Herpes Zoster Overlying Recently Placed Central Venous Access Site: A Case Report

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ABSTRACT

Herpes zoster, commonly called shingles, is a disease that results from the reactivation of varicella zoster virus. Local trauma has been reported as a precipitant for reactivation, but this condition is rarely seen localized to a fresh surgical incision. We present the case of a patient who developed shingles overlying the incision site of a recently buried central venous access port, illustrating the need to consider this diagnosis as a unique imposter of localized infection or reaction at sites of recent procedural trauma.

RÉSUMÉ

L'herpès zoster, communément appelé zona, est une maladie qui résulte de la réactivation du virus varicelle-zona. La documentation fait déjà mention de traumas locaux comme facteur précipitant de réactivation, mais le phénomène s'observe rarement au siège d'une incision chirurgicale récente. Sera décrit ici un cas de zona au point d'entrée d'un cathéter veineux central installé depuis peu, ce qui montre la nécessité d'envisager le diagnostic comme seul déclencheur d'infection localisée ou de réaction à des sièges d'intervention récente.

Keywords: Shingles, Herpes zoster, Bard PowerPort, wound healing

INTRODUCTION

Herpes zoster, commonly known as shingles, is a disease that results from reactivation of varicella zoster virus (VZV). It frequently manifests as a painful rash that starts as erythema and matures from maculopapular to vesicular, and pain may precede onset of the rash by days to weeks. The rash is usually unilateral and dermatomal, commonly in cranial or thoracic distributions.[1,2] It erupts over three to five days, then crusts and gradually improves within two weeks.[1]

Shingles only occurs in patients who have had a previous primary infection with VZV, or chickenpox. Following resolution of the primary infection, it is believed that the virus lies dormant in the sensory dorsal root ganglia, and remains there for the duration of the patient's life.[1,3-5]

Outbreaks have been temporally related to preceding local trauma, surgeries, and other procedures.[1,6-12] This case describes a patient who developed shingles within the incision site of a recent PowerPort® placement, a buried central venous access port. The case illustrates the need to consider this diagnosis as a unique imposter of localized infection or reaction at sites of recent surgical trauma.

CASE REPORT

A 44-year-old woman with a recent diagnosis of metastatic breast cancer presented to the emergency department (ED) for evaluation of a rash around her newly placed central venous access port site.

She had a Bard PowerPort® placed three weeks prior to presentation, and had already undergone one chemotherapy treatment a week prior, with doxorubicin and cyclophosphamide.

The rash appeared two days prior to patient presentation. She reported mild redness around the incision site, superior to the port. She then developed two raised red streaks, extending parallel from the port site along the course of the catheter. The day prior to presentation, she noticed several clear, fluid-filled

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vesicles over these streaks. The vesicles ruptured and the streaks coalesced into one large erythematous area.

The affected area was intensely pruritic, but not painful. Hydrocortisone cream provided no improvement.

Examination revealed a hemodynamically stable middle-aged woman with no notable findings other than the rash. Her port was palpable in the right anterior chest wall, with no tenderness to palpation. The skin immediately overlying the port was not erythematous. Superior to the port, there were two raised erythematous linear lesions with overlying vesicles, mostly ruptured, as demonstrated in Figure 1.

Laboratory work-up revealed a normal CBC and basic metabolic panel. Blood cultures were sent due to the possibility of underlying infection.

The rash was initially thought to be consistent with an allergic reaction to the port, leakage of chemotherapy, or a port-site infection. This was suggested by the localized area and intense pruritis without reports of pain. Dermatology and Allergy/Immunology were consulted in the ED, and the patient was given the diagnosis of contact dermatitis of unknown source. Possible sources considered included the plastic tubing of the port, the metal within the port apparatus, or an unknown agent placed around the port site during chemotherapy infusion. She was given a prescription for desoximetasone, a synthetic steroid cream, and discharged home.

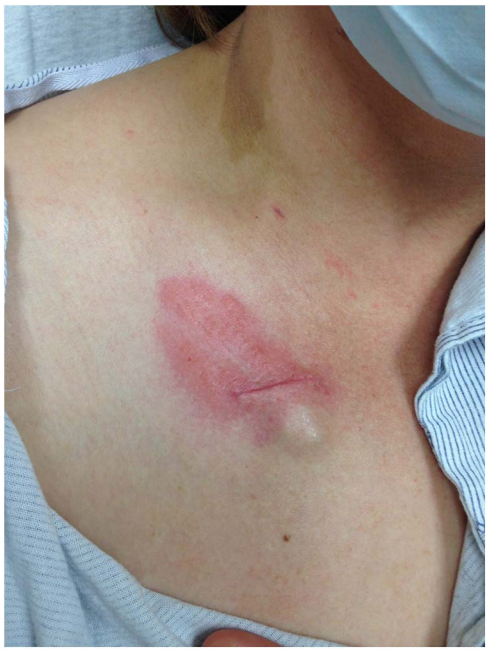

Figure 1. Rash over site of port placement.

The patient returned to the ED 12 days later with an unrelated complaint. On examination, she was still noted to have an erythematous rash with vesicles overlying her port site. Dermatology was again consulted and performed a biopsy, which confirmed herpes zoster. The patient was prescribed a 14-day course of valacyclovir (1 gram TID), and her rash was improved on follow-up.

DISCUSSION

Shingles is typically a clinical diagnosis. However, the diagnosis can be confirmed by vesicle scrapings which reveal multinucleated giant cells, or with viral cultures of the vesicular fluid.[3] Histology reveals inflammation and neuronal loss within the ganglia corresponding to the affected dermatome.[13]

Epidemiologic studies have demonstrated an increasing incidence of shingles in recent years.[14] It has been estimated that between 10% and 20% of the general population will develop shingles within their lifetime. Annually, somewhere between 300,000 and 600,000 cases are reported in the United States, with the majority occurring in patients over 50 years of age.[15,16]

Risk factors that increase the likelihood of developing shingles include immunosuppression, advanced age, certain neoplasms, and systemic illnesses.[1,6,13,17,18-20] The causes behind the reactivation of VZV are unclear.

Shingles can be precipitated by local trauma or procedures.[1,6-12] In most of these reported cases, the rash developed within the same dermatome as the preceding trauma. However, there are a few cases reported where the rash was located within the actual incision site. This case illustrates how shingles, developing around an incision site, can mimic other causes of rash.

There have been very few reports of patients developing shingles within their surgical incisions. Godfrey et al. (2006) reported a patient who developed shingles with the surgical incision site of a thoracic surgery for scoliosis[10], and Choi et al. (2012) published a case report of a patient who developed herpes zoster within the scar of a recent facial operation.[12] Other procedures previously described to incite shingles include radiotherapy,[21] liver biopsy,[3] axillary nerve block,[22] botulinum toxin injections,[23] intra-articular injections, cryosurgery,[24] spinal surgery,[1] intubation,[25] shiatsu massage,[26] liposuction,[27] corticosteroid injections,[28] and skin grafting.[29]

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The pathophysiology behind reactivation of the virus has been postulated to be related to hyperemia, ganglia irritation from direct pressure, or the release of inflammatory mediators.[1,30,31] Multiple pathways likely lead to viral reactivation via transcription of the latent virus,[32] and the process involves specific cytokines, notably IL-6 and tumor necrosis factor alpha, and expression of specific viral proteins such as VP16.[33-37]

The concept of local trauma inciting VZV reactivation has been explored.[36] The mechanism in which shingles localizes to an actual incision site is even less clear, but perhaps relates to physiologic changes that occur locally at the site of the procedure, triggering hyperemia and loss of innate immunity.[1,31,38]

As outlined by Gadient et al. (2014), the time frame between the preceding procedure and the development of the rash is variable.[11] Thomas et al. (2004) published a case-control study showing elevated risks of shingles for a month following trauma;[39] another study showed an elevated risk for two years following radiotherapy for breast cancer.[21]

The goals for treating shingles are to lessen the duration of the patient's symptoms, to decrease the risk of transmission, and to prevent post-herpetic neuralgia. Post-herpetic neuralgia is a syndrome of cutaneous hypersensitivity and neuropathic pain that develops in roughly 10% to 15% of patients and is particularly difficult to treat.[17] It is more commonly seen in older patients and in patients that present with a more extensive rash. The natural course of shingles is that it will spontaneously resolve without treatment; thus, the decision regarding whether to treat with antivirals is weighed based on the extent of the rash, the risk of developing complications, and the underlying health of the patient. Standard treatment regimens includes acyclovir (800 mg 5x/day) or valacyclovir (1,000 mg 3x/day), and should be started within 72 hours of onset of the rash. In immunocompetent patients, treatment should last five days; longer treatment, or IV antivirals, may be considered in immunocompromised patients. In patients that do not warrant antiviral therapy, treatment should focus on analgesia.

Returning to our case, a 44-year-old woman with metastatic breast cancer, immunosuppressed and on chemotherapy, presented with an erythematous and vesicular rash around her recently placed port site. Shingles should be considered in any vesicular rash, especially if the patient is immunosuppressed. Our patient was evaluated by Dermatology in the ED, which is not a common situation. It is more common that the diagnosis will need to be made clinically, without a punch biopsy, or patients may need to be presumptively treated until they can be evaluated in a clinic setting. Although our patient had delays in diagnosis and treatment until late in the course of her disease, she has had no signs of post-herpetic neuralgia documented on follow-up. It can be argued that the patient did not warrant antiviral therapy, as she presented late in the course of the disease and had a fairly limited distribution of rash. However, the decision was ultimately made to treat her because of the critical location of the rash over her port, which needed to be accessed frequently for chemotherapy. The duration of the patient's treatment (14 days) is also longer than is typically recommended, and potentially put the patient at risk for more medication side effects than necessary.

CONCLUSION

Although the mechanism behind shingles remains unclear, this case illustrates the potential for local trauma, even if iatrogenic, to precipitate VZV reactivation. Rashes may appear atypical or follow odd distributions when related to procedures. Shingles is frequently misidentified as bacterial infections or local reactions causing pain or rash. Medical practitioners are reminded of this potential cause of shingles, as diagnostic testing or prompt recognition may improve outcome.

Competing Interests: None declared.

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