act in the best interests of the child. Offer to help the family. An approach would be to say, ‘I am very concerned about your child’s injuries as they don’t add up—these injuries are not usually caused by what I’m told has been the cause. I will therefore seek assistance—it is my legal obligation. My duty is to help you and, especially, your child.’

Acquiring essential help

- Psychosocial assessment of child and family: involves social worker and multidisciplinary assessment
- Admission to hospital: for moderate and severe injuries
- Investigations done in conjunction with specialists
- Case conference (where appropriate)
- Mandatory reporting: notify child protection authorities

⌚ Emotional abuse

Physical indicators

- There are few physical indicators, but emotional abuse can cause delay in physical, emotional and mental development.

Behavioural indicators

- Extremely low self-esteem
- Compliant, passive, withdrawn, tearful and/or apathetic behaviour
- Aggressive or demanding behaviour
- Anxiety
- Serious difficulties with peers and/or adult relations
- Delayed or distorted speech
- Regressive behaviour (e.g. soiling)

Page 1018

₦ Neglect

Poor parenting or neglect occurs in at least 5% of children under 5 years.⁹

Physical indicators

- Consistent hunger
- Failure to thrive, or malnutrition
- Poor hygiene
- Inappropriate clothing
- Consistent lack of supervision
- Unattended physical problems or medical needs
- Abandonment
- Dangerous health or dietary practices

Behavioural indicators

- Stealing food
- Extending stays at school

- Consistent fatigue, listlessness or falling asleep in class
- Alcohol or drug abuse
- Child states there is no caregiver
- Aggressive or inappropriate behaviour
- Isolation from peer group

Sexual abuse^{5,10}

- Only 6% of child sexual abuse is by strangers. Most are known by parents and child; that is, familiar people in familiar environments, especially within the family.
- A child may disclose up to 12 times before they are believed (listen for hints).
- Most (but not all) of the adults who sexually abuse are men.
- Boys are assaulted less commonly than girls, but are less likely to disclose if they are assaulted.
- Adolescents are perpetrators in at least 20% of cases.
- Child sexual abuse is usually about power rather than sexual gratification.

Sexual abuse presents in three main ways:

- Disclosure: allegations by the child or an adult
- Injuries to the genitalia or anus
- Suspicious presentations, especially:
 - genital infection (see FIG. 88.3)
 - recurrent urinary infection
 - unexplained behavioural changes/psychological disorders

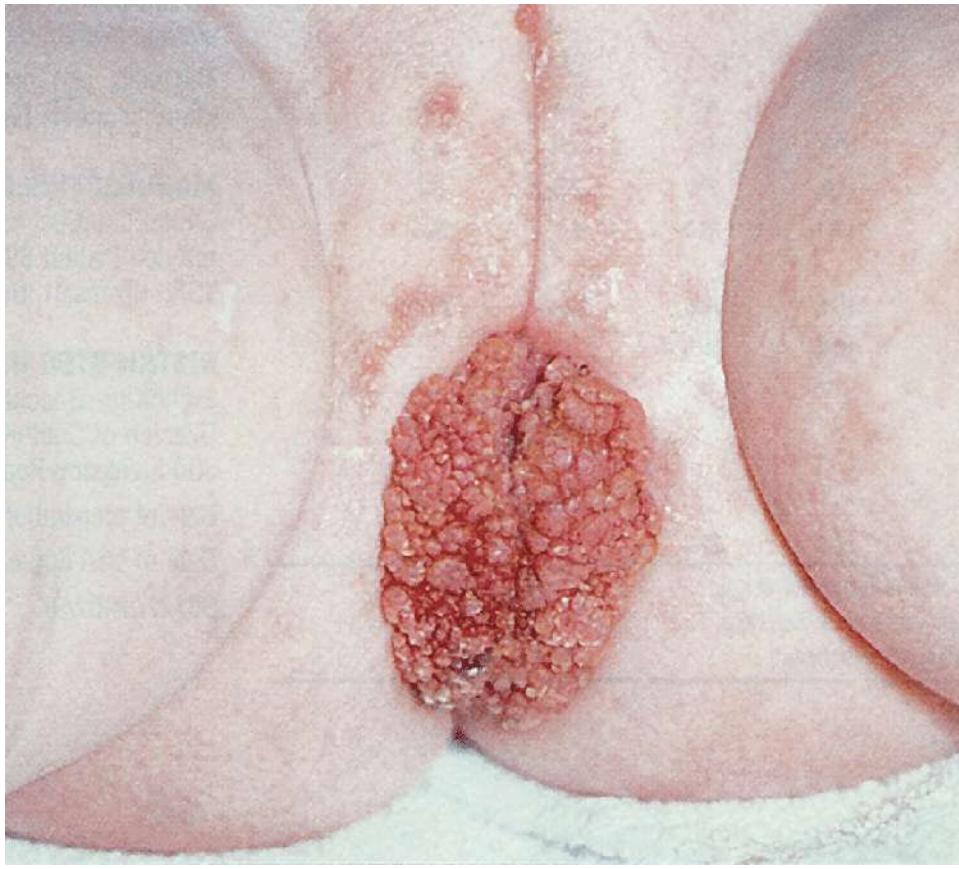


FIGURE 88.3 Genital human papillomavirus infection: a sign of sexual abuse in a child

Clinical indicators that may suggest child sexual abuse are presented in TABLE 88.1 .

Table 88.1 Clinical indicators that may suggest child sexual abuse

Child disclosing abuse (rarely invented, and the majority of presentations)

Parent or adult disclosing abuse allegation

Vaginal discharge

Sexually transmitted infections (acquired in 5% of sexually abused children)

Urinary tract infection

Unexplained genital trauma

Unexplained perianal trauma

Overt sexual play

Pregnancy in an adolescent
Deterioration in school work
Family disruption
Indiscriminate attachment

Abnormal sexualised behaviour (many abused children do not do this)

Poor self-esteem

Psychological disorders:

- behaviour disturbances
- regression in behaviour
- sleep disturbances
- abnormal fears/reactions to specific places or persons
- psychosomatic symptoms
- anxiety
- lack of trust
- overcompliance
- aggressive behaviour

Depression:

- self-destructive behaviour
- substance abuse
- suicidal tendencies

Non-specific physical problems:

- abdominal pain
- enuresis (especially secondary)
- encopresis

Examination (abnormal findings uncommon)

Genital trauma

Perforated hymen/lax vagina (may be normal variant)

Perianal trauma

Vaginal discharge

Look for semen and STIs

Clinical approach

Ideally, the child should be assessed by experienced medical officers at the regional sexual assault service, so the temptation for the inexperienced GP to have a quick look should be

resisted. For the practitioner having to assess the problem, a complete medical and social history, including a behavioural history, should be obtained prior to examination.

The child's history must be obtained carefully, honestly, patiently and objectively, without leading the child. The history is more important than the physical findings as there are no abnormal physical findings in many confessed cases.

Examination

A parent or legal guardian must give informed consent before the child is physically examined. It is recommended that the physical examination of any child suspected of being sexually abused is performed according to the VFPMS proforma (see: www.rch.org.au/vfpms) and ideally by a paediatrician or forensic physician experienced in the area of sexual abuse.¹¹

Page 1019

Point of caution:

Perianal erythema due to streptococcal infection (GABHS) (see FIG. 88.4) or threadworms and non-specific vulvovaginitis (see CHAPTER 99) can be misinterpreted as sexual abuse.



FIGURE 88.4 Perianal dermatitis with erythema caused by group A beta-haemolytic streptococcal infection

The crisis situation

It is important to realise that the child will be in *crisis*. Children are trapped into the secrecy of sexual abuse, often by a trusted adult, through powerful threats of the consequences of disclosure. They are given the great responsibility of keeping the secret and holding the family together or disclosing the secret and disrupting the family. A crisis occurs when these threats become reality.

Management

It is important to act responsibly in the best interests of the child. When we encounter real or suspected child abuse, immediate action is necessary. The child needs an advocate to act on its behalf and our intervention actions may have to override our relationship with the family.

Some golden rules are:

- Never attempt to solve the problem alone.
- Do not attempt confrontation and counselling in isolation (unless under exceptional circumstances).
- Seek advice from experts (only a telephone call away).
- Avoid telling the alleged perpetrator what the child has said.
- Refer to a child sexual assault centre or Protective Services Unit where an experienced team can take the serious responsibility for the problem.

Page 1020

Supporting the child

- Acknowledge the child's fear and perhaps guilt.
- Assure the child it is not his or her fault.
- Tell the child you will help.
- Obtain the child's trust.
- Tell the child it has happened to other children and you have helped them.

Prevention of child abuse

Prevention of abuse, particularly self-perpetuating abuse, can be helped by creating awareness through media attention, programs in schools and the community in general, and increased knowledge and surveillance by all professionals involved with children. Clear guidelines on reporting and the accessibility of child abuse clinics are important for the strategies to be effective. Teaching children how to protect themselves offers the greatest potential for

prevention.⁴

Counselling the secondary victims

Non-offending parents, who are the secondary victims of the abused child, will require help and guidance from their family doctor on how to manage the crisis at home.¹⁰ Parents should be advised to reassure the child of support and safety and to maintain usual routines. The child should be allowed to set the pace, without overattention and pressure from the parents. Siblings should be informed that something has happened but that the child is safe. Ensure that the child will inform if the perpetrator attempts further abuse. Parents need substantial support, including alleviation of any guilt.

An unhappy consequence of the crisis is the problem of broken relationships, which may involve the separation of the child from the family. At least one hitherto unsuspecting parent will be devastated if a parent is responsible for the abuse. The sexually abused child needs to be living with a protective parent or carer, with the abusive parent living separately.

Support for doctors

The attending doctor also requires support, and sharing the problem with colleagues, mentors and family is recommended. Some helpful guidelines are as follows.

- Carefully record all examination findings (take copious notes).
- Always keep to the facts and be objective.
- Do not become emotionally involved.
- Work with (not for) the authorities.
- Avoid making inappropriate judgments to the authorities (e.g. do not state ‘incest was committed’, but rather say ‘there is evidence (or no evidence) to support penetration of ...’).
- If called to court, be well prepared; rehearse presentation; be authoritative and keep calm without allowing yourself to be upset by personal affronts.

The main difficulty in diagnosing child abuse is denial that it could be possible.

Adult survivors of child abuse⁹

All forms of child abuse can result in PTSD (from a single incident) or complex trauma (cumulative). Because of the high rate of child abuse, much of it unreported and hidden away for many years, adult survivors of child abuse are likely to be presenting to GPs on a frequent basis, often unknowingly.

The effect is more likely to be noticed in adulthood. We may encounter the sequelae of the issue, for the first time, in women in their early 30s and men in their late 60s.¹²

Childhood trauma, especially in the first few years during formative brain development, can lead to lifelong problems with dealing with stress. Unresolved trauma restricts the capacity to respond flexibly to life challenges. Patients may present with diverse and puzzling symptoms, including medically unexplained symptoms. Substance abuse, mood disorders and other psychological impairments may result.

A GP should be aware of this possibility, and screen for trauma from child abuse in patients presenting with such issues. Take particular care with physical examination, particularly in sensitive areas or involving internal examination, and realise that many patients on whom we are doing Pap tests or rectal examinations may be survivors of child abuse. Procedures can also cause pain, and may re-traumatise such a patient. Practising in a ‘trauma informed’ manner involves paying attention to the way we perform a service or procedure, as well as what it comprises, and being sensitive to the context of what may have come before. Trauma from previous child abuse can often be helped by appropriately targeted counselling and psychological therapies.

Basic rules

- Suspect child abuse.
- Recognise child abuse.
- Consult the child protection authorities.

Page 1021

Mandatory reporting

In most states of Australia and in many areas throughout the world it is mandatory to notify the relevant statutory authorities about suspected child abuse. All family doctors should become familiar with the appropriate local legislation.

Practice tips and guidelines

- A child’s statement alleging abuse should be accepted as true until proved otherwise.
- Children rarely lie about sexual abuse.
- False allegations, however, are a sign of family disharmony and an indication that

the child may need help.

- Do not insist that the child has ‘got it wrong’, even if you find the actions by the alleged perpetrator unbelievable.
- Do not procrastinate—move swiftly to solve the problem.
- The genitalia are normal in the majority of sexually abused children.
- Be supportive to the child by listening, believing, being kind and caring.

When to refer

Unless there are exceptional circumstances, referral to an appropriate child abuse centre, where an expert team is available, is recommended. If doubtful, relatively urgent referral to a paediatrician is an alternative. There are also the following support services:

- National Child Abuse Helpline. Ph: 1800 99 10 99, email: helpline@childwise.org.au
- White Ribbon Australia: www.whiteribbon.org.au
- 1800RESPECT. Ph: 1800 737 732

Resources

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89 Emergencies in children

We can say with some assurance that, although children may be the victims of fate, they will not be the victims of our neglect.

JOHN F KENNEDY (1917–1963)

Important serious emergencies in children include:

- trauma, especially head injuries and intra-abdominal injuries
- painful conditions
- swallowed foreign bodies (FB)
- respiratory problems:
 - bronchial asthma
 - epiglottitis
 - croup
 - inhaled FB
 - acute bronchiolitis
- severe gastroenteritis
- septicaemia (e.g. meningococcal septicaemia)
- myocarditis
- immersion
- poisoning
- bites and stings

- seizures
- febrile convulsions
- sudden infant death syndrome (SIDS) and apparent life-threatening episode (ALTE)
- child abuse:
 - emotional
 - physical
 - sexual
 - neglect
 - potential
- psychogenic disturbances
- anxiety/hyperventilation
- suicide/parasuicide

Survey by age group

The author's study analysed emergencies into three groups:¹ preschool (0–5 years), primary school (6–12), adolescence (13–17).

The commonest emergency calls in the 0–5 years group were poisoning, accidents and violence, dyspnoea, fever/rigors, convulsions, abdominal pain, earache, vomiting.

In the 6–12 years age group: accidents and violence, dyspnoea, abdominal pain, vomiting, acute allergy, bites and stings, earache.

In the 13–17 years age group: accidents and violence, abdominal pain, psychogenic disorders, acute allergy, bites and stings, epistaxis.

The signs and symptoms of a serious illness

Babies who are febrile, drowsy and pale are at very high risk and require hospital admission.

The busy GP will see many sick children in a day's work, especially in the winter months with the epidemic of URTIs. It is vital to be able to recognise the very sick child who requires special

attention, including admission to hospital. It is unlikely that the commonplace robust, lustily crying, hot, red-faced child is seriously ill but the pale, quiet, whimpering child spells danger. These rules are particularly helpful in the assessment of babies under six months of age.^{2,3} The presence of a fever in itself is not necessarily an indication of serious illness but rather that the baby has an infection.²

The features of a very sick infant include:

- Inactive, lying quietly, uninterested
- Increased respiratory rate
- Increased work of breathing
- Noisy breathing:
 - chest wall or sternal retraction
 - wheezes, grunting, stridor
- Tachycardia
- Sunken eyes
- Cold, pale skin
- Cold extremities
- Drowsiness
- Poor perfusion (reduced capillary refill time)

A Melbourne study⁴ of the sensitivity of clinical signs in detecting serious illness in infants identified five key signs or markers:

Page 1023

Marker	Risk to baby
Drowsiness	58%
Pallor	49%
Chest wall retraction	41%
Temperature >38.9°C or <36.4°C	42%
Lump >2 cm	42%

If sepsis suspected, investigate with:

- blood culture
- FBE/ESR/CRP
- lumbar puncture
- urine culture
- chest X-ray

Serious infectious illnesses to consider include:

- *Haemophilus influenzae* type B (Hib) infection:

acute epiglottitis

meningitis

(now uncommon since Hib immunisation)

- acute bacterial meningitis

- septicaemia:

meningococcaemia

toxic shock syndrome

other bacterial sepsis

- acute viral encephalitis

- acute myocarditis

- asthma/bronchitis/bronchiolitis

- pneumonia

- intussusception/bowel obstruction/appendicitis

- severe gastroenteritis

Strategic approach⁵

It is useful to have a systematic mnemonic for appraisal of the sick child. One general pattern (ABCDEFG) for the primary survey is:

- Airway
- Breathing
- Circulation
- Disability (neurological assessment)
- Exposure
- Fluids: in and out
- Glucose

Another is the ABCD assessment (see below).
Blood glucose should not be overlooked:

- normal random range
 - children 3.5–5.5 mmol/L
 - neonates 2.9–7 mmol/L
- hyperglycaemia >12 mmol/L
- hypoglycaemia <2.5 mmol/L

Two main groups of signs are good indicators of serious illness.²

Group 1: common features with reasonable risk and indicator of toxicity

Here a useful mnemonic is ABCD:

A = poor Arousal, Alertness and Activity

B = Breathing difficulty

C = poor Circulation (persistent pallor, cold legs to knees)

D = Decreased fluid intake and/or urine output

Note: The more signs present, the greater the risk.

Children with any of these signs must be seen early, investigated and treated as a priority.

Group 2: uncommon features with high risk requiring urgent referral

- Respiratory: apnoea, central cyanosis, respiratory grunt