ABC of Dermatology

P K BUXTON

VIRAL INFECTIONS

Herpes

Herpes virus inclusion bodies.

Herpes of lips.

Inoculation herpes.

Genital herpes.

Eczema herpeticum.

Herpes zoster.

Like the pyogenic bacteria, viruses produce local lesions and may cause a widespread reaction to the infection. The clinical manifestations of common viral infections of the skin are well known and easily recognised.

Local infective lesions are caused by DNA viruses which can be isolated from the lesions themselves and include the herpes and pox groups.

Herpes simplex

The herpes simplex virus consists of two antigenic types. Type I is associated with lesions on the face and fingers and sometimes genital lesions. Type II is associated almost entirely with genital infections.

Primary herpes simplex (type I) infection, usually occurs in or around the mouth, with variable involvement of the face. Although there is usually a small area of inflammation with irritation forming a vesicle, there may be considerable inflammation and necrosis with malaise, probably depending on the degree of protection from maternal antibodies. Subsequent recurrent chronic infection of the lips may be due to virus remaining in the sensory nerve ganglia.

Type II infection affects the genitalia, vagina, and cervix and may predispose to cervical dysplasia.

- The initial vesicular stage may not be seen in genital lesions, which present as painful ulcers or erosions.

- There is usually a history of preceding itching and tenderness.

- Scrapings from the base of the ulcer can be stained for viral inclusion bodies (Tzanck smears). Viral antigen can be shown by immunofluorescence.

- Genital herpes in a pregnant woman carries a great risk of ophthalmic infection of the infant. Caesarean section may be indicated.

- "Eczema herpeticum" or "Kaposi's varicelliform eruption" are terms applied to lifethreatening systemic infection with herpes virus in patients with atopic eczema and some other skin conditions. Treatment is with parenteral acyclovir. It can also be caused by vaccinia and coxsackie viruses.

Herpes zoster

Herpes zoster, due to herpesvirus varicella, which also causes chickenpox (due to a herpes virus, not a pox virus), develops without a definable incubation period. There is, however, often pain, fever, and malaise before erythematous papules develop in the area of the affected dermatome—most commonly in the thoracic area. Vesicles develop over several days, leaving dried crusts as they resolve. Secondary infection is common. The subsequent neuralgia, particularly in elderly individuals, is well known.

- Trigeminal zoster may occur and affect the ophthalmic nerve (causing severe conjunctivitis); the maxillary nerve (causing vesicles on the uvula or tonsils); or the mandibular nerve (causing vesicles on the floor of the mouth and on the tongue).

- Visceral lesions can occur with pleuritic and abdominal pain.

- Disseminated zoster is a severe illness, often with haemorrhagic lesions.

Mandibular zoster.

Ophthalmic zoster.

Pox viruses

Molluscum contagiosum.

Cowpox.

Milkers' node.

Remember that infection from both skin lesions and nasopharyngeal secretions can cause chickenpox.

Treatment

The usual troublesome, localised lesions of herpes simplex have been treated with topical zinc sulphate, idoxuridine, ice cubes, and photoactivation of eosin. Topical acyclovir—a drug that inhibits herpes virus DNA polymerase—is moderately effective but should not be used for trivial infections.

Severe, recurrent, herpes simplex or herpes zoster can be treated with acyclovir by mouth or injection, given as early in the course of the illness as possible.

Secondary infection may require antiseptic soaks, such as 1/1000 potassium permanganate, or topical or systemic antibiotics.

Steroids (prednisolone 40-60 mg/day) given during the acute stage of herpes zoster diminish pain and postherpetic neuralgia.

Rest and analgesics are recommended treatment for extensive herpes simplex or herpes zoster infections.

Steroids should not be given to immunodeficient patients, in whom they may cause disseminated infection

The pox viruses are also large DNA viruses, particularly infecting the epidermis.

Variola (smallpox), once the cause of high mortality, has been officially eliminated by vaccination with modified vaccinia virus—the culmination of Jenner's pioneer work.

Molluscum contagiosum

The commonest "pox" seen these days is molluscum contagiosum—a worry to mothers of affected infants, who are not themselves unduly concerned. Despite its name it is not very contagious, except in overcrowded conditions in tropical countries. In temperate climates it often affects only one or two children in a household.

Clinical features—The white, umbilicated papules of molluscum contagiosum are characteristic. Large solitary lesions may cause confusion and so can secondarily infected, excoriated lesions. Remember that these can itch, particularly in patients with atopy. There may be widespread lesions, which are said to be more common in sarcoidosis and atopy. I have seen several episodes in adults after open heart surgery.

Diagnosis is not difficult. Sometimes there is confusion with viral warts and benign tumours of the skin.

Treatment—Most treatments are painful and should not be inflicted on a child with a benign self limiting condition. An antibiotic-hydrocortisone ointment can be used for excoriated lesions. Treatment with liquid nitrogen is probably the simplest treatment. Other methods include superficial curettage and rotating a sharpened orange stick moistened with phenol in the centre of each lesion.

Other pox infections

The other pox infections are of incidental interest.

Cowpox only sporadically infects cows from its natural reservoir, probably small mammals and may affect man.

Milkers' nodules are due to a virus that causes superficial ulcers in cows' udders and calves' mouths. In humans papules on the hands develop into grey nodules with a necrotic centre, surrounding inflammation, and lymphangitis. A more generalised papular eruption can occur.

Orf is easily diagnosed by country doctors, sheep farmers, and veterinarians but may be overinvestigated by those less familiar with rural dermatology. It is seen mainly in early spring as a result of contact with lambs. A single papule or group of lesions develops on the fingers or hands

Orf.

with purple papules developing into a bulla. This ruptures to leave a varied annular lesion 1-3 cm in diameter with a necrotic centre. There is surrounding inflammation. The incubation period is a few days and the lesions last 2-3 weeks with spontaneous healing. Associated erythema multiforme and widespread rashes are occasionally seen.

Monkey pox, reindeer pox, and musk ox pox are of interest to those treating zookeepers and travellers.

Wart viruses

Common warts.

Common warts.

The true worth of the papilloma virus, which causes warts, as an object of serious study has only recently been recognised. The wart is, after all, one of the few tumours in which a virus can be seen to proliferate in the nucleus. The different types of wart caused by the 15 different types of papilloma viruses cannot be discussed here but certain aspects should be remembered.

(1) Genital warts (due to human papillomavirus) very rarely undergo malignant change but the associated infection of the cervix frequently leads to dysplasia or malignant changes. Cervical smears must be taken.

(2) Very extensive proliferation of warts occurs in patients receiving immunosuppressive therapy, such as renal transplant recipients.

(3) Epidermodysplasia verruciformis, an unusual widespread eruption of erythematous warty plaques, can develop into carcinoma.

Treatment

Most warts occur in children and resolve spontaneously without treatment or with very simple measures. These include paints or lotions containing salicylic and lactic acid and formalin in various proportions, which should be applied daily. Salicylic acid (40%) plasters are useful for plantar warts; they are cut to shape and held in place with sticking plaster for two or three days. Glutaraldehyde solution is also used.

For warts that get in the way, are painful, or are disfiguring more drastic measures can be used.

(1) *Cold*—Carbon dioxide snow is readily produced from a cylinder and can be mixed with acetone to form a slush. This is applied with a cotton wool swab. Liquid nitrogen is colder and more effective but has to be stored in special containers and replaced frequently. It can be applied with cotton wool or discharged from a special spray apparatus. Freezing is continued until there is a rim of frozen tissue around the wart but not for more than 30 seconds. Subsequent blistering may occur. Scarring is unusual.

(2) *Heat*—Cautery causes more scarring and requires local anaesthesia.

(3) *Curettage and cautery* together are effective but leave scars and the warts may recur.

(4) *Podophyllin*, 15% in tincture of benzoin compound, is effective for genital warts when applied each week. It is, however, toxic when ingested or absorbed and must never be used in pregnancy.

Other treatments include radiotherapy, fluorouracil, and bleomycin injections. Hypnosis has been effectively used, and fear of painful treatment has caused warts to fall off.

Virus diseases with rashes

Measles
Rubella
Erythema infectiosum
Roseola infantum
Gianotti-Crosti syndrome
Hand, foot, and mouth disease

Measles and rubella, which were once familiar to every doctor, are now much less common as a result of widespread inoculation. However, measles is probably the best known example of an exanthem (a fever characterised by a skin eruption. In an enanthem the mucous surfaces are affected). Other common clinical patterns can then be compared with it. All exanthems, except fifth disease (erythema infectiosum), are due to RNA viruses.

Measles

Age—Measles affects children, usually those aged over 5.

Incubation lasts seven to 14 days.

Prodromal symptoms include fever, malaise, upper respiratory symptoms; conjunctivitis; and photophobia.

Initial rash—Early on Koplik's spots (white spots with surrounding erythema) appear on the oral mucosa. After two days a macular rash appears on the face, trunk, and limbs. Look behind the ears for early lesions.

Development and resolution—The rash becomes papular, with coalescence. There may be haemorrhagic lesions and bullae which fade to leave brown patches.

Complications are encephalitis, otitis media, and bronchopneumonia.

Diagnosis—Specific antibodies may be detected, they are at their maximum at two to four weeks.

Rubella

Age—Rubella affects children and young adults.

Incubation lasts 14 to 21 days.

Prodromal symptoms—There are none in young children. Otherwise fever, malaise, and upper respiratory symptoms occur.

Initially rash—Initially some patients develop erythema of the soft palate and lymphadenopathy. Later pink macules appear on the face, spreading to trunk and limbs over one to two days.

Development and resolution—The rash then clears over the next two days, and sometimes no rash develops at all.

Complications—The main complication is congenital defects in babies of women infected during pregnancy. The risk is greatest in the first month.

Diagnosis—The diagnosis is made from the clinical signs above. Serum should be taken for measuring antibodies and the test repeated at seven to 10 days.

Prophylaxis—Active immunisation is now routinely available for all schoolgirls.

Erythema infectiosum (fifth disease)

Age group—Erythema infectiosum affects children aged 2-10 years, mainly girls.

Incubation lasts five to 20 days.

Prodromal symptoms—There are usually none, but there may be a slight fever with initial rash.

Initial rash—The initial rash is a hot, erythematous eruption on the cheeks—hence the "slapped cheek syndrome." Over two to four days a maculopapular eruption develops on the arms, legs, and trunk.

Development and resolution—The rash extends to affect hands, feet, and mucous membranes, then fades over one to two weeks.

Diagnosis is made by finding a specific IgM antibody to parvovirus B19.

Complications—There are no reported complications.

Roseola infantum

Age group—Roseola infantum affects infants aged under 2.

Incubation lasts 10-15 days.

Prodromal symptoms—There is fever for a few days.

Initial rash—A rose pink maculopapular eruption appears on the neck and trunk.

Development and resolution—The rash may affect the face and limbs before clearing over one to two days.

Measles (left); rubella (below); Gianotti-Crosti syndrome (below left); hand, foot, and mouth disease (below right).

Diagnosis—The condition is diagnosed from its clinical features.

Complications include febrile convulsions.

Gianotti-Crosti syndrome

Age group—The Gianotti-Crosti syndrome affects children, usually those aged under 14.

Incubation period is unknown.

Prodromal symptoms—Lymphadenopathy and malaise accompany the eruption.

Initial rash—Red papules rapidly develop on the face, neck, limbs, buttocks, palms, and soles.

Development and resolution—Over two to three weeks the lesions become purpuric then slowly fade.

Diagnosis—The syndrome may be due to a number of virus infections. Check for hepatitis B antigen.

Complications—Lymphadenopathy and hepatomegaly always occur and may persist for many months.

Hand, foot, and mouth disease

Age—Hand, foot, and mouth disease (Coxsackie virus A) affects both children and adults.

Incubation period is unknown.

Prodromal symptoms—Fever, headache, and malaise may accompany the rash.

Initial rash—Initially there may be intense erythema surrounding yellow-grey vesicles; ulceration then occurs. This pattern is more common in adults. Alternatively, there may be grey vesicles, 1-5 mm diameter, with surrounding erythema on the palms and soles. These occur mainly in children, in whom a more generalised eruption may develop.

Development and resolution—Over three to five days the rash fades.

Diagnosis—Coxsackie A (usually A16) virus is isolated from lesions and stools. A specific antibody may be found in the serum.

Complications are rare but include widespread vesicular rashes and erythema multiforme.

Other infections

Secondary syphilis.

Infectious mononucleosis—As well as the erythematous lesions on the palate a maculopapular rash affecting the face and limbs can occur.

Cat scratch disease—A crusted nodule at the site of the scratch is associated with development of regional lymphadenopathy one to two months later. A maculopapular eruption on the face and limbs or erythema multiforme may occur.

Psittacosis and ornithosis may be associated with a rash.

Rickettsial Infections, including typhus, Rocky Mountain spotted fever, and Rickettsial pox are all associated with rashes.

Syphilis—Although not a viral infection, the transient roseolar rash of secondary syphilis is followed by a papulosquamous eruption, which affects the trunk, limbs, and mucous membranes. The palms and soles may be affected. The diagnosis should always be considered in any rash that does not fit a recognised pattern.

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The photographs of herpes of the lips, measles, and rubella are reproduced by kind permission of Dr A P Ball.

New Drugs

Anti-infectives

ROGER FINCH

The innovations in antibiotic treatment since this subject was last reviewed in 1983 have been dominated largely by the availability of several new and intrinsically highly active broad spectrum antibiotics. These have included additional extended range (third generation) cephalosporins such as ceftizoxime and ceftazidime, and imipenem, a novel β lactam that is possibly the most active and has the broadest spectrum of activity of any antibiotic. In addition, a novel class of β lactam compounds, "the monobactams," has emerged, of which aztreonam is the first to have been licensed. Another development has been the marketing of clavulanic acid, a broad spectrum inhibitor of β -lactamase enzymes, in combination with amoxycillin (Augmentin) and ticarcillin (Timentin). All these agents must be administered parenterally except amoxycillin-clavulanic acid, which can also be taken orally. The other main innovation has been the development of the quinolone antibiotics, especially the fluoroquinolones such as ciprofloxacin, which are highly active broad spectrum compounds, well absorbed by mouth and also suitable for parenteral administration.

Cephalosporins

ORAL AGENTS

Cefadroxil is an oral cephalosporin with a range of activity similar to that of cephalexin, cephadrine, and cefaclor, though cefaclor is more active against *Haemophilus influenzae*. Cefadroxil has a slightly longer half life of 1.5 hours and is recommended for twice daily administration, though the justification for doses twice a day is controversial, as the other oral cephalosporins with half lives of approximately one hour are given four times daily. The antibacterial activity of the oral cephalosporins remains modest compared with other drugs, though they are widely used, especially in general practice.

Cefuroxime axetil is an oral prodrug of cefuroxime that is undergoing clinical evaluation. Its broader range of activity, including greater stability to β -lactamase inactivation, suggests that it may prove to be useful in treating infections of the lower respiratory tract and other infections where ampicillin-amoxycillin is no longer effective because of drug resistance, as is the case with *H influenzae*.

PARENTERAL CEPHALOSPORINS

The extended spectrum cephalosporins currently marketed (cefotaxime, ceftizoxime, and ceftazidime) and those likely to become available shortly (cefotetan and ceftriaxone) present further difficulties to prescribers trying to discriminate between the various merits of this group of antibiotics. Table I summarises the main

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This series is edited by Professor John Feely.