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CASE STUDY ON HERPES ZOSTER

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Abstract
Reactivation of the varicella- zoster virus (VZV), which is dormant in sensory ganglia following first infection, is the cause of herpes zoster, also known as shingles. It appears as a dermatomal pattern of painful unilateral vesicular rash. Age, Immunosuppression, stress and long- term illness are risk factors. Variants including Ramsay Hunt Syndrome, herpes zoster Ophthalmicus, and have unique side effects like neuropathic pain and visual loss. The primary Method of diagnosis is clinical, albeit in atypical circumstances, PCR or direct fluorescent antibody testing may be used. Acyclovir, Valacyclovir, or Famciclovir used as early antiviral therapy lessens severity, The best preventive Method is still vaccination, which is advised for e everyone.

***Keywords*:** Varicella-zoster virus (VZV), Herpes zoster (shingles), Dermatomal rash, Risk factors, Antiviral therapy, Vaccination.

Introduction
The varicella- zoster virus (VZV), which causes chickenpox (shingles), reactivates to cause Herpes Zoster, also referred to as shingles, an acute viral infection. VZV stays dormant in the sensory ganglia of the cranial nerve after a person heals from chickenpox, and it reactivates as herpes zoster due to the failure of immune system to control the latent replication of the virus. A painful, unilateral vesicular rash that usually affects one dermatome is the hallmark of this illness. Serious side effects like chronic nerve pain and visual loss can result from shingles, pain associated with herpes tends to resolve over time, but some patients suffer from post- herpetic neuralgia (PHN). Herpes zoster is most common in the older people, especially those over age of 50 years and those with compromised immune system. Timely identification and initiating antiviral treatment at an early stage can help reduces complications of the diseases. The most typical presentation includes a unilateral, painful vesicular rash confined to a single dermatome. However, there are several notable variants [1-5].

- **Herpes Zoster Ophthalmicus (HZO):** This form affects the ophthalmic branch of the trigeminal nerve, potentially leading to ocular complications.
- **Zoster Sine Herpete:** Characterized by neuropathic pain without the classic rash, making diagnosis challenging.
- **Bilateral Herpes Zoster:** Involves simultaneous outbreaks on both sides of the body, which is rare and may indicate underlying immunosuppression.
- **Herpes Zoster Oticus (Ramsay Hunt Syndrome):** Involves the facial and auditory nerves, leading to facial paralysis and hearing loss.
- **Disseminated Herpes Zoster:** Occurs when the virus spreads beyond the initial dermatome, leading to widespread lesions and possible systemic involvement. [6][7][8]

Etiology
The Varicella Zoster Virus (VZV), a neurotrophic human herpes virus belonging to the alpha Herpesviridae genus, reactivates to cause Herpes Zoster (HZ). VZV stays dormant in sensory ganglia (dorsal root, cranial and autonomic ganglia) following the original infection (chicken pox). When cell mediated immunity declines, the virus replicates in neurons, causing nerve inflammation and vesicular skin eruptions along the afflicted dermatome.

The virus only infects human cells, including ganglionic neurons, T lymphocytes, and Epithelial cells, and it is highly cell-associated.

Herpes zoster triggers include:

- Stress on an emotional level.
- Taking drugs (immunosuppressant).
- Chronic or acute sickness.
- Being exposed to the virus.
- The existence of a cancer [9, 10].

Symptoms

Preherpetic Neuralgia, or the Preeruptive phase: A dermatome may experience pain, itching, or paresthesias for one to ten days. Additional symptoms include headache, light sensitivity, muscle pains, malaise, and occasionally fever.

Phase of acute eruption: Erythema, swelling, and vesicles on the affected dermatome cause a one-sided rash. Vesicles cloud, burst, crust, and recovery, with complications potentially causing scarring. Symptoms go away within ten to fifteen days.

Chronic Phase: During the chronic phase of postherpetic neuralgia, patients with Herpes Zoster may still experience Moderate to severe acute pain, tingling sensations, or scorching agony, which can persist for decades.

Zoster Sine Herpete (ZSH): Herpes Zoster can cause herpetic neuralgia or Zoster sine herpete without a rash, causing burning sensation, itching, numbness along nerves. Consult a doctor for diagnosis.

Pathophysiology

Initial infection (varicella/ chickenpox): Chickenpox is the outcome of a primary VZV infection. Following the resolution of chickenpox, VZV becomes dormant in dorsal root ganglia where latency takes place.

Latency: VZV remains inactive, as the host's immune system keeps it suppressed

Reactivation: VZV starts to replicate. Connected to a reduction in cell mediated defences which occurs with age, Immunosuppression (drugs, organ transplants, cancer, HIV), stress, trauma.

Nerve Travel and Skin Eruption: Viruses reach the skin by way of sensory nerves in the cell bodies of neurones, here VZV replicates. Viral particles make their way to the innervated skin area via the nerve. Localised skin burns and inflammation resulting in characteristic painful, rash of shingles.

Dermatomal Distribution: The pattern of rash is dermatomal. One sided rash that is unilateral does not pass across the midline of the body [11-15].

Diagnosis

Clinical Presentation: A painful, unilateral rash with a dermatomal distribution which is the defining feature of herpes zoster. Before the rash shows up, the affected area frequently experiences discomfort, tingling, or itching termed a prodrome.

Physical examination

Visual inspection of the characteristic rash pattern is observed. In cases of herpes zoster Ophthalmicus (involving the eye), a thorough eye examination is crucial.

Laboratory tests (in some cases)

While often diagnosed clinically, lab tests may be used in atypical cases

These tests can include:

1. PCR (polymerase chain reaction) to detect the (VZV).
2. Direct fluorescent antibody (DFA) testing.
3. Tzanck smear (less sensitive and specific) [16-21].

Treatment

Antiviraltherapy

Prompt Initiation of antiviral therapy within 72hrs of rash can reduce severity and duration

Acyclovir: 800mg five times daily for five days

Valacyclovir: 1gm three times for seven days

Famciclovir: 500mg three times daily (7 days)

Pain Management

Mild Pain: Acetaminophen, NSAIDS to relieve mild discomfort

Severe Pain: Lidocaine patches, capsaicin cream for localized relief

In case of Postherapeutic Neuralgia

Antidepressants: Amitriptyline

Anticonvulsants: Gabapentin, Pregabalin

Preventive measure

Vaccination: The shingles Vaccine is recommended for individuals over 50 years of age, significantly reducing the risk of developing herpes zoster and its complications. [22-25].

Fig 1: Herpes Zoster on the upper chest

Fig 2: Herpes zoster on the neck

Case Study

A 56-year-old Male patient was admitted in the Department of Dermatology with chief complaints of fluid filled lesions over upper chest and neck region since 5 days associated with Pain and burning sensation. Patient

was apparently normal 5 days back then he suddenly developed fluid filled lesions, on examination multiple grouped vesicles over erythematous base noted over left C3, C4, C5 Dermatome. His hospital medication includes T. Acyclovir 800mg, 5times per day for 1 week, T. Pantoprazole 40mg, T. Paracetamol 500mg, 2%Mupirocin cream twice daily, 2%Lignocaine gel twice daily, T. Bcomplex, T. Multivitamin

His discharge medication include

T. B complex

T.Paracetamol 500mg

2% lignocaine gel

2% Mupirocin cream

Discussion

Herpes zoster is caused by the reactivation of the Varicella- Zoster Virus (VZV), leading to a painful, unilateral vesicular rash along dermatomal distributions. In this case 56-year-old male presented with lesions on his upper chest and neck and burning sensation. He was treated with Acyclovir (800mg) to reduce symptoms severity, along with analgesics. (Paracetamol), Topical antibodies (Mupirocin), Anaesthetic gels (lignocaine), and Gastric protection (Pantoprazole). Nutrional supplements were provided to support recovery.

Conclusion

This case emphasizes the importance of early recognition and prompt Antiviral therapy in the management of Herpes Zoster to reduce complications. The patients clinicalcourse matches the typical presentation of Herpes Zoster and her treatment promotes full healing and isin accordance with standard guidelines. In order to reduce the frequency and severity of Herpes Zoster, Vaccination is still a crucial preventive measure, especially for people over 50years.

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Conflict of Interest

No Conflict of Interest

Ethical Permissions and Inform Consent

Authors took prior consent from patient before taking this case and also taken ethical permission from head of the Department and Superintendent of Government General Hospital Guntur.

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