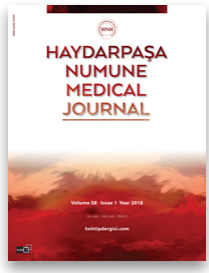
HAYDARPAŞA NUMUNE MEDICAL JOURNAL

DOI: 10.14744/hnhj.2024.29200
Haydarpasa Numune Med J 2024;64(4):456–460



hnhtipdergisi.com

ORIGINAL ARTICLE

Scabies Outbreak Among Healthcare Workers and Scabies Associated with Healthcare Services

Onur Özalp, Alper Gündüz, Esra Fersan, Özlem Altuntaş Aydın

Department of Infectious Diseases and Clinical Microbiology, Basaksehir Cam and Sakura City Hospital, Istanbul, Türkiye

Abstract

Introduction: Scabies associated with healthcare services can lead to significant morbidity in healthcare workers. Our study aims to present our experience with a scabies outbreak originating from a hospitalized patient and affecting our healthcare workers, and to propose infection control methods recommended for scabies related to healthcare services.

Methods: The scabies outbreak among healthcare workers at our hospital was evaluated from August 16th to September 6th. The study included healthcare workers who provided care to a patient diagnosed with scabies on July 21, 2022.

Results: Surveillance was initiated due to scabies diagnosis in two nurses working at our Hospital's Rheumatology Clinic on August 16th and 17th, 2022. These nurses were treated with a topical ointment containing sulfur+vegetable tar and were given seven days off. All Rheumatology service staff started using personal protective equipment for contact isolation, avoiding direct skin contact, and maintaining hand hygiene. All service furniture was cleaned using a high vacuum cleaner, and terminal cleaning and disinfection were applied to the entire service area. Under these measures, a total of five nurses and one doctor were diagnosed with scabies. File review conducted in the clinic revealed a patient had been diagnosed with scabies during their admission on July 21, 2022. No new scabies cases were reported in the following two months under infection control measures and practices.

Discussion and Conclusion: Raising awareness of scabies diagnosis among healthcare workers, early diagnosis and treatment, full compliance with infection control measures, surveillance, and prophylaxis are important for scabies related to healthcare services.

Keywords: Hospital infections; scabies; scabies in healthcare workers.

Scabies is a parasitic dermatosis caused by Sarcoptes scabiei hominis, a mite that exclusively infests humans. It is a significant public health problem affecting the world, often leading to outbreaks. Scabies is more common in children residing in impoverished areas with limited access to basic necessities, especially in warm and tropical regions. However, it can also cause outbreaks in the elderly population in high-income regions. The likelihood of scabies increases from birth to adulthood, declines, and then moderately rises again after the age of 70[1]. The risk of scabies infestation is higher in immunosuppressed individuals, crowded living conditions with low socioeconomic status, and residents of nursing homes[2].

Before the COVID-19 pandemic, there were reports of an increase in scabies incidence in our country and globally[3-7]. The inability to access or delayed access to scabies treatment

Correspondence: Onur Özalp, M.D. Department of Infectious Diseases and Clinical Microbiology, Basaksehir Cam and Sakura City Hospital, Istanbul, Türkiye
Phone: +90 212 909 60 00 **E-mail:** onur.ozalp@yahoo.com
Submitted Date: 07.11.2023 **Revised Date:** 16.02.2024 **Accepted Date:** 28.02.2024
Haydarpaşa Numune Medical Journal

during the pandemic conditions is thought to contribute to post-pandemic scabies outbreaks[4,8,9]. Additionally, the increasing refugee and migrant crisis in our region has further emphasized the importance of scabies control[10].

Scabies can also be observed among healthcare professionals, similar to the general population. Until 2006, scabies outbreaks were observed in at least 19 hospitals. Subsequently, new outbreaks have been reported[11]. Scabies can cause significant morbidity in both healthcare workers and patients. Factors such as inadequate knowledge of scabies epidemiology, atypical presentations of the disease, unfamiliarity of healthcare workers with the condition, prolonged incubation period, delayed diagnosis, and insufficient patient follow-up facilitate the development of healthcare-associated scabies[12]. Scabies infestation can affect patients admitted to hospitals or their companions and, rarely, can be the source of infestations leading to outbreaks among healthcare workers. This study aims to present our experience with a scabies outbreak originating from a hospitalized patient in our hospital, affecting our healthcare workers, and to propose recommended infection control measures related to healthcare-associated scabies.

Materials and Methods

A scabies outbreak involving five nurses and one doctor providing care to a patient admitted with a preliminary diagnosis of vasculitis on July 17, 2022, and diagnosed with scabies on July 21, 2022, in the Rheumatology department of our hospital was evaluated.

Initially, after a nurse working in the Rheumatology department reported a scabies diagnosis for herself and four other nurses and one doctor working in the same clinic, their contacts, shared working conditions, and records of patients they cared for, available in the hospital information system until September 2022, were retrospectively examined. The study was conducted in accordance with the Helsinki Declaration, and approval was obtained from the Local Ethics Committee of Başakşehir Çam and Sakura City Hospital, Türkiye (Approval No: 2023.02.52).

Statistical Analysis

No statistical analysis methods were used in this outbreak analysis study.

Results

Surveillance was initiated on August 16 and 17, 2022, after two nurses working in the Rheumatology Clinic were diagnosed with scabies based on clinical findings. It was found that none of the close contacts among the nurses' relatives living outside the hospital had specific scabies symptoms. The affected nurses were treated with topical ointment containing sulfur+Goudron Vegetal and were given seven days of leave. Personal protective equipment (disposable gowns and gloves) was introduced for all Rheumatology Clinic staff to prevent contact isolation, and direct skin contact was avoided. Hand hygiene was ensured by washing hands with soap and water. All clinic furniture was cleaned with a high-powered vacuum cleaner, and terminal cleaning and disinfection were performed in the entire clinic. Despite these measures, three nurses and one doctor were diagnosed with scabies based on history and dermatoscopic examination within the following 20 days. It was confirmed that these healthcare workers did not have any individuals diagnosed with scabies among their close contacts outside the hospital. They were all treated with topical ointment containing sulfur+Goudron Vegetal and were given seven days of leave.

The medical records of all patients admitted to the Rheumatology Clinic were reviewed up to six weeks before the first diagnosis of scabies in healthcare workers. It was observed that a 28-year-old male patient admitted on July 21, 2022, was diagnosed with scabies during his hospitalization. The patient had wounds on both ankles and leg tibial regions for two years. A punch biopsy was taken for advanced examination in the dermatology outpatient clinic. The biopsy results indicated "mild fibrinogen and immunoglobulin accumulation in small vessel walls, vasculopathic reaction pattern." Subsequently, the patient was admitted to the Rheumatology Clinic on July 17, 2022, for further examination and tests with a preliminary diagnosis of vasculitis. During the first two days of hospitalization, the patient underwent radiological imaging tests, and it was also observed that he had urticaria-like itchy lesions on his head. Intravenous methylprednisolone and antihistamines were administered. Although the symptoms on the head improved, widespread itching persisted on the whole body. Dermatoscopic examination revealed burrows between the patient's fingers, leading to the diagnosis of scabies on July 21, 2022. The patient was isolated, and treatment with topical ointment containing sulfur+Goudron Vegetal (repeated for three consecutive days without washing) was initiated. The patient's itching improved, and the rheumatological examination was completed. The patient was discharged on July 28, 2022, after the isolation measures for scabies were applied.

Before isolation measures for scabies diagnosis were

implemented, it was determined that 13 nurses and 6 doctors directly contacted the patient at the Rheumatology Clinic. However, until September 6, 2022, a total of six healthcare workers, including five nurses and one doctor, developed scabies. While the last nurse diagnosed with scabies received the same treatment regimen as the other cases, in addition to the implemented contact isolation, disinfection, and cleaning measures in the clinic, prophylactic topical 5% permethrin lotion was applied to non-infested healthcare workers. After these applications, no new cases of scabies were reported for two months.

Discussion

The outbreak in our tertiary-level city hospital, which has a bed capacity of 2,682, was brought under control after affecting six healthcare workers over a period of 48 days. In the literature, outbreaks affecting at least six healthcare workers lasting for a minimum of four weeks, as well as larger outbreaks involving hundreds of patients and healthcare workers lasting up to one year, have been reported[13,14]. The outbreak in our hospital is believed to have been triggered by the diagnosis of scabies in the index patient on the fifth day of hospitalization. Furthermore, the steroid treatment administered to the index patient due to the development of pruritic urticaria-like lesions after contrast agent exposure diverted attention from the diagnosis of scabies. Complaints in healthcare workers began 4-7 weeks after the transmission of scabies.

The fact that the outbreak was limited to six healthcare workers, did not spread to other patients, and had a short duration was attributed to the timely diagnosis of scabies based on the classical clinical presentation of the index patient and the implementation of infection control measures. The most common clinical presentation of scabies, known as classical scabies, is characterized by the primary symptom of itching and the most frequent lesion, erythematous papules, with the classic pathognomonic sign being burrows (sillons)[12]. Institutional scabies outbreaks are usually caused by patients with crusted scabies, which is more difficult to recognize and can lead to large outbreaks in hospitals[13,15].

Our patients were treated with a topical ointment containing a combination of sulfur+Goudron Vegetal, and a complete cure was achieved. No scabies cases were observed in healthcare workers who received prophylactic topical permethrin. Although more challenging to use in patients, sulfur was preferred in cases of permethrin-resistant parasitosis. In the treatment of scabies, topical agents such as permethrin, sulfur (which contains sulfur compounds), ivermectin, benzyl benzoate, malathion, pyrethrin, crotamiton, and phenothrin are utilized[16]. In our country, only permethrin 5% lotion and sulfur 12.5% ointment are available among these agents. The use of the only systemic agent for scabies treatment, oral ivermectin, has started in our country. After the application of permethrin in classical scabies, the treatment should be repeated on any day between the 7th and 14th days. If sulfur is chosen as the treatment, it should be applied for three consecutive days without washing. The combination of topical+systemic treatment and the removal of hyperkeratotic lesions are recommended for the treatment of crusted scabies. Combination treatment should last for at least one week and should be repeated weekly for at least another two weeks[17].

In scabies outbreaks related to healthcare services, permethrin, ivermectin, or sulfur are generally preferred as both therapeutic and preventive agents[18-20]. Healthcare workers diagnosed with scabies can return to work the day after receiving a single dose of treatment. They should wear disposable gloves for several days until they are sure they are not contagious, and their families should also receive treatment.

In the prevention of scabies outbreaks, early diagnosis and treatment, application of appropriate isolation and infection control measures, and the presence of experienced staff to differentiate skin rashes and confirm scabies diagnosis are crucial. Effective surveillance should be initiated when scabies is detected in hospitals. Healthcare workers in contact with the patient should use disposable gloves, gowns, and masks, and should avoid direct skin contact. Hand hygiene should be ensured by washing hands instead of using antiseptic solutions. The patient's room (bed, chair), items such as wheelchairs and blood pressure cuffs used for the patient should be cleaned with vacuum application. The patient's clothes should be kept in sealed plastic bags for at least 3 days. Even if healthcare workers and patients do not have characteristic scabies symptoms, any skin complaint should be evaluated for scabies. Prophylaxis should be given to all healthcare workers and patients who have had risky contact[21-23].

In the case of crusted scabies, a faster and more aggressive approach should be taken. Due to the complexity of controlling an institutional outbreak and the low risk associated with treatment, treatment should be strongly considered even in suspected cases. Healthcare workers providing care for patients with crusted scabies should

be cohorted. Unlike classical scabies, where infestation through everyday contact methods such as handshakes and hugging is unexpected and contamination through contaminated clothing or bedding is rare, crusted scabies requires wearing protective shoe covers, and the used clothes and bedding should be washed in hot water and subjected to hot drying. Surveillance should be extended for a longer period. All suspected and confirmed cases as well as potentially exposed patients, healthcare workers, visitors, and family members should be treated simultaneously to prevent re-exposure. Contact precautions should be continued until it is observed that the parasite has been removed in skin scrapings taken from the patient with crusted scabies[21,24].

Conclusion

Scabies related to healthcare services can lead to outbreaks and cause serious morbidities. Healthcare workers being able to consider diseases with delayed diagnoses, such as scabies, and having knowledge of scabies epidemiology and presentations can reduce the harmful effects of infestation. Early diagnosis and treatment, full compliance with infection control measures, surveillance, and prophylaxis are crucial for scabies related to healthcare services.

Acknowledgement: We would like to thank all the doctors and nurses working in the Infection Control Committee of our hospital, as well as all the doctors and technicians working in the Rheumatology Department, for their valuable contributions to our study.

Ethics Committee Approval: The study was approved by University of Health Sciences, Başakşehir Çam and Sakura Hospital Ethics Committee (No: KAEK/2023.02.52, Date: 28/02/2023).

Peer-review: Externally peer-reviewed.

Use of AI for Writing Assistance: Not declared.

Authorship Contributions: Concept – O.Ö., Ö.A.A.; Design – O.Ö., A.G., E.F.; Supervision – O.Ö., A.G., Ö.A.A.; Fundings – O.Ö., A.G., E.F.; Materials – O.Ö., A.G., E.F.; Data collection &/or processing – O.Ö., A.G., E.F.; Analysis and/or interpretation – O.Ö., Ö.A.A.; Literature search – O.Ö.; Writing – O.Ö.; Critical review – O.Ö., Ö.A.A.

Conflict of Interest: The authors declare that there is no conflict of interest.

Financial Disclosure: The authors declared that this study has received no financial support.

References

1. Zhang W, Zhang Y, Luo L, Huang W, Shen X, Dong X, et al. Trends in prevalence and incidence of scabies from 1990 to 2017: Findings from the global Burden of disease study 2017. Emerg Microbes Infect 2020;9:813–6.
2. Korycinska J, Dzika E, Kloch M. Epidemiology of scabies in relation to socio-economic and selected climatic factors in north-east Poland. Ann Agric Environ Med 2020;27:374–8.
3. Turan Ç, Metin N, Utlu Z. Epidemiological evaluation of scabies cases encountered in the last three years as a tertiary health center. Turkiye Parazitol Derg 2020;44:77–82.
4. Porsuk AÖ, Cerit Ç. Status of scabies cases in COVID-19 pandemic days. Iran J Parasitol 2021;16:499–505.
5. Lugović-Mihić L, Aždajić MD, Filipović SK, Bukvić I, Prkačin I, Grbić DŠ, et al. An increasing scabies incidence in Croatia: A call for coordinated action among dermatologists, physicians and epidemiologists. Zdr Varst 2020;59:264–72.
6. van Deursen B, Hooiveld M, Marks S, Snijdewind I, van den Kerkhof H, Wintermans B, et al. Increasing incidence of reported scabies infestations in the Netherlands, 2011-2021. PLoS One 2022;17:e0268865.
7. Sunderkötter C, Wohlrab J, Hamm H. Scabies: Epidemiology, diagnosis, and treatment. Dtsch Arztebl Int 2021;118:695–704.
8. De Lucia M, Potestio L, Costanzo L, Fabbrocini G, Gallo L. Scabies outbreak during COVID-19: An Italian experience. Int J Dermatol 2021;60:1307–8.
9. Turan Ç, Metin N. Impact of pandemic in the frequency of scabies: Possible scabies outbreak scenario aftermath COVID-19. Turkiye Parazitol Derg 2021;45:190–4.
10. Louka C, Logothetis E, Engelman D, Samiotaki-Logotheti E, Pournaras S, Stienstra Y. Scabies epidemiology in health care centers for refugees and asylum seekers in Greece. PLoS Negl Trop Dis 2022;16:e0010153.
11. Fürnkranz U, Walochnik J. Nosocomial infections: Do not forget the parasites! Pathogens 2021;10:238.
12. Vorou R, Remoudaki HD, Maltezou HC. Nosocomial scabies. J Hosp Infect 2007;65:9–14.
13. Jungbauer FH, Veenstra-Kyuchukova YK, Koeze J, KruijtSpanjer MR, Kardaun SH. Management of nosocomial scabies, an outbreak of occupational disease. Am J Ind Med 2015;58:577–82.
14. Meyer EP, Heranney D, Foeglé J, Chamouard V, Hernandez C, Mechkour S, et al. Management of a scabies epidemic in the Strasbourg teaching hospital, France. Med Mal Infect [Article in French] 2011;41:92–6.
15. Belvisi V, Orsi GB, Del Borgo C, Fabietti P, Ianari A, Albertoni F, et al. Large nosocomial outbreak associated with a Norwegian scabies index case undergoing TNF-α inhibitor treatment: Management and control. Infect Control Hosp Epidemiol 2015;36:1358–60.
16. Kazan D, Odyakmaz Demirsoy E. Sabies; Clinical findings, diagnosis, and treatment. Acta Med Nicomed [Article in Turkish] 2020;3:80–7.
17. Salavastru CM, Chosidow O, Boffa MJ, Janier M, Tiplica GS. European guideline for the management of scabies. J Eur Acad Dermatol Venereol 2017;31:1248–53.
18. Leistner R, Buchwald D, Beyer M, Philipp S. Scabies outbreak

among healthcare workers in a German acute care hospital. J Infect Prev 2017;18:189–92.
19. Marotta M, Toni F, Dallolio L, Toni G, Leoni E. Management of a family outbreak of scabies with high risk of spread to other community and hospital facilities. Am J Infect Control 2018;46:808–13.
20. Mueller SM, Gysin S, Schweitzer M, Schwegler S, Haeusermann P, Itin P, et al. Implementation and evaluation of an algorithm for the management of scabies outbreaks. BMC Infect Dis 2019;19:200.
21. Clinical Effectiveness Group British Association for Sexual Health and HIV. 2016 UK national guideline on the management of scabies. Available at: https://www.bashhguidelines.org/media/1137/scabies-2016.pdf. Accessed Oct 1, 2024
22. Executive Committee of Guideline for the Diagnosis and Treatment of Scabies. Guideline for the diagnosis and treatment of scabies in Japan (third edition): Executive committee of guideline for the diagnosis and treatment of scabies. J Dermatol 2017;44:991–1014.
23. Ministry of Health Malaysia. Guideline for management of scabies in adults and children 2015.
24. Centers for Disease. Treatment of scabies. 2024. Available at: https://www.cdc.gov/scabies/treatment/index.html. Accessed Oct 1, 2024.