

Report from the Field

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Special Needs Shelters Not Only as Evacuation Sites but Also as Access Points to Medical Care: A Case Report from the Noto Peninsula Earthquake

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Abstract

The 2024 Noto Peninsula earthquake forced many residents to evacuate to Special Needs Shelters (SNS)—facilities designed to accept individuals requiring special consideration, such as older adults and those with sensory disabilities. This case report describes a woman in her 90s with untreated cataracts and hearing loss, who was neglected and abused by her son. After evacuation, she was diagnosed with cataracts at the shelter and referred for surgery, significantly improving her vision and her ability to undertake activities of daily living. SNS can serve as a gateway to medical services for those deprived of adequate health care. Integrating medical services into disaster response plans and deploying professionals at these shelters is crucial for improving health outcomes and quality of life for vulnerable individuals. This case highlights how appropriate shelter services with seamless medical care connections can enhance evacuees' long-term well-being beyond the immediate disaster response.

Introduction

In high-income countries, the aging population is growing,¹ making the maintenance of healthy life expectancy among older adults an increasingly important issue. This challenge becomes even more critical during disasters, when older adults are particularly vulnerable to health deterioration. During Hurricane Katrina in 2005, it was reported that the majority of those who experienced negative health outcomes were older adults over the age of 60.² In the aftermath of the 2011 Great East Japan Earthquake, older people faced challenges not only from the direct impact of the disaster itself, but also from the secondary health effects, such as an increase in lifestyle-related diseases caused by evacuation.^{3,4} Even when efforts are made to maintain healthy life expectancy during non-disaster times, the management of chronic diseases and the continuation of medical care become difficult due to the evacuation during disasters. This increases the risk of deterioration in the health status of older individuals.

Based on these lessons learnt from past disasters, the establishment of welfare shelters is being promoted in Japan as a measure to support older adults who are prone to becoming vulnerable during disasters.^{5,6} Welfare shelters are known as “special needs shelters” (SNS). SNS provide barrier-free environments and medical support for evacuees requiring special consideration, particularly older adults and those with sensory disabilities.⁶ However, actual cases of utilizing SNS during disasters are limited. Moreover, specific case accumulation is required regarding how medical care at SNS affects the health outcomes of individuals requiring special consideration.

In this case report, we describe the clinical course of an older adult who evacuated to a SNS due to the 2024 Noto Peninsula Earthquake. This case illustrates how the older evacuee's activities of daily living (ADL) improved after being diagnosed with cataracts and receiving appropriate daily life care by doctors, nurses, care workers, and physical therapists working at the SNS. This case is a

valuable example showing the impact of medical personnel's activities at SNS on the health outcomes of individuals requiring special consideration. The purpose of this report is to demonstrate the role of SNS during disasters and the necessity of ensuring appropriate medical access for people requiring special consideration.

Case Presentation

The Noto Peninsula Earthquake occurred at 4:10 PM (Japan Standard Time) on January 1, 2024 in an area located along the Sea of Japan on the northern part of Ishikawa Prefecture. Its magnitude was 7.5.⁷ Due to the impact of the earthquake, more than 25 000 residents in the affected areas were forced to evacuate.⁷ This case is of a woman in her 90s who was forced to evacuate due to this earthquake. After the earthquake, she evacuated to an SNS on X/Y (admission date: hereafter referred to as X). Upon arrival at the SNS, her vital signs were as follows: body temperature 37.4°C, blood pressure 104/76 mmHg, pulse 81 bpm, and SpO₂ 96% on room air. She had been previously assessed as requiring long-term care level 2, a status that continued at the time of evacuation. In Japan, long-term care level 2 indicates moderate disability in performing ADL.⁸ She was, however, able to communicate. Her medical history included visual impairment due to cataracts and hearing impairment. Before the evacuation, she was using respite care and welfare equipment rental services under long-term care insurance. Her overall level of independence in movement was at the level of supervision to minimal assistance. She could walk about 10 meters with minimal assistance but required support objects such as a walker and verbal guidance in the direction of travel. She lived with her son, who was in his 60s. Before the evacuation, she was almost bedridden due to the severe visual impairment caused by her untreated cataracts. Her vision was severely limited; she could only distinguish light and darkness or detect the direction of brightness but was completely unable to identify objects in front of her. Later, it was revealed that she had been neglected and abused by her son, and there was a possibility that she had not received appropriate cataract treatment or proper certification for long-term care insurance.

She stayed in the SNS with several other evacuees after the evacuation. The SNS accommodated not only evacuees, but also many volunteers and medical professionals who had gathered voluntarily. The medical professionals at the SNS included not only physicians, but also numerous paramedical staff such as nurses, physical therapists, and care workers, who actively provided support to evacuees. Although she required support from others for her daily life, she did not struggle to receive daily life support thanks to the 24-hour presence of medical professionals at the SNS. Additionally, she was observed enjoying conversations with other shelter residents and volunteers. Later, an ophthalmologist who was volunteering at the shelter and practiced in the area where the SNS was located, had the opportunity to examine her. The ophthalmologist diagnosed her with cataracts and determined that she was a candidate for surgical treatment. Subsequently, she was referred to a hospital for detailed evaluation and treatment. On X+40, she visited "Hospital A" with a nurse from the SNS and scheduled a date for surgery. She was admitted on X+62, underwent the right eye surgery on X+63 and the left eye surgery on X+64, and was discharged on X+65. She was hospitalized for a total of 5 days during the entire treatment period.

After discharge, she was admitted to a group home. Subsequently, she received continuous follow-up through home-visit

nursing services. Her visual acuity and overall ADL significantly improved with cataract treatment and improvement in her living environment.

Discussion

This case report described the clinical course of an older woman who evacuated to an SNS after the Noto Peninsula Earthquake and whose ADL improved after receiving a diagnosis and treatment for cataracts. This case highlights the importance of SNS during disasters and the necessity of ensuring medical access for vulnerable individuals.

The distinctive feature of this case report is that it describes the impact of SNS on evacuees' level of independence in undertaking ADLs, based on an actual disaster case. Previous studies have often focused on analyzing diseases among evacuees in shelters, or examining the mortality risk of evacuees.^{9,10} In contrast, this report presents a case in which relocating to a shelter had a positive effect on the health status of the user. Individuals with sensory impairments have an increased risk of reduced physical activity, falls, and physical frailty even in non-disaster times,^{11,12} and require support from those who can provide access to treatments that improve vision and physical function.¹³ Unfortunately, in this case, she was unable to receive sufficient care for her sensory impairments from her cohabiting family before the disaster. However, after the earthquake, evacuating to the SNS enabled her to receive not only a medical diagnosis for her sensory impairments but also support for her daily living activities at the shelter.

Furthermore, this case is innovative in that it illustrates that SNS can serve as a gateway to medical care in times of disasters when medical access is at risk of being disrupted. In other cases, there have been reported cases where physical therapists working at SNS after this earthquake were able to provide uninterrupted medical care to evacuees.¹⁴ As in this case, SNS can serve as a safety net for disaster victims and lead to improved health outcomes. Moreover, the presence of medical professionals, such as the ophthalmologist who volunteered at the shelter, is essential for identifying and addressing the medical needs of vulnerable individuals during the critical situations of disasters. In the Noto Peninsula Earthquake, there was a case where physical therapists working at a SNS contributed to physical screening and creating bed layouts to maintain the ADL of evacuees.¹⁴ Another case is of a physician working at a SNS, who discovered the risk of infectious disease spread and led the discovery of the need to expand vaccination.¹⁵ SNS collaborating with medical institutions and providing uninterrupted medical care is one of the solutions to the challenges of disaster response in an aging society.

The results of this case report highlight the necessity of integrating medical services into disaster response plans and deploying medical professionals at SNS. Certainly, this case does not necessarily apply to all evacuees. The positive outcome of this case may be the result of a favorable combination of multiple factors, such as the function of the SNS, appropriate access to medical institutions, and the provision of a post-operative care environment. However, despite these limitations, this case report is an important example showing the potential function of SNS in discovering medical needs and providing appropriate access to medical care. In the future, by accumulating more cases and evaluating the functions of SNS in different disaster situations, it will be possible to more clearly define the role of SNS in disaster medicine.

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Ethical standard. We obtained written consent from the case's family to write this report.

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