**Topic: The role of moist dressings in the management of herpes zoster with scalp involvement: A case report**

**Running Title: Moist Dressings in Herpes Zoster with Scalp Involvement**

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**The role of moist dressings in the management of herpes zoster with scalp involvement: a case report**

**Key Clinical Message**

Moist wound dressings, specifically Hydrocoll, effectively reduce pain and promote healing in herpes zoster with scalp involvement, as demonstrated in the case of a 76-year-old male. Additionally, comprehensive management, including antivirals, pain control, and vaccination, is crucial for mitigating complications and improving patient outcomes.

**Abstract**

**Background:** Varicella-zoster virus (VZV) is a double-stranded DNA alphaherpesvirus that causes varicella (chickenpox) and herpes zoster (shingles). Herpes zoster typically occurs in older adults or those with weakened immune systems and can lead to severe complications, including postherpetic neuralgia (PHN), ophthalmic involvement, and, in some cases, disseminated disease. Effective management is crucial to reduce the morbidity associated with the disease. The uniqueness of this case lies in the rare presentation of herpes zoster with scalp involvement and the successful use of Hydrocoll moist dressings for its treatment.

**Case presentation:** We report a case of a 76-year-old Persian male from Iran with a background in agriculture and animal husbandry who developed herpes zoster ophthalmicus. He experienced severe ocular discomfort, and systemic symptoms akin to influenza, and had a significant medical history of chronic conditions. His laboratory findings indicated an inflammatory response and compensated respiratory alkalosis. A multidisciplinary treatment strategy was employed, incorporating antivirals, analgesics, and topical therapies, with specific attention paid to ocular care and the management of corticosteroid-induced hyperglycemia. Notably, the application of Hydrocoll moist dressings for the management of scalp herpes zoster was a critical aspect of local care, contributing significantly to pain reduction and recovery.

**Conclusion:** Vaccination remains a key preventive measure against herpes zoster, while moist wound dressings can be beneficial for local symptom management.

**Keywords:** Antivirals Vaccination, Case Report, Herpes Zoster, Postherpetic Neuralgia, Moist Wound Dressings

1. **Introduction**

Varicella zoster virus (VZV) is classified as a double-stranded DNA alphaherpesvirus responsible for the development of both varicella (chickenpox) and herpes zoster (HZ; shingles).1 Herpes zoster is caused by the reactivation of latent VZV in a sensory nerve ganglion, often appearing decades after the initial infection.2, 3

The HZ typically affects older adults and individuals with weakened immune systems, and it is characterized by a painful, itchy rash that follows a single or multiple adjacent dermatomal distributions.4 Roughly one out of every three people will encounter HZ at least one time in their life, which accounts for a significant health issue on a global scale.1

The shingles can lead to various complications, including postherpetic neuralgia (PHN), the most common and debilitating condition marked by persistent pain following the resolution of the rash.5, 6 Other complications can include ocular disorders such as HZ ophthalmicus,7 neurological issues such as meningoencephalitis, cranial and peripheral nerve palsies,8, 9 and in rare cases, disseminated disease, particularly in immunocompromised individuals.10, 11

The pain associated with PHN can be severe and debilitating, and traditional treatments such as analgesics, anticonvulsants, and antidepressants may not always provide adequate relief. Timely medical intervention and appropriate management of shingles are crucial in minimizing the risk of these complications and promoting recovery.12, 13

Herpes zoster (shingles) typically presents with a painful, vesicular rash in a dermatomal distribution, but scalp involvement is relatively rare, representing a smaller proportion of cases.14 While cutaneous manifestations are common on the trunk and thorax, shingles affecting the scalp, especially with ophthalmic complications, are less frequently reported in the literature, highlighting the uniqueness of such cases. Additionally, the use of hydrocolloid dressings like Hydrocoll for symptom management in shingles is not widely documented. These moist dressings are more commonly associated with the treatment of ulcers and other skin injuries due to their ability to provide a moist environment and promote healing.15 However, in the context of scalp shingles, their application appears to be novel, suggesting an innovative approach to managing this condition.

1. **Case History / Examination**

This scenario describes a new onset case of herpes zoster ophthalmicus in a 76-year-old Persian male patient from Iran, with no prior interventions or special measures taken for this condition. Upon hospital admission, he exhibited severe ocular discomfort, including pain, burning, itching, and a stinging sensation in the left eye, alongside systemic symptoms resembling influenza, such as generalized pain and fatigue. His medical history was notable for chronic hypertension and congestive heart failure, and atrial fibrillation was detected during an electrocardiogram (ECG) evaluation. The patient's responsiveness was assessed using the FOUR (Full Outline of UnResponsiveness) Score scale, which yielded a score of 8 out of 16, indicating moderate impairment but that he was conscious, alert, and able to consume fluids. Additionally, the patient had scalp shingles (Figure 1).



**FIGURE 1** Scalp shingles

1. **Methods**
   1. **Differential diagnosis**

Serological investigations revealed an elevated C-Reactive Protein (CRP) of 56 mg/L, an Erythrocyte Sedimentation Rate (ESR) of 29 mm/hr, a neutrophil count of 69%, lymphocyte count of 29%, White Blood Cell (WBC) count of 9.7 x 109/L, and thrombocytopenia with a platelet (PLT) count of 89 x 109/L. Urinalysis showed the presence of protein (+) and blood (+++). Arterial blood gas (ABG) analysis reported a PaCO2 of 26 mmHg, pH of 7.52, and bicarbonate (HCO3-) of 20.8 mmol/L, which was consistent with a diagnosis of fully compensated respiratory alkalosis.

* 1. **Investigations and treatment**

The multidisciplinary approach to management included consultations with an ophthalmologist, a cardiologist, and a wound care specialist. The ophthalmologist recommended the use of topical steroid ointments and antiviral agents, following the treatment protocols advocated by Cohen and Jang (2021),16 to manage ocular involvement. The patient was administered Aciclovir (10 mg/kg IV every 8 hours) for 14 days to address the viral infection, and pain management was achieved with Fentanyl and Paracetamol (Apotel®) formulation. However, corticosteroid therapy, essential for inflammation control, led to hyperglycemia, a known side effect requiring careful blood sugar monitoring. Therefore, the use of corticosteroid was hold.

A notable and rare aspect of this case was the occurrence of scalp shingles, which the patient presented with upon admission. The management of this localized herpetic manifestation involved the application of Hydrocoll wet dressings. This treatment modality is noteworthy due to its efficacy in promoting healing and significantly reducing localized pain. Hydrocoll dressings, not commonly reported in the literature in the context of shingles treatment, proved instrumental in this patient's care, as evidenced by the improvement in his symptoms. Before the application of Hydrocoll dressings, the patient rated his pain severity at a score of 8 on the Visual Analogue Scale (VAS).

Given the patient's bedridden status and nutritional challenges, rigorous preventative measures against pressure ulcers were implemented. These included regular repositioning with careful attention to the angle of elevation (kept under 30 degrees) and daily inspections of potential pressure points.

1. **Results**

The patient's condition improved with the comprehensive treatment plan, including meticulous monitoring of his vital signs and symptoms. In addition, serological parameters of the patient showed significant improvements (Table 1).

**TABLE 1** The laboratory results after 14 days.

|  |  |  |  |
| --- | --- | --- | --- |
| Test parameters | | Patient's value (Unit) | Normal range |
| Biochemistry | FBS | 168 (mg/dl) | 82-115 |
| Urea | 91 (mg/dl) | 17-49 |
| Crea | 1.0 (mg/dl) | 0.8-1.3 |
| Na | 159 (mEq/L) | 135-148 |
| K | 4.1 (mEq/L) | 3.5-5.5 |
| Serology | PT | 11.8 (sec) | 11 to 13.5 |
| PTT | 30 (sec) | 25-36 |
| INR | 1 (INR) | 0.8 to 1.1 |
| CRP | 1 (mg/l) | Up to 6 |
| Hematology | WBC | 12.9 (1012/L) | 4.5-11 |
| RBC | 4.46 (1012/L) | 4.6-5.9 |
| Hb | 12.5 (g/dl) | 14-18 |
| HCT | 39.7 (%) | 42-52 |
| MCV | 89.01 (FL) | 80-96 |
| MCH | 28.03 (pg) | 27-32 |
| MCHC | 31.49 (%) | 32-36 |
| Plt | 167 (109/L) | 140-450 |
| ESR 1 hr | 27 (mm/hour) | 2-18 |
| Neutrophils | H88 (%) | 40% to 60% |
| Lymphocytes | L7 | 20% to 40% |

Notably, the use of Hydrocol dressing on scalp shingles led to a significant improvement and reduction of pain from 8 to 3 on the VAS within two days (Figure 2). Additionally, rigorous preventative measures against pressure ulcers were taken due to his bedridden status and nutritional challenges, involving regular repositioning and careful attention to potential pressure points.



**FIGURE 2** Scalp shingles, after two days of the procedure.

Patient narratives and outcomes highlight the importance of comprehensive management of shingles with ocular complications and systemic involvement.

***“As the patient, I found the treatment with Hydrocoll moist dressings to be incredibly effective in managing the pain associated with my scalp shingles. The dressings not only helped in reducing the discomfort but also seemed to promote faster healing of the lesions. I appreciate the comprehensive care approach that addressed both my ocular symptoms and my overall health during my hospital stay.”***

1. **Discussion**

Herpes Zoster, commonly known as shingles, is a viral infection caused by the reactivation of the varicella-zoster virus (VZV), which is the same virus responsible for chickenpox. The disease is characterized by a painful rash, usually occurring on one side of the body, and can lead to complications such as post-herpetic neuralgia (PHN), a chronic pain condition that can persist long after the rash has healed.17

This study's findings align with the current understanding of HZ (shingles) management, which includes the use of antiviral agents, pain control, and, in certain circumstances, corticosteroids. The serological markers observed in the patient, such as elevated CRP and ESR, suggest an acute inflammatory response, which is consistent with the active phase of shingles.18

Treatment for HZ includes antiviral medications such as acyclovir, valacyclovir, and famciclovir, which are used for mild to moderate infections. In severe cases, intravenous acyclovir is the drug of choice. Foscarnet is used when acyclovir resistance is suspected or confirmed.17, 19 Acyclovir-resistant strains of VZV have been reported, but the incidence is low.20 Therefore, in this case, acyclovir was used, its effectiveness in reducing the severity and duration of HZ as documented in several studies.16, 21, 22

A study by Acar et al. (2022) evaluated the clinical features of HZ patients hospitalized in a dermatology clinic of a tertiary hospital. The study found that disseminated HZ was seen in 36.8% of patients, and ophthalmic HZ was present in 63.2% of cases. The relationship between dissemination, age, gender, presence of immunosuppression, and development of postherpetic neuralgia was not statistically significant.23 In this case, the patient had eye involvement, which was used the approach mentioned by Cohen and Jang (2021), which includes steroid and antiviral ointments. These treatments aim to reduce inflammation and viral load, thereby potentially preserving vision and preventing long-term complications such as keratitis.16

Preventive measures include vaccination, which is available for healthy older adults. Two vaccines are currently available: a live attenuated VZV vaccine and a recombinant adjuvanted VZV glycoprotein E subunit vaccine, which allows vaccination in severely immunosuppressed patients.24

In addition to antiviral treatment, pain management is essential for patients with HZ. This may include over-the-counter pain relievers, prescription medications, and other therapies such as nerve blocks or physical therapy.24 The prescription of fentanyl and Apotel (paracetamol) for pain and restlessness is in line with the multimodal approach to pain management in shingles, which often requires both systemic and local interventions.25 However, the use of corticosteroids, such as methylprednisolone and hydrocortisone, remains controversial. Some studies suggest that corticosteroids may reduce the incidence of PHN.26, 27 However, other studies caution against the use of corticosteroids, especially in immunocompromised patients. A study by Qian et al. (2021) showed that patients who take systemic corticosteroids are more likely to get HZ.28 So, the use of corticosteroids has many side effects that must be considered.29

Study by Bolton et al. (2021) demonstrated that due to their nature as wounds, it is imperative to promptly treat HZ vesicles with dressings that retain moisture to reduce the likelihood of infection, discomfort, itching, prolonged healing duration, and damage caused by abrasions and tears.30 The search on PubMed did not yield any clinical therapeutic studies evaluating the use of hydrocolloid moist dressings for pain relief and expedited healing in these conditions. In this regard, what can be seen from the results, the use of wet hydrocoll dressing can be useful in patients with HZ.

1. **CONCLUSIONS**

Adults aged 50 years and older with or without an underlying disease prone to shingles should be vaccinated to prevent shingles, and care providers can keep the affected area moist to manage the pain of a patient with shingles.

**AUTHOR CONTRIBUTIONS**

**Mohammad Raza Faramarzi**: Formal analysis; in-vestigation; project administration; resources; supervision; validation; visualization; writing – original draft; writing review and editing. **Erfan Hosseinian**: Conceptualization; in-vestigation; supervision; validation; visualization; writing – review and editing. **Esmaiel Maghsoodi**: Conceptualization; resources; investigation; validation; project administration; visualization; writing – review and editing.

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Not applicable.

**CONFLICT OF INTEREST STATEMENT**

There is no any conflict of interest

**DATA AVAILABILITY STATEMENT**

The datasets used and/or analyzed during the current case study are available from the corresponding author upon reasonable request.

**CONSENT**

The study was conducted according to the relevant guidelines of the Declaration of Helsinki and regulations in ethics approval, accordance, and consent to participate. Patient anonymity was guaranteed. Ethics approval was obtained from the Maragheh University of Medical Sciences.

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