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Impetigo

Impetigo is the most common skin infection of childhood and is associated with warm, humid weather, crowded living conditions and close physical contact. Insect bites, cutaneous trauma to uncovered limbs, eczema, scabies and other skin conditions are important risk factors. Causative pathogens are *Staphylococcus aureus* (*S.aureus*) and Group A B-haemolytic *Streptococcus* (GABHS).

Clinical Features

The typical lesions of impetigo (Figure 1) appear on exposed areas, particularly the face or limbs. They are due to *S. aureus* or GABHS and begin as red papules in a traumatised area, such as an abrasion or insect bite. Transient vesicles or pustules may be present, but the lesions rapidly develop a yellow, brown or honey-coloured crust from dried exudate, ranging in size from a few millimetres to 1 to 2 cm and are surrounded by an erythematous margin. Initially discrete, the lesions may become large and coalesce over time, especially if the scalp is involved. The skin lesions are not painful, are minimally tender, often with regional lymph node enlargement, but fever or other signs of systemic upset are absent. Consequently, medical attention is frequently sought late.



Figure 1. Typical lesions of impetigo



Figure 2. Lesions of bullous impetigo

The less common lesions of bullous impetigo (Fig. 2) are due to *S. aureus*. These are characterised by clear fluid filled blisters arising from normal appearing skin which easily rupture revealing a moist red surface ▶ p.2

NOTE FROM THE EDITORS

Welcome to the 'new look' *Community Paediatric Review*. This national publication now has a new name and design. The redesign of the publication sees it expand to four colours, allowing us to use colour illustrations for the first time. We hope you agree with us that the new design and layout is crisp, modern looking and easy to read. Thank you to all those readers who completed our "Readership Survey". You have told us how you value the publication, that it meets an important educational need, and given us very good feedback that will inform the future content of *Community Paediatric Review*.

We also, on your behalf, wish to acknowledge the continuing commitment from WYETH to this publication – their support makes possible the publication and distribution of *Community Paediatric Review*.

PROFESSOR FRANK OBERKLAID MICHELE MEEHAN MS HILARY RUSSELL.

which rapidly dries to a varnish-like crust. In neonates, clusters of bullae appear in the perineum and periumbilical areas, whereas in older children the extremities are frequently involved.

Diagnosis and differential diagnosis

The diagnosis is usually made clinically. Other lesions which may be confused with impetigo include herpes simplex, tinea infections, chickenpox, scabies or contact dermatitis.

Management

In minimal disease, the crusts are washed from the sores with soap, saline or cetrimide 0.1% lotion. The antibiotic ointment, mupirocin, is applied three times a day. However, if the lesions do not resolve quickly or there is more extensive disease, systemic antibiotic therapy with oral flucloxacillin, cephalexin or erythromycin is indicated. The prescribed dose for each of these antibiotics is 10

mg/kg (max. 250 mg) four times a day for 10 days.

Effective therapy results in rapid healing, prevents secondary cases in contacts and reduces the risk of suppurative complications.

Prevention

Simple hygiene and rapid attention to minor wounds can prevent most cases of impetigo. To prevent spread of infection from the index case, the caregivers should wash their hands after contact with the lesions, cover the sores with clothing or a gauze dressing and wash the child's bed linen and clothing separately. Once treatment has started and the lesions are covered, the child can return to school and mix with other children.

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Hand-foot-and-mouth disease

Hand-foot-and-mouth disease (HFMD) is a common viral illness characterised by vesicular lesions in the anterior mouth and on the hands and feet (Figs. 1 & 2). Although several enteroviruses have been implicated, the majority are caused by Coxsackievirus A16.

Clinical Features

HFMD occurs predominantly in children less than 10 years of age and may involve several family members. The incubation period is three to six days and typically cases occur in the summer and autumn months. However, within Australia cases are found throughout the year. Most children complain of a sore throat or mouth or

refuse to eat. A low grade fever lasting one to two days is accompanied by vesicles in the oral cavity, chiefly on the tongue and buccal mucosa. Approximately three quarters of patients develop skin lesions, but unlike many viral exanthema the rash is peripherally distributed on the hands and feet, and occasionally the buttocks. The skin lesions are tender, consist of mixed papules and vesicles with a surrounding zone of erythema and resolve within a week.

Diagnosis and differential diagnosis

The diagnosis is made clinically by the distinctive pattern of oral vesicles and peripheral cutaneous lesions.

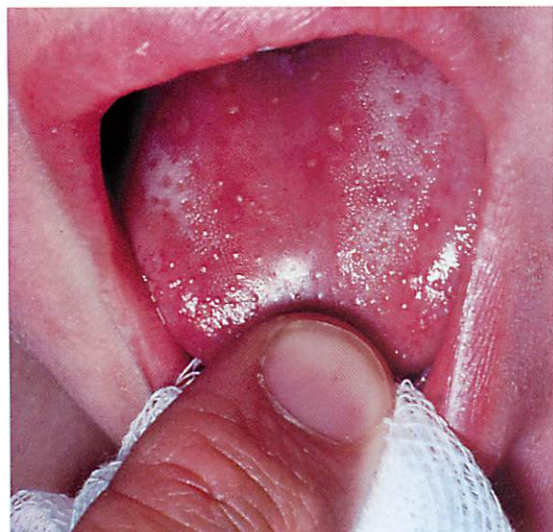


Figure 1 & Figure 2. Vesicular lesions in the anterior mouth and on the hands and feet

Rarely, does the diagnosis need to be confirmed by isolation of the virus by culture from vesicular lesions. Children with herpes simplex gingivostomatitis are more ill, have extensive involvement of the oral cavity with cervical lymphadenopathy, but the lesions do not involve the periphery. Oral lesions are less common in children with chickenpox, who also appear more ill and have a more extensive, centrally distributed rash. The exanthema of herpangina resembles HFM, but is more posterior within the oral cavity, typically involving the fauces and soft palate. Generalised vesicular eruptions by Coxsackie A9 or echovirus 11 occur in crops on the head, trunk and limbs, but unlike chickenpox the vesicles do not form pustules and scabs.

Management and prevention

HFM is mild and self limiting. Treatment is supportive. The child may excrete the virus in nasal discharges and stools for weeks. Careful hand washing after contact with secretions and faeces may limit the spread within families.

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Febrile convulsions

Although a relatively common and usually benign condition, for the families experiencing them febrile convulsions (FC) are terrifying events. Most parents witnessing a febrile convulsion for the first time think that their child is dying, and they require sympathetic reassurance and accurate information delivered clearly.

Definition

A febrile convulsion is defined as a convulsion (seizure, fit) occurring in the setting of an intercurrent febrile illness other than central nervous system infection (ie meningitis or encephalitis). Before the event can be confidently labelled a simple FC, with its attendant generally benign prognosis (see below), all the following criteria need to be satisfied:

- The child must be aged between 6 months and 5 years. Outside these age limits alternative explanations for the convulsion must be entertained
- The child must have a fever – (38°C)
- The convulsion must be brief – less than 15 minutes
- The convulsion must be generalised ie. involving both sides of the body
- The post-ictal stupor must be brief – the child must recover consciousness fully within 30 minutes
- There must be no history of previous febrile seizures (epilepsy)
- There must be no past history of a neurodevelopmental disorder.

If all of these characteristics are not present, the event is by definition 'atypical', and a degree of caution should be exercised in counselling the parents, as the risk of more serious sequelae is increased (see below).

The FC usually occurs as the temperature is rising, and may be the first sign that the child is unwell. The commonest precipitating cause is a viral illness, which

may be localised to a clear focus (eg. upper respiratory tract infection) or present as a generalised 'viraemia', where the child is hot and flushed but still alert, active and interacting well. Some specific viruses are known to be associated with a high risk of FC (eg roseola infantum, in which a truncal rash develops as the fever settles).

Occasionally the fever is due to a bacterial infection. Common examples include otitis media and urinary tract infection. Like viral infection, bacterial infection may not be localised at the time of presentation, the child having an 'occult bacteraemia' (eg Strep. pneumoniae).

Epidemiology

FC's are common, occurring in about one in thirty children. They tend to run in families, so the risk is increased for children or siblings of somebody who has had an FC.

Typical Description

Most FC's last only a minute or two, with the child recovering soon afterwards. The convulsion is usually of the tonic-clonic type, commencing with stiffening of all limbs and often teeth-clenching and back-arching, and then progressing to rhythmic jerking movements of the limbs. Occasionally the convulsion is atonic (floppy). The child is unresponsive during the episode, this transient loss of consciousness being a cardinal feature of a generalised convulsion. The eyes are often rolled upwards, but may stare blankly or straight ahead. The child's respiratory pattern may change, and may cease altogether (apnoea) for a brief period at the onset of the seizure, causing cyanosis. With alterations in tone, the upper airway may become partially obstructed during and for a period following the event, producing 'gurgly' or snoring breath sounds. In contrast to adults, symp-

toms such as tongue-biting and incontinence are not reliable features of seizures in children.

The only potential danger associated with a brief FC is the risk of food or gastric contents obstructing the unprotected upper airway or being aspirated from the mouth/pharynx into the lungs.

There is usually only one convulsion in the course of any febrile illness, although occasionally there are two or three, rarely several. These cases should also be considered atypical and referred for appropriate investigations, in particular a lumbar puncture (provided the child is fully conscious with no focal neurological signs) to exclude meningitis.

Sometimes an event that the parents thought was a convulsion may in fact have been something else, for example breath-holding spells. In these episodes the child cries (usually after a minor trauma or frustration), stops breathing, turns blue and then may lose consciousness and have a brief seizure, due to the lack of oxygen. Febrile children often become jittery or tremulous without losing consciousness – this is not an FC.

Management

Usually the convulsion has terminated spontaneously by the time the child is seen. However if the child has a convulsion in front of you, it is important to model calmness to the parents.

Unfortunately there is no good evidence that efforts to control fever or even the use of diazepam at the onset of fever in children who have had an FC are effective in reducing the risk of recurrence. Nonetheless, it is helpful for the parent's feelings of control to be given a clear and simple plan to follow in the event of future febrile illnesses. This should include keeping the child lightly dressed (nappy + singlet), using paracetamol (15 mg/kg 4 hourly) if the child is very hot or uncomfortable, and a cool flannel to keep the child comfortable. Tepid sponging, baths and fans are ineffective in lowering core temperature and are not recommended. **It is important that parents understand that the fever itself is not harmful to the child, and that it in fact is the body's way of helping the child fight the infection.**

Parents should be given clear advice regarding management of a seizure. They should ensure there is no food in the child's mouth, and then lay the child on his/her side, ensuring they do not harm themselves by thrashing against hard or sharp objects. Contrary to pop-

ular myth, the child will not 'swallow his/her tongue', and there is no need to place spoons etc. in the child's mouth. Most FCs will terminate spontaneously within a few minutes, after which the parents should take the child to a doctor to be examined. The reasons for this are firstly to ensure that the event was indeed an FC, and secondly to ascertain the cause of the fever. In the event of a simple FC, investigations (eg. blood tests, EEGs or brain scans) are generally not required, as they are not helpful. If the fit lasts more than about 5 minutes, the child should be taken to the nearest Emergency Department, or doctor or an ambulance called.

Recurrence risk

The recurrence risk (ie. risk of having one or more subsequent FC's with future febrile illnesses before age 5) is generally about one in three. It is increased if the child is very young at the time of first FC or there is a family history of FC's. In addition, if the FC occurs at a relatively low temperature or after only a short duration of fever, the recurrence risk is greater.

Most recurrences occur in the 12 months following the first FC, and virtually all within 2 years.

Long term anticonvulsants may have significant side effects and do not prevent subsequent epilepsy. Phenobarbitone and sodium valproate (Epilim) are the only anticonvulsants effective in preventing recurrences. They are not indicated except in rare situations with frequent recurrences.

Prognosis

The prognosis following simple FCs is excellent. They are not associated with an increased risk of intellectual disability, cerebral palsy, or other neurological disorders.

The risk of epilepsy is not increased appreciably, unless there is a family history of epilepsy in a first degree relative, the child was neurologically abnormal prior to the FC or the FC was atypical (focal, prolonged or multiple FCs in a single illness).

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