



Herpes zoster, colloquially known as shingles, is a disease caused by the varicella-zoster virus (VZV), the same virus that causes chickenpox.

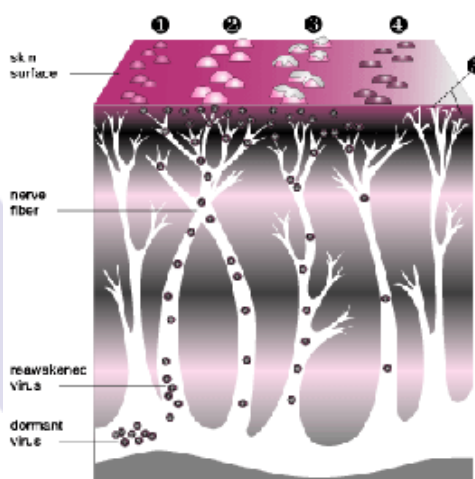
After an attack of chickenpox, the virus can remain dormant for decades in the nerve cells of the spinal cord. However, as we get older, it is possible for the virus to reappear as the disease, shingles, which can happen at any age, but becomes increasingly common as we get older. When the virus is reactivated, it spreads down the peripheral nerve cells from the spinal cord causing a skin rash and often intense pain.

In Europe, it is estimated that 90% of the population will have had chickenpox before adolescence, and this means that almost every adult is at risk of getting shingles. It is particularly common after the age of 65 years and in individuals who are immunosuppressed. Different studies have estimated that approximately 20% of the elderly population will experience shingles.

The shingles rash

Because the dormant virus remains in nerves radiating from the spinal cord, the shingles rash most commonly appears as a band in the area served by the involved nerve, called a dermatome. The rash, which usually involves only one side of the body, can occur anywhere, but most commonly affects the face, chest or abdomen.

The first clinical symptom of shingles is usually a tingling sensation in the skin and pain. The pain may be localised, or it may spread out and it can be severe in some cases. It is believed that the pain is caused when the virus starts replicating in the sensory nerve cells, and newly formed virus particles



are carried down the axons or nerve fibres to infect the area of skin served by that

the virus induces inflammation, and crops of red lesions form (1). These gradually turn into small, fluid filled blisters (2), which then crust over (3), gradually dry out (4) and resolve. From the onset of pain to the resolution of the viral blisters may be a period of a week or more and during this time the patient often feels quite unwell with fever and a headache. The pain and other symptoms usually subside as the skin lesions disappear.

It is not known exactly what causes the virus to reactivate. It is often associated with conditions that weaken the immune system, such as age (see table), immuno-suppressive therapies or conditions, such as HIV infection or leukaemia.

Age group	Incidence (episodes per year)
Young adults	2 – 3 per 1000
60 – 70 years	5 per 1000
80+ years	10 per 1000

Epidemiology of Shingles

It has also been suggested that shingles may be initiated mechanically, by pressure on the nerve roots or an injury (not necessarily to the spine).

Is shingles contagious?

Close contact with a person in the early stages of shingles (i.e. blisters) is necessary to transfer the virus to another person, which means that shingles is only minimally contagious. If a person with a shingles rash passes the virus to someone who has never had chickenpox - for example to a child from a grandparent with shingles - that person will develop chickenpox, not shingles. Despite anecdotal reports, there is no firm evidence to show that shingles can be transmitted from person to person directly.

Complications of shingles

Herpes zoster can occasionally be a serious disease. The acute shingles attack usually resolves in about a week or two but, unfortunately, there can be complications.

The most common complication of shingles is severe pain that continues for months or even years after the initial rash has healed. This pain, known as postherpetic neuralgia is quite common amongst shingles sufferers. As many as 85% of patients with shingles complain of residual pain after the rash has

disappeared and in 10-20% of these the pain lasts more than 6 months and is severe. In extreme cases the pain can be so intense that even gentle stimulation (such as wind or cloth) becomes unbearable.

Other complications may result depending on the particular nerve that has been affected. The second most frequently affected area after the upper body is the cranial area, with shingles appearing on one side of the head and occasionally involving the eye (ophthalmic zoster). This can lead to damage of the eye and requires an urgent assessment by an ophthalmologist. Visual complications result in approximately half of such patients, even many years after the onset of the disease.

Shingles infections within or near the ear can cause hearing or balance problems, as well as weakness of the muscles on the affected side of the face.

People who are immunosuppressed often suffer from a severe form of shingles that spreads from the initial site of infection to involve other parts of the body.

Prevention and Treatment

The treatment of shingles is complex and relies primarily on anti-viral therapies and pain-killers. Pain control in shingles remains difficult and, in most cases, is unsatisfactory. In addition, a single therapy is usually not effective, and combination therapy is often required.

Anti-viral therapy should be initiated within 72 hours of the onset of the rash and can then reduce both the severity and the risk of complications of shingles. It should always be considered in cases of shingles involving the eye (ophthalmic zoster), the trigeminal ganglion or when there are systemic symptoms or a risk of dissemination e.g. in immunosuppressed patients.

The treatment of severe pain in post-herpetic neuralgia is notoriously difficult but can be aided by the use of tricyclic antidepressants, such as amitriptyline, or opioid drugs, such as morphine. Also the severe itch that sometimes occurs during or after shingles can be very difficult to treat, although, local anaesthetics applied directly to the skin have been shown to provide some relief.

A vaccine has recently been licensed in Europe for the prevention of shingles in individuals 60 years or older. In a prospective clinical study on healthy elderly adults, the vaccine reduced the incidence of shingles by 51%, the incidence of post-herpetic neuralgia by 67%, and the incidence of severe pain by 73%. The vaccine thus appears to have the

potential to reduce the burden of illness linked to shingles in elderly people. Note, however, that this vaccine is contraindicated in persons of any age who are immunocompromised.

► The varicella zoster virus initially causes chickenpox. Following an episode of chickenpox, the virus can remain dormant for decades, and then reactivate resulting in herpes zoster (shingles).

► Anyone who has suffered from chickenpox may develop shingles.

► In Europe, approximately 1 in 4 people will experience herpes zoster during their lifetime. The likelihood of developing shingles rises in people over 60 years and in those who are immunosuppressed. With an ageing population, shingles is therefore a growing concern for health authorities across Europe.

► The initial symptoms of shingles are pain followed by a blistering rash, usually as a band across the torso or face.

► The complications of shingles can include severe, long-term pain that is known as postherpetic neuralgia.



VZV Timeline: One virus – two diseases

Ancient Times	“Herpes Zoster” used to describe rash
1875	Demonstration that chickenpox is caused by infectious agent
1888	Link between varicella (chickenpox) and zoster suggested
1948	Electron microscope shows that virus from varicella and zoster are identical in appearance
1952	Virus grown from varicella and zoster causes identical changes in infected cells
1964	Proposal that zoster was due to reactivation of VZV
1983	Confirmed experimentally that zoster was due to reactivation of VZV

EVM member companies : Baxter, Berna [Crucell], GSK Bio, Novartis, Sanofi Pasteur, Sanofi Pasteur MSD, Solvay Pharmaceuticals, Wyeth.

For further information on EVM visit our website at www.evm-vaccines.org