


Rethinking the Utility of the Audio-Only Encounter: A Case of Herpes Zoster Co-Infection in Asymptomatic SARS-CoV-2

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ABSTRACT

BACKGROUND: Telemedicine with video communication has become commonly applied during and after the COVID-19 pandemic. While audio-only encounters are not allowed in Japan after August 2023. The Centers for Medicaid and Medicare Services (CMS) in the United States revised the telehealth policy to make the video visit standard. We present here a case with the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and diagnosed her with the Herpes zoster at audio-only encounters followed by an in-person clinic visit.

CASE PRESENTATION: A 31-year-old woman called our hospital for a complaint of right chest discomfort and a tingling sensation. The SARS-CoV-2 infection was confirmed on her with the polymerase chain reaction (PCR) test 4 days before the symptom onset. A telephone encounter was made for her since the video communication failed to be prepared. The attending physician made a diagnosis of herpes zoster based on her verbal explanation of symptoms and localized skin lesions. An anti-viral medication with amenamevir was given. The photos of skin lesions were sent 3 days after the audio visit, which was consistent with herpes zoster. The patient visited our outpatient clinic and was confirmed for herpes zoster serologically with positive antibodies of both varicella-zoster IgM and IgG.

CONCLUSIONS: The audio-only visit could help diagnose herpes zoster if the follow-up examinations are performed adequately. Audio-only encounters preserve the flexibility of telemedicine when video communication cannot be prepared promptly.

KEYWORDS: Telemedicine, virus diseases, primary health care

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Introduction

The coronavirus disease-2019 (COVID-19) pandemic has accelerated the usage of telemedicine to reduce the risk of physical contact as a means of healthcare delivery.¹ Telemedicine can be performed with video or audio-only encounters. The hybrid approach combining telemedicine and in-person care has also been applied in clinical practice.² The Centers for Medicaid and Medicare Services (CMS) in the United States (U.S.) amended the telehealth policy to make the video visit standard and to restrict the audio-only visit for limited conditions after the COVID-19 public health emergency broke out.³ In Japan, universal health coverage did not cover the telephone encounter after August 2023.⁴ The audio-only visits, however, are a viable modality to ensure the equitability of telehealth access.⁵ The audio-only care delivery can lower the hurdles of access when the internet access connecting between the patient and physician is limited. The physicians, however,

have to make medical decisions with less information from the patients' words and tone of voice in the audio-only visit, which occasionally brings tough challenges for differential diagnosis.⁶ In dermatology clinics, the hybrid care model with in-person visits and telemedicine was performed depending on the patient's disease and situation.⁷

Herpes zoster is a disease that can cooccur with or be followed by SARS-CoV-2 infection.^{8,9} Lymphopenia after the SARS-CoV-2 infection, suggesting an impairment of cellular immunity, may mediate the reactivation of the Varicella-Zoster virus.¹⁰ In Brazil, there was a 35.4% increase in the number of shingles diagnosed in 2020 compared to 2017-2019.¹¹ U.S. adults aged 50 years and older with a history of COVID-19 had a 15% higher risk of developing Herpes zoster than those without COVID-19.¹² Primary care physicians should consider the Herpes zoster as a differential diagnosis of a sequela of COVID-19.



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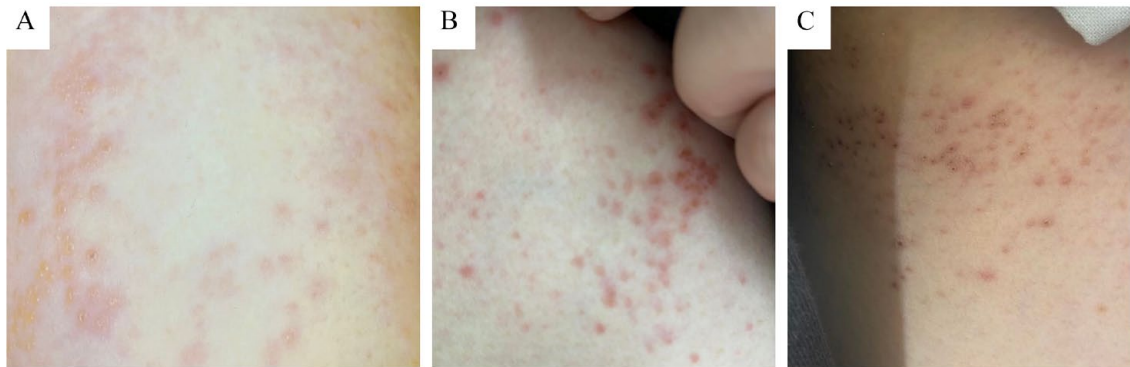


Figure 1. Series of skin lesions in the right axillary area. The patient sent the attending physician photos of her right chest and axilla lesion on day 3, showing a partially blistered skin lesion (A). The skin lesion was crusted, formulating a band to the anterior right chest from the axilla on day 7 (B). A band of crusted skin lesions was observed on day 14 (C).

We experienced a case with asymptomatic infection of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) who was diagnosed with the Herpes zoster at audio-only encounters, followed by the photo-sharing of skin lesions and in-person clinic visit. Telemedicine in dermatology has become common for clinical practice during the COVID-19 pandemic,⁷ and it applied to patients with cooccurring SARS-CoV-2 infection and the Herpes zoster.^{13,14} We believe that the case presented here is relevant to physicians who provide telemedicine for acute care of dermatologic diseases and tells us the importance of diversity in telemedicine.

Case Report

A 31-year-old woman called our hospital (Soma Central Hospital, Soma, Fukushima, Japan), and complained about a tingling sensation with itching on her right axilla (Day 0). On day -6, her son was infected with COVID-19, but she was asymptomatic. She underwent the real-time polymerase chain reaction (RT-PCR) test of SARS-CoV-2 with throat swab fluid at a medical institution on day -4 as per Japanese regulations, which mandate testing for individuals in close contact with COVID-19 patients. Her test result was positive, and she continued to stay at home.

A telephone encounter with a physician was made since the video communication for telemedicine was not able to be immediately prepared. She was interviewed about her present and past medical histories by phone. She had a past history of chickenpox and no varicella-zoster vaccination. She had no concomitant disease. She completed 3 doses of BNT162b2 mRNA SARS-CoV-2 vaccination. The last vaccination was received 2-months before the symptom onset. She was aware of discomfort in her right axilla on day -2, and reported the appearance of a rash with partial blistering that spread to her right chest on day 0. The attending physician asked her the visual analog scale of the pain of the skin lesion, and she responded with a score of 1 out of 10.

After the medical interview, the clinical diagnosis of the Herpes zoster was made based on her report on the tingling sensation on the skin surface, localized lesion on her right chest, itching with blisters, a past history of chicken pox, and no history of the varicella-zoster vaccination. The unilateral nature of her skin rash was particularly decisive for the diagnosis since the skin lesion in Herpes zoster is distributed along with a specific dermatome associated with the sensory root ganglia. The attending physician decided to initiate anti-viral therapy promptly to avoid the severe consequences of Herpes zoster, such as intractable and chronic pain that often result from delayed treatment. An anti-viral treatment with amenamevir (400 mg/day for 7 days) was given. Loxoprofen was also prescribed for her pain control. The attending physician asked her to mail photos of the skin lesion and visit our hospital 7 days after.

The photos of the skin lesions were sent to the hospital on Day 3 (Figure 1A). The skin lesions were localized and partially blistered in the photos, which is consistent with typical skin findings of Herpes zoster. She visited the outpatient clinic on day 7 as scheduled. The skin lesion was partially crusted, formulating a band to the anterior right chest from the axilla (Figure 1B). Her herpes zoster was serologically confirmed as positive for both anti-varicella-zoster virus IgM and IgG antibodies. There was no data suggestive of the immunosuppressive status. She showed no itching, but had mild pain. An additional dose of acetaminophen (3000 mg/day) was prescribed for 7 days. On day 14, her pain disappeared, and she showed crusting of the rash on her right chest to the axilla (Figure 1C).

Discussion

We here report a case of herpes zoster in an asymptomatic COVID-19 patient, in which clinical diagnosis was initially made by audio-only visit and followed by photo-sharing of skin lesion and in-person clinic visit. Cases of herpes zoster diagnosed by telemedicine have been reported in the past.^{13,14}

The presented case suggests that an audio-only encounter could be an alternative option for early diagnosis of Herpes zoster if the video communication cannot be prepared immediately.

The COVID-19 outbreak has accelerated telemedicine to reduce the risk of infection during clinic visits.¹ The video encounter is not always a means of telemedicine due to technical difficulties such as internet connection errors and incomplete software environments. In fact, 60 522 (68.1%) visits out of 88 821 televisits were done by telephone in Japan in the fiscal year of 2021.¹⁵ Kleinman et al reported that 7.4% (95% confidence interval: 7.3-7.5) of residents living in households in the United States had access to telephone service but not to the internet, which was associated with race/ethnicity, health insurance, age group and income.⁴ Keeping the diversity of access to telehealth could ensure health equality. Our case here suggests that the careful medical interview with audio encounter allowed medical decision-making for the Herpes zoster. The photo sharing by mail after the audio visit supported the clinical diagnosis. However, there are several limitations on audio-only encounter. First, no visual assessment is available. In this case, alternatively, the photo-sharing and in-person visit were made after the isolation period of COVID-19. Such follow-up procedure worked as a confirmatory opportunity of the diagnosis. Second concern is the insufficient identification of patient. The record of the personal identification number, like the patient identifiers of the electronic health record (EHR) system and the social security card in the U.S., may be a mean of patient identification.

Pain is the most common symptom of herpes zoster¹⁶; however, the patient's chief complaint was chest discomfort and a tingling sensation with itching, not pain. Most patients with herpes zoster complain of a deep "burning," "pounding," or "stabbing" sensation.^{17,18} Approximately 75% of patients with herpes zoster have prodromal pain that precedes the rash in a dermatome.¹⁹ The prodromal pain is constant or intermittent and typically precedes the rash by 2 to 3 days.¹⁸ The differential diagnosis of chest and back pain includes angina pectoris, cholecystitis, spinal disc diseases, and urinary tract stone, in addition to the herpes zoster. In the present case, a careful interview revealed the existence of a localized tingling sensation, which led to the medical diagnosis of herpes zoster. The other differential diagnosis of skin lesion includes herpes simplex, insect bites, impetigo, and contact dermatitis. The patient in this report explained that her skin rash was spreading from the anterior thoracic region to the axillae in a series consisting of Herpes zoster. Telephone encounter alone, however, was not sufficient for a definitive diagnosis of herpes zoster. Sharing photos of her skin lesion after a telephone visit and the elevation of anti-varicella-zoster virus IgM by laboratory test at her clinic visit were required for the final decision.

Conclusion

We presented a case involving an audio-only encounter for cooccurring asymptomatic SARS-CoV-2 infection and herpes zoster. SARS-CoV-2 infection could develop immunocompromised status, potentially heightening the risk of herpes zoster reactivation. Audio-only encounters preserve the flexibility of telemedicine for patients without access to video encounters, showcasing the adaptability in providing comprehensive healthcare delivery.

Author's Note

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Author Contributions

FH, MT, and MK conceptualized the idea. FH and MT wrote the first draft. FH, MT, KY, YT, CY, HS, MK and RS wrote, edited, and approved the manuscript.

Ethics Statement

Ethics approval was not required for the case report in accordance with Japanese ethical guidelines for life science and medical research involving humans.

Informed Consent

Written informed consent was obtained from the patient for the publication.

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