How to identify and treat herpes zoster (shingles)

Emma Corden

Shingles, or herpes zoster, is a relatively common viral infection in the UK, which is caused by a reactivation of the varicella-zoster virus after patients have had an earlier infection with chickenpox. The condition results in a painful rash and in severe cases patients can develop post herpetic neuralgia (PHN), an intense chronic pain at the affected area, despite resolution of the skin lesions. Shingles can also affect the nerves in the eyes and ears, as well as causing scarring. It is important that community nurses are aware of this condition and able to advise on supportive treatments such as topical medications, pain relief and, in appropriate cases, vaccination.

KEYWORDS:
Skin care ■ Shingles ■ Herpes zoster ■ Rash ■ Vaccination

Shingles (or herpes zoster) is a painful and often debilitating infection of the nerves and surrounding skin. An individual’s first infection with varicella-zoster virus (VZV) causes chickenpox (varicella), a systemic illness that is more commonly seen in children and includes a widespread vesicular rash that is highly contagious in the early stages (Figure 1), as well as an associated fever.

However, once the chickenpox infection has resolved, the virus does not go away completely. Instead, it lies dormant in the root ganglion of the sensory nerve. A strong immune system will keep the virus inactive, however, it can be reactivated at a later date, causing shingles. This can develop decades after the original chickenpox infection, typically in adulthood.

As a result, the virus will spread along the affected nerve to the dermatome (the area of skin that is serviced by a single spinal nerve) and a localised cutaneous eruption occurs, which is known as shingles (Cohen, 2013). The cause of reactivation of the virus is not completely understood, but is associated with conditions that depress the immune system, including illness, certain medications, surgery or emotional stress.

INCIDENCE

The incidence of shingles increases with age, primarily because there is a gradual reduction in the level of T-cell immunity to VZV. T-cells (a type of lymphocyte) play a vital role in cell-mediated immunity and the levels of T-cells correlate with protection against herpes zoster (Cohen, 2013).

Other individuals at increased risk of shingles and more likely to develop severe disease include:

- Those who are immunosuppressed and have impaired T-cell immunity, either due to an immunosuppressive illness (e.g. cancer; human immunodeficiency virus [HIV]) or secondary to immunosuppressive treatment (such as with the drug prednisolone, which can be used to suppress the immune system in people with autoimmune conditions such as multiple sclerosis [MS] or rheumatoid arthritis) (Gnaan and Whiteley, 2002)
- Those receiving immunosuppressant therapies following organ transplantation.

Shingles is relatively common with a lifetime risk of 20–30% (Schmader, 2001). The risk increases with age — the incidence in England and Wales is estimated to be 790 to 880 cases per 100,000 people each year in those aged 70–79 years (van Hoek at al, 2009). It is estimated that the risk of herpes zoster increases to 50% in those who are over 85 and who have not been vaccinated — the risk is also higher in females (Cohen, 2013).
THE SCIENCE — IMMUNITY

The immune system is the body’s natural defence against the many bacteria, microbes, viruses, toxins and parasites that cause illness and infection. It consists of a network of cells (including leukocytes, or white blood cells), tissues and organs (such as the spleen), which combine to identify and destroy disease-causing organisms. Problems with the immune system will mean that an individual will be more susceptible to conditions such as shingles, as the body’s ability to defend itself is compromised. This can happen as a result of:

- Decreasing immunity through age
- Stress (physical and psychological)
- Conditions such as HIV and AIDS where the immune system is weakened
- Bone marrow transplants
- Organ transplant medication suppressing the immune system so that the body accepts the replacement organ
- Chemotherapy temporarily weakening the immune system.

Source: www.nhs.uk/Conditions/Shingles/Pages/causes.aspx

DIAGNOSIS

A diagnosis of shingles can be made by the characteristic appearance and distribution of the rash (see below). Prodromal symptoms (early symptoms that can signal the beginning of a disease before the development of more positive symptoms) such as pain, malaise and fever may occur and sometimes there can be abnormal skin sensations such as (Public Health England, 2014):

- Burning
- Itching
- Hyperesthesia (oversensitivity)
- Paraesthesia (tingling, numbness) or pain in the affected area of skin (dermatome) may precede the onset of the rash by a few days.

Rash

In the initial stages of shingles, erythematous macules (small, distinct and discoloured areas of skin) and papules (solid circular bumps in the skin) develop, followed by vesicles (fluid-filled sacs), which eventually crust over.

A typical shingles rash is asymmetrical and will usually be visible according to the dermatomal distribution, corresponding with nerve root sites on the skin. It can occur on the face or body depending on which nerves are affected. The most common site for shingles in people who do not have a compromised immune system is the thoracic nerves and, therefore, the skin overlying the ribs.

The rash typically resolves over two to four weeks, but there may be subsequent scarring and changes to the skin pigment.

Nerves

Shingles can affect any nerve root. If a specific group of nerves are affected, for example the ocular nerves, it is classified as herpes zoster opthalmicus. An affected individual will present with a blistering rash around the eye or eyelid, with associated swelling and redness or pain in the eye.

Conversely, if the facial nerve is affected (cranial nerve VII), a range of symptoms can develop, including:

- Otalgia (earache)
- A vesicular eruption in the auricle (visible portion of external ear)
- Facial paralysis.

In severe cases, the virus may spread from the facial nerve to involve the vestibulocochlear nerve, with additional symptoms including:

- Hearing problems (e.g. sensorineuronal hearing loss; tinnitus)
- Vestibular symptoms such as dizziness and vertigo (the vestibular includes sections of the inner ear and brain that help to control balance and eye movements).

This is known as Ramsay Hunt Syndrome or herpes zoster oticus, a rare complication of herpes zoster (Gondivkar et al, 2010).

Therefore, in most cases the diagnosis of shingles can be made clinically. However, in immunocompromised individuals the rash may involve multiple dermatomes or present with less characteristic rashes (Albrecht, 2010). In these more diagnostically challenging cases, laboratory tests may be required to confirm the diagnosis (Centers for Disease Control and Prevention, 2014). A skin swab can be sent for viral culture but a scraping of cells taken from the base of a lesion and sent for direct fluorescent antibody staining is quicker and more sensitive. Both viral culture and direct immunofluorescence testing can distinguish herpes simplex virus infections from varicella zoster virus infections.

A further useful test is polymerase chain reaction (PCR) (a biochemical technique used to amplify pieces of DNA), which is able to detect varicella-zoster virus DNA in fluid and tissue (Gnaan and Whiteley, 2002). Unfortunately, PCR will not distinguish from vaccine strains of varicella-zoster virus in those individuals who have previously been vaccinated for chickenpox. Serology (the study of plasma and other bodily fluids) is not commonly used as it is difficult to interpret.

TREATMENT

The mainstay of treatment is to limit the duration and severity of the illness and reduce complications.

Figure 1.
A typical shingles rash.
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Cetraben® Emollient Bath Additive Light Liquid Paraffin: Please refer to Summary of Product Characteristics before prescribing. Presentation: Bath additive – Clear liquid containing light liquid paraffin 10.5% w/w. Indications: Symptomatic relief of red, inflamed, damaged, dry or chapped skin, especially when associated with endogenous or exogenous eczema. Dosage: Bath additive – Adults: Add one or two capfuls. Children add half one capful to a warm water bath or apply with a wet sponge to wet skin before drying. Contra-indications: Hypersensitivity to any of the ingredients. Special Warnings and Precautions: Care should be taken if allergy to any of the ingredients is suspected. Care should also be exercised when entering or leaving the bath. Avoid contact with the eyes. Side Effects: Refer to the SmPC for full list. Very rarely, mild allergic skin reactions including rash and erythema have been observed, in which case the product should be discontinued. Marketing Authorisation Numbers: Cetraben Emollient Bath Additive: PL 06831/0260. Basic NHSS Price: Bath additive – 500ml plastic bottle £1.79. Legal Category: GSL. Date of Preparation: September 2014. Further Information is available from: Genus Pharmaceuticals Ltd, Linthwaite, Huddersfield, HD7 5QH, UK. Cetraben® is a registered trademark of GENUS APOTHECARY LTD.

Cetraben® Cream Presentation: A thick white cream. Main ingredients: White soft paraffin 13.2% w/w, Light liquid paraffin 10.5% w/w. Indications: An emollient, moisturising and protective cream for the symptomatic relief of red, inflamed, dry or chapped skin, especially when associated with eczema. Dosage and Administration: Adults, the elderly and children: Apply to dry skin areas as often as required and rub in. Contra-indications: Hypersensitivity to any of the ingredients. Precautions: For external use only. May cause local skin reactions. Avoid contact with eyes. Talk to your doctor before use if the skin is badly cracked, infected or bleeding. Do not use if allergic to any of the ingredients. Pregnancy and breastfeeding: Using Cetraben Lotion during pregnancy and breastfeeding is unlikely to have any ill effects. If unsure, talk to your doctor or pharmacist. Side effects: Mild allergic skin reactions. Pack size: 50g, 150g, 500g, 1050g Rx packs, 50ml & 200ml OTC packs. Trade Price: 50g £1.40, 150g £3.98, 500g £5.99, 1050g £11.62 50ml OTC £3.00, 200ml OTC £4.98 Medical Device: Class I. Legal Manufacturer: Thornton & Ross Limited, Huddersfield, HD7 5QH, UK. Date of preparation: 14.08.2014.

Cetraben® Lotion Presentation: A smooth white lotion. Main ingredients: White soft paraffin 5.0% w/w, Light liquid paraffin 82.8% w/w. Indications: A soothing emollient for the symptomatic relief of red, inflamed, damaged, dry or chapped skin, especially when associated with endogenous or exogenous eczema. Dosage and Administration: Adults, the elderly and children: Apply to the skin and gently rub in until absorbed. Use as often as required, or as directed by your doctor or pharmacist. Contra-indications: Hypersensitivity to any of the ingredients. Precautions: For external use only. Do not swallow. Avoid contact with eyes. May cause local skin reactions. Talk to your doctor before use if the skin is badly cracked, infected or bleeding. Do not use if allergic to any of the ingredients. Pregnancy and breastfeeding: Using Cetraben Lotion during pregnancy and breastfeeding is unlikely to have any ill effects. If unsure, talk to your doctor or pharmacist. Side effects: Mild allergic skin reactions. Pack size: 200ml & 500ml Rx packs, 50ml & 200ml OTC packs. Trade Price: 200ml £4.00, 500ml £5.84, 50ml OTC £3.00, 200ml OTC £4.80 Medical Device: Class I. Legal Manufacturer: Thornton & Ross Limited, Huddersfield, HD7 5QH, UK. Date of preparation: 14.08.2014.

Date of preparation: October 2014.
Unfortunately, there is no medication to cure the disease.

Antiviral medication
Antiviral medication is typically given to affected individuals who are either:
- Over 50
- Under 50 in either of the following categories:
  - Immunocompromised
  - Demonstrating ophthalmic involvement
  - Symptomatic with moderate-to-severe pain or with a moderate-to-severe rash.

Antiviral medication is most effective when taken within 72 hours of the rash developing. Therefore, if the community nurse suspects that an individual (with the above criteria) has shingles, it is important that they are reviewed by their GP as soon as possible, as early treatment may lessen the severity of the condition.

Antiviral medication may be initiated after 72 hours if the individual represents a higher risk for complications, including older people, those with new vesicles still developing, or those who are immunocompromised (National Institute for Health and Care Excellence [NICE], 2013).

Those with eye involvement need immediate review as without antiviral treatment for herpes zoster ophthalmicus it is estimated that half will develop ocular complications (Cobo et al, 1987). Patients may develop conjunctivitis, keratitis or uveitis, or permanent chronic ocular inflammation (Shaikh and Ta, 2002).

If an affected individual is also pregnant, the community nurse should seek specialist advice regarding antiviral medication in pregnancy.

Typically, in an immunocompetent individual, aciclovir 800mg is given five times a day for seven days (NICE, 2013). Alternative antiviral medications include valaciclovir or famciclovir. For immunocompromised individuals who are systemically well (i.e. no fever or haemodynamic disturbance) the same treatment is given but for 10 days (NICE, 2013).

Analgesia
An accurate pain assessment is important as the discomfort associated with shingles is often debilitating. However, simple analgesia may not be sufficient. Community nurses should use a ‘step-wise’ approach with analgesia, starting with paracetamol or ibuprofen and codeine if required (NICE, 2013). In more severe cases, morphine or neuropathic medications such as amitriptyline or pregabalin may be tried (NICE, 2013).

Supportive treatments
There are important supportive treatments that have a pivotal role in the management of shingles. Individuals should be advised to keep the affected areas clean with mild soap and water or even a mild soap substitute and to avoid scratching as this can increase the risk of scarring as well as secondary bacterial infections.

Over-the-counter antihistamines such as calamine lotion or topical creams can be used to help with the itching, although they may dry out the skin. Patients should be advised to use sterile, non-occlusive and non-adherent dressing pads to protect the area from contact with clothing. Loose-fitting clothing should also be considered to avoid friction with the rash.

A cloth dampened with cold water can be compressed over the weeping blisters for 20 minutes several times a day to soothe and help dry the blisters — this also helps in removing scabs and reduces infection risk (Sanjay et al, 2011). Once the blisters are dry, any compresses must be stopped to prevent excessive drying of the skin and exacerbation of the itching.

General advice
Shingles is only spread by direct skin contact with the affected area and the rash will remain contagious until the lesions dry out. Affected individuals need to be advised to avoid contact with pregnant women, those who have not had chickenpox, and anyone immunocompromised. If someone has not previously had chickenpox or a varicella vaccine, they can catch chickenpox from an individual with shingles.

COMPLICATIONS

The most common and severe side-effect of shingles is post herpetic neuralgia (PHN), an intense chronic pain at the affected area despite resolution of the skin lesions (Katz et al, 2004). This pain can be variously described as constant, intermittent, or as being triggered by gentle stimulation of the affected area, for example, a breeze on the face (Katz et al, 2004). PHN can also interfere with activities of daily life and cause sleep disturbances and depression (Gnaan and Whiteley, 2002).

Effective treatment options for patients who develop PHN are limited. This can be frustrating and often difficult in many cases where the pain is severe or enduring.

Expert commentary
David Haigh, clinical nurse specialist, Guy’s and St. Thomas’ NHS Foundation Trust, London

This is a much-needed and comprehensive article on the incidence, recognition and treatment of this very debilitating common condition. It is often community nurses who encounter the onset of shingles in at-risk patient groups and early detection is imperative. It is also crucial that treatment is instigated as soon as possible (within 72 hours) to lessen the chance of serious complications.

Post herpetic neuralgia may lead to hospitalisation and it is estimated that the death rate from shingles in people aged 70 and above is as high as one in 1,000 cases.

This article also highlights the vaccination program available to the over-70s and it is community nurses who will be ensuring that the most vulnerable in our society are adequately protected.
For those patients with dry skin conditions such as eczema, The British Association of Dermatologists guidelines advise that the use of soap or detergent based products can exacerbate their symptoms. They recommend the use of soap substitutes.1 Doublebase Bath, Wash and Shower provide an effective alternative to the harshness of soap. They all contain a non-foaming soap substitute, which gently cleanses the skin, and a humectant which attracts water to moisturise the skin. The high oil content softens the skin and protects against dryness.

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Uses: For the relief of dry skin conditions. Directions: Adults, children and the elderly: Add to a bath of warm water. Soak and pat dry.

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Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard. Adverse events should also be reported to Dermal.


www.dermal.co.uk
patients are resistant to analgesia (Wu and Raja, 2008). Stronger analgesics (e.g. tramadol, codeine) or opioids (i.e. morphine), can be used — alternatively anti-epileptic medications (i.e. gabapentin) or antidepressant medications can be considered.

Table 1: Date of birth table for shingles vaccination eligibility

<table>
<thead>
<tr>
<th>If patient born on or between:</th>
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<tr>
<td>2 September, 1943 to 1 September, 1944</td>
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Other complications of shingles, such as scarring and pigment alterations at the site of the lesion, can be permanent. Herpes zoster ophthalmicus or herpes zoster oticus can be associated with subsequent visual disturbance, corneal ulceration or hearing loss (Shaikh and Ta, 2002).

PREVENTION

In the UK, a vaccine was introduced to the NHS immunisation schedule in September 2013 with the aim of reducing the incidence and severity of shingles and shingles-related complications in older people (Department of Health [DH], 2013). The vaccine (Zostavax®, Sanofi Pasteur MSD) contains live, attenuated (reduced virulence) virus and is given as a single subcutaneous dose (Purussell, 2014).

The most recent guidance states that vaccination will be offered to those who are, or were, 70 years old on the 1 September 2014. As in the first year of the programme, a catch-up campaign will also run in 2014/15, this time for those aged 78 and 79 on 1 September 2014 (Public Health England, 2014) (Table 1). The vaccine is still relatively new and not well known by healthcare professionals, therefore, community nurses have an important role in recognising those at risk of shingles and recommending vaccination.

CONCLUSION

Caused by a reactivation of the varicella-zoster virus, shingles is a condition seen more commonly in older people and those who are immunocompromised due to illness or medications. It has associated complications, the worst of which is PHN, which can cause long-term severe pain and devastating consequences for an individual’s quality of life.

Community nurses need to be aware of the symptoms of shingles, particularly the characteristic rash that develops, so that they can make a referral to a GP for early initiation of antiviral medication. Community nurses also have an important role in the assessment and management of pain and supportive therapies, as well as considering vaccination in patients over 70 years of age who have not already had shingles.

REFERENCES


A new year, new patients to protect

There’s a 1-in-4 chance of someone developing shingles during their lifetime.¹ The risk increases with age, as does the likelihood of complications.²

Year 2 of the national shingles immunisation programme started on 1st September 2014* for eligible patients.

For full programme details and support items visit www.shinglesaware.co.uk

* Programme details may vary for each country. Please refer to local guidelines.

References

Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard. Adverse events should also be reported to Sanofi Pasteur MSD; reporting form can be found at www.spmsd.co.uk/AE or via telephone 01628 785291.