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Surging scabies incidence in orthopedic inpatients: A decade-long single-center cohort

 Erdem Koc¹,  Ufuk Arzu²,  Dursun Artvin²,  Mehmet Cansi²,  Batuhan Gencer²,  Deniz Gulabi²

¹Bilecik Training and Research Hospital, Department of Orthopedics and Traumatology, Bilecik, Türkiye

²Marmara University, Pendik Training and Research Hospital, Department of Orthopedics and Traumatology, İstanbul, Türkiye

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Abstract

Scabies is a contagious parasitic skin infestation that continues to represent a significant public health concern worldwide. In recent years, an increase in scabies cases has been observed, particularly in hospital settings, potentially influenced by population mobility and migration. Although scabies is primarily considered a dermatological condition, its implications in postoperative orthopedic patients remain underrecognized. This retrospective observational study analyzed dermatology consultations requested for inpatients admitted to the Department of Orthopedics and Traumatology (DOT) within a defined study period. Data were obtained from the hospital information system. Patients diagnosed with scabies and patients with pruritus were included. Age, sex, reason for consultation, reason for orthopedic follow-up, anatomical region of the orthopedic pathology, and the time interval from admission to surgery were recorded. Temporal trends in diagnosis timing across years were evaluated. Scabies diagnoses among orthopedic inpatients demonstrated an increasing trend over the years. Most patients were hospitalized due to traumatic injuries, predominantly involving the lower extremities. Age distribution did not differ significantly between diagnostic subgroups. Scabies was most frequently diagnosed in the preoperative period. Notably, several patients were diagnosed based on non-specific cutaneous findings. Scabies infestation in orthopedic inpatients should not be regarded as a benign comorbidity. Delayed diagnosis, particularly in postoperative patients, may increase the risk of secondary bacterial infections and postoperative morbidity. The findings underscore the need for heightened clinical awareness and the development of standardized guidelines for the recognition and management of scabies in orthopedic and traumatology settings. The present study contributes clinical evidence that may serve as a foundation for future guideline development.

Keywords: Emigrants and immigrants, musculoskeletal diseases, orthopedic surgery, pruritus, scabies

Introduction

The issue of health problems is of particular significance in the context of forced migration, alongside its economic, social, educational and sociocultural dimensions [1]. Beyond the strain placed on healthcare facilities that are forced to operate beyond their intended capacity, large-scale refugee movements have the potential to facilitate the re-emergence of endemic diseases and, in rare instances, even conditions that had previously been regionally eradicated. Following the onset of the Syrian civil war in 2011, Türkiye experienced a substantial influx of refugees, with official records indicating that more than three million Syrian nationals entered the country—constituting one of the largest migration movements in Türkiye's contemporary history [1,2]. In the aftermath of this migration wave, substantial shifts

in the epidemiology of contagious diseases were documented, with numerous reports highlighting increased occurrences of conditions that had previously been relatively uncommon in Türkiye, including scabies, leishmaniasis, tuberculosis, and measles [1-6].

Scabies is a highly contagious ectoparasitic infestation caused by *Sarcoptes scabiei* var. *hominis* [7]. The condition is characterized by intense pruritus, the presence of characteristic burrows, and the potential risk of secondary bacterial infections [8,9]. Despite these typical features, a spectrum of clinical presentations exists, and lesions may be atypical, subtle, or underrecognized, particularly in older adults, immunocompromised individuals, or those with comorbidities that affect symptom perception or reporting [10]. Transmission typically occurs through close and prolonged skin-

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Corresponding Author: Erdem Koc, Bilecik Training and Research Hospital, Department of Orthopedics and Traumatology, Bilecik, Türkiye
Email: erdemkocmd@gmail.com

to-skin contact; thus, crowded households, camp-like collective living environments, inadequate hygiene conditions, and low socioeconomic status serve as key drivers of disease spread [1]. In Türkiye, the marked rise in reported scabies cases in recent years is widely regarded as being strongly influenced by the living conditions associated with mass migration [1]. Although quantification of scabies incidence specifically within orthopedic patient populations is limited, it is well established that general scabies prevalence has increased in many regions in recent years, including Europe and temperate climates, suggesting that a similar trend may be emerging in subspecialty inpatient settings [11].

As orthopedic and traumatology specialists, our primary focus is on musculoskeletal disorders and trauma; however, the growing burden of contagious diseases can also affect orthopedic clinical practice. In our region, the recent surge in scabies cases has led to notable disruptions and delays in both elective and emergency orthopedic procedures. When scabies burrows are identified directly along planned incision lines, surgical interventions may need to be meticulously planned or even postponed, potentially delaying treatment—an issue of particular concern in fracture management [12,13]. Additionally, the heightened prevalence of scabies has resulted in increased diagnostic suspicion, necessitating greater caution even in patients presenting with unrelated symptoms such as nonspecific pruritus. Institutional living environments, such as nursing homes, further represent shared risk settings for both fragility fractures and scabies infestations. Despite these concerns, the existing literature addressing the increasing prevalence of scabies, particularly among orthopedic patient populations, remains remarkably limited.

The aim of this study was to document the decade-long rise in scabies incidence among orthopedic patients in a socioeconomically disadvantaged metropolitan setting and to identify orthopedic subgroups with comparatively increased risk.

Material and Methods

Ethics Approval

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and was approved by the Marmara University Faculty of Medicine Ethics Committee (No: 09.2025.25-0458 Date: 23 May 2025). Owing to the retrospective design, the committee determined that obtaining informed consent from participants was not required.

Data Collection and Assessment Criteria

This retrospective study was carried out in the Department of Orthopedics and Traumatology (DOT) at Marmara University. All data were obtained from clinical archives and the hospital information system (Origo Hospital Information Systems, Ventura, Türkiye). All consultation records submitted from the DOT to the Department of Dermatology and Venereal Diseases (DDVD) for patients hospitalized between 2015 and 2025 were systematically reviewed. During this period, a total of 578 dermatology consultations were requested for patients hospitalized in the orthopedic ward. Each consultation entry was examined individually to determine eligibility for inclusion.

Consultations requested for reasons unrelated to non-specific pruritus or suspected scabies (e.g., consultations initiated for conditions such as herpes labialis) were excluded. Duplicate consultations pertaining to the same patient were also identified and excluded to prevent overrepresentation. Additionally, patients for whom clinical information or dermatological evaluation records were unavailable were removed from the dataset. Following the application of these exclusion criteria, 75 unique patients were deemed eligible for both the primary and secondary analyses (Figure 1). A primary analysis was conducted for cases diagnosed with scabies by DDVD.

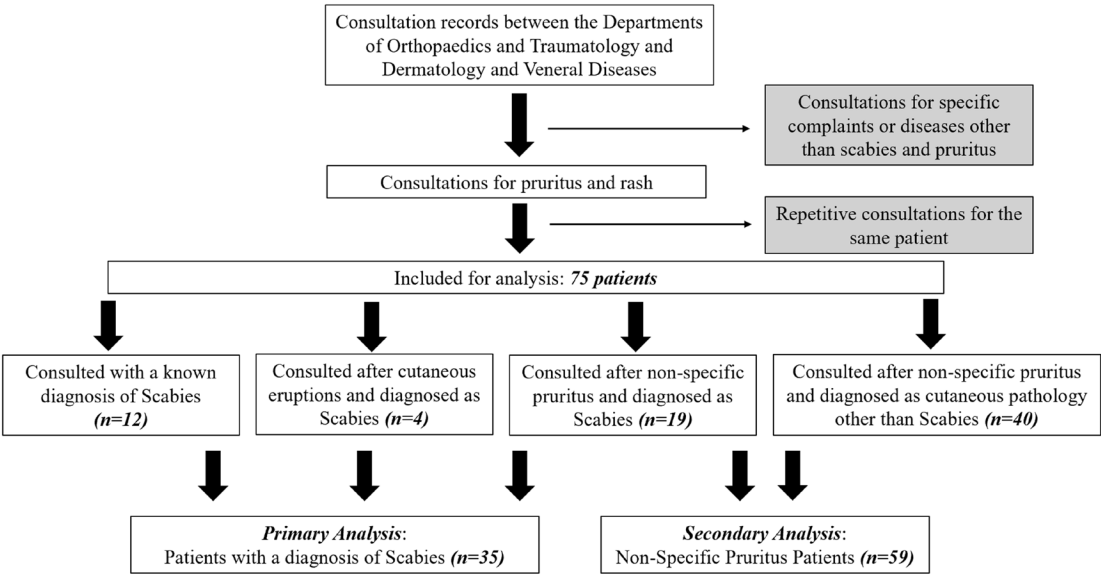


Figure 1. Flow chart showing details of patients included in primary and secondary analyses

For each included patient, several demographic and clinical parameters were recorded, including age, sex, reason for consultation (categorized as knowns diagnosis of scabies, cutaneous eruptions, or non-specific pruritus), reason for orthopedic follow-up (trauma, oncology, vascular pathology, or infectious complications), anatomical region of the orthopedic pathology (upper extremity, lower extremity, or axial skeleton), and the time interval from admission to surgery. Dermatological data were extracted from DDVD consultation reports, and both the year of diagnosis and the timing of the dermatology consultation were documented. Consultation timing was categorized as preoperative, postoperative, or non-surgical (i.e., independent of the surgical timeline). Temporal variations in consultation timing and annual changes in the demographic and clinical characteristics of scabies cases were analyzed to identify potential trends over time.

Cases presenting with pruritus in the absence of a preliminary diagnosis or disease-specific clinical findings (e.g. burrows suggestive of scabies) were classified as non-specific pruritus. A secondary comparative analysis was conducted for non-specific pruritus cases diagnosed with either scabies or other dermatological conditions (Figure 1). This analysis included demographic and clinical parameters such as age, sex, reason for orthopedic follow-up, and the anatomical location of the orthopedic pathology, and was conducted to determine whether any of these factors were associated with an increased risk of scabies among patients presenting with non-specific pruritus.

Statistical Analysis

All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) version 28.0 (IBM Corporation, Armonk, NY, USA). The normality of continuous variables was assessed using appropriate tests. As all continuous data were non-normally distributed, they were presented as median (interquartile range [IQR]) and minimum–maximum values. Categorical variables were summarized as frequencies and percentages. Group comparisons for non-normally distributed continuous variables were performed using the Kruskal–Wallis test, while pairwise comparisons were conducted using the Mann–Whitney U test. Categorical variables were compared using the Chi-square test; Fisher’s exact test was applied when Chi-square assumptions were not met. A p-value <0.05 was considered statistically significant.

Results

A total of 35 patients hospitalized in the DOT, who were referred to the DDVD and subsequently diagnosed with scabies, were identified. Among these cases, 12 patients (34.3%) were referred with a previously established diagnosis of scabies. Four patients (11.4%) were primarily referred due to cutaneous eruptions, while the majority (19 patients, 54.3%) presented predominantly with non-specific pruritus as their principal dermatological complaint (Table 1).

Table 1. Demographic, clinical, and descriptive characteristics of the scabies cases managed within the department of orthopedics and traumatology

Patient demographics	Number of patients (Frequency) (n=35)
Age*	51 (57) (2-94)
Sex	
Female	16 (45.7%)
Male	19 (54.3)
The reason for consultation to DDVD	
Known diagnosis of scabies	12 (34.3%)
Cutaneous eruptions	4 (11.4%)
Non-specific pruritus (Itching)	19 (54.3%)
The reason for orthopedic follow-up	
Trauma cases	25 (71.4%)
Orthopedic oncology	4 (11.4%)
Vascular Pathologies	2 (5.7%)
Infective complications	4 (11.4%)
Anatomical region of the orthopedic pathology	
Upper extremity	5 (14.3%)
Lower extremity	30 (85.7%)
Axial skeleton	0
Year of the diagnosis	
2015	0
2016	0
2017	0
2018	0
2019	0
2020	2 (5.7%)
2021	3 (8.6%)
2022	4 (11.4%)
2023	9 (25.7%)
2024	11 (31.4%)
2025 **	6 (17.1%)
Time for consultation to DDVD	
Preoperative	19 (54.3%)
Postoperative	12 (34.3%)
Non-surgical	4 (11.4%)
Time from admission to surgery*	8 (20) (0-85)

n: number of patients, DDVD: Department of Dermatology and Venereal Diseases. * Descriptive statistics were identified as median (interquartile range) (minimum-maximum range). ** Cases diagnosed as scabies in 2025 were identified between January and September 2025

Detailed evaluation of the cohort revealed that 71.4% of patients diagnosed with scabies had been hospitalized in the trauma unit, and most cases (85.7%) involved lower-extremity pathologies. A

marked increase in the annual incidence of scabies was observed between 2020 and 2024, as illustrated in Figure 2. Analysis of referral timing indicated that 34.3% of patients were referred during the postoperative period. Demographic, clinical, and descriptive characteristics of the scabies cases managed within the DOT are comprehensively summarized in Table 1.

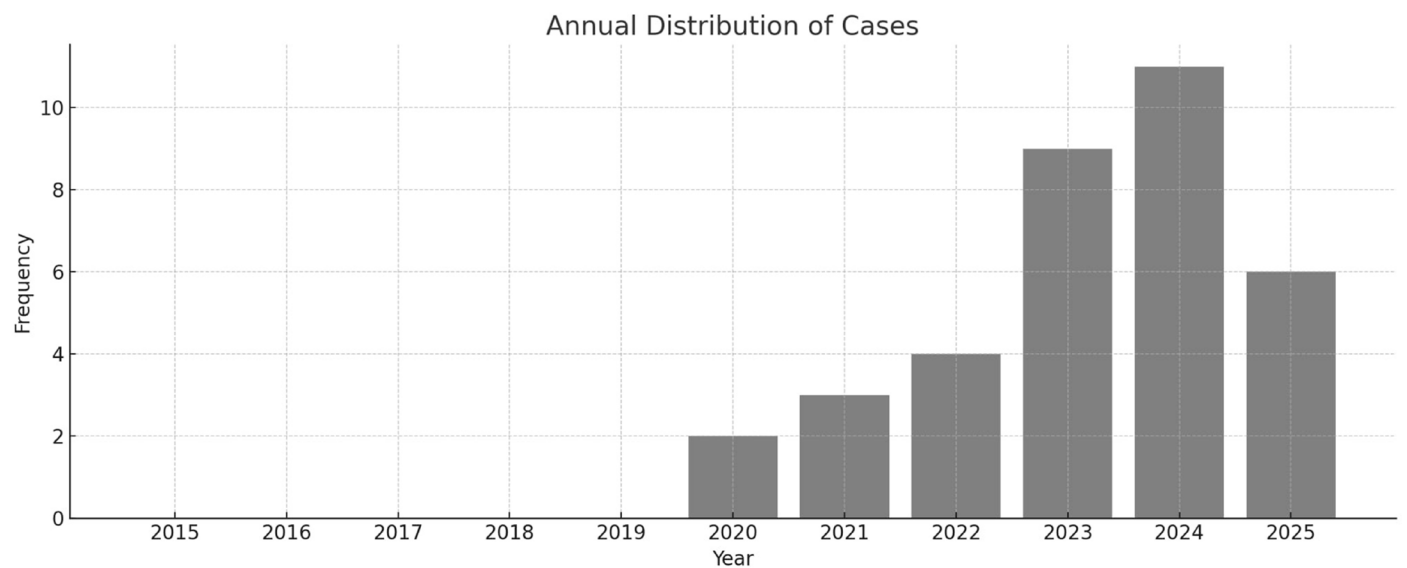


Figure 2. Patients hospitalized in the Department of Orthopedics and Traumatology who have been diagnosed with scabies over the last decade. It is important to note that cases diagnosed as scabies in 2025 were identified between January and September 2025

Assessment of annual variations in sex distribution, diagnostic categories, and anatomical involvement among patients with scabies demonstrated a progressive increase in case numbers annually. However, no statistically significant differences were detected in the proportional distribution of these variables over the study period ($p>0.05$ for all comparisons), indicating a consistent pattern of clinical presentation despite the rising incidence (Table 2).

Table 2. Annual variations in demographic and clinical characteristics of the scabies cases

Patient demographics	Number of patients (Frequency)						p
	2020 (n=2)	2021 (n=3)	2022 (n=4)	2023 (n=9)	2024 (n=11)	2025** (n=6)	
Age*	10 (2-18)	45 (3-47)	46 (11-91)	58 (3-80)	46 (14-94)	71 (51-91)	0.096
Sex							
Female	0	0	3 (75%)	4 (44.4%)	4 (36.4%)	5 (83.3%)	0.094
Male	2 (100%)	3 (100%)	1 (25%)	5 (55.6%)	7 (63.6%)	1 (16.7%)	
The reason for orthopedic follow-up							
Trauma cases	1 (50%)	1 (33.3%)	3 (75%)	5 (55.6%)	9 (81.8%)	6 (100%)	0.296
Orthopedic oncology	1 (50%)	0	1 (25%)	2 (22.2%)	0	0	
Vascular pathologies	0	1 (33.3%)	0	0	1 (9.1%)	0	
Infective complications	0	1 (33.3%)	0	2 (22.2%)	1 (9.1%)	0	
Anatomical region of the orthopedic pathology							
Upper extremity	1 (50%)	1 (33.3%)	1 (25%)	0	2 (18.2%)	0	0.308
Lower extremity	1 (50%)	2 (66.7%)	3 (75%)	9 (100%)	9 (81.8%)	6 (100%)	
Time from admission to surgery*	2.5 (0-5)	1 (0-1)	19.5 (1-34)	10 (0-85)	6.5 (0-21)	16 (3-69)	0.156

n: number of patients, p: statistical significance value, Comp: Complications. *Descriptive statistics were identified as median (minimum-maximum range). ** Cases diagnosed as scabies in 2025 were identified between January and September 2025

During the same 10-year period, 59 patients who were followed in the DOT and referred to the DDVD with complaints of nonspecific pruritus were identified (Figure 1). Of these, 19 patients (32.2%) were ultimately diagnosed with scabies following dermatological evaluation, as mentioned above. Comparative analysis between patients with a confirmed scabies diagnosis and those whose pruritus was attributed to alternative etiologies revealed no statistically significant differences in the distribution of age, sex, underlying orthopedic diagnosis, or anatomical localization of orthopedic pathology ($p>0.05$ for all parameters). Relevant comparative data are presented in Table 3.

Table 3. Relevant comparative data of the relative non-specific pruritus cases

Patient demographics	Number of patients (Frequency)		p
	Diagnosed as Scabies (n=19)	Other Cutaneous Pathologies (n= 40)	
Age*	71 (55) (13-94)	59 (34) (7-94)	0.121
Sex			
Female	11 (57.9%)	26 (65%)	0.598
Male	8 (42.1%)	14 (35%)	
The reason for orthopedic follow-up			
Trauma Cases	14 (73.7%)	19 (47.5%)	0.296
Orthopedic Oncology	2 (10.5%)	13 (32.5%)	
Vascular Pathologies	1 (5.3%)	1 (2.5%)	
Infective Comp.	2 (10.5%)	4 (10%)	
Elective Surgery	0	3 (7.5%)	
Anatomical Region of the Orthopedic Pathology			
Upper Extremity	1 (5.3%)	8 (20%)	0.183
Lower Extremity	18 (94.7%)	30 (75%)	
Axial Skeleton	0	2 (5%)	

n: number of patients, p: statistical significance value, Comp: Complications. *Descriptive statistics were identified as median (interquartile range) (minimum-maximum range)

Discussion

Scabies is not only a significant public health issue but also a substantial concern among orthopedic patients due to the increased risk of secondary infections. This decade-long retrospective study demonstrated an upward trend in the number of patients hospitalized in the DOT who were diagnosed with scabies over time; however, no statistically significant temporal differences were observed in the clinical or demographic characteristics of these patients ($p>0.05$). Furthermore, approximately one-third of orthopedic inpatients presenting with non-specific pruritus were ultimately diagnosed with scabies. This finding may be related to the increased influx of migrants into Turkey in recent years, as previous reports have indicated a rise in the incidence of infectious diseases following large-scale migration from neighboring countries, particularly from the Syrian region [1].

Evaluation of the demographic characteristics of the patient cohort, including age and sex, revealed no statistically significant differences. Although the clinical manifestations of scabies may vary across different age groups, the existing

literature consistently indicates that the condition affects individuals across all age ranges, from neonates to the elderly [11,14,15].

Although scabies is typically associated with pruritus, it may also present in the absence of itching [16]. In the present study, 59 patients were referred from the DOT to the DDVD due to non-specific pruritus, and approximately one-third of these patients (n=19) were ultimately diagnosed with scabies. Conversely, more than half of the 35 patients diagnosed with scabies were referred to the DDVD without complaints of pruritus and were subsequently confirmed to have scabies. The 2020 International Alliance for the Control of Scabies (IACS) Consensus Criteria describe three principal diagnostic categories and emphasize that pruritus, although not a definitive diagnostic criterion, should prompt clinical suspicion when present [17]. The absence of reported pruritus in a substantial proportion of patients may be explained by several factors. First, in some cases, scabies infection may have been present prior to the onset of itching. Alternatively, patients may have been unwilling or reluctant to report this symptom.

The majority of patients included in this study were admitted due to traumatic injuries. This finding is likely attributable to the study hospital being a tertiary trauma center that manages a high volume of trauma cases. The relatively small number of patients from other admission categories may be explained by the management process of elective surgical cases, wherein patients typically undergo repeated outpatient evaluations. During these outpatient evaluations, scabies may be identified prior to hospitalization, and elective procedures are postponed until completion of antiparasitic treatment; consequently, such patients were not captured in this inpatient-based analysis. Additionally, although the majority of patients diagnosed with scabies had lower extremity pathologies, scabies was also identified at a considerable rate among patients with upper extremity orthopedic disorders. This finding may be attributed to the highly contagious nature of scabies, which typically results in diffuse cutaneous involvement rather than restriction to a specific anatomical region [14].

Our study demonstrated that scabies in patients scheduled for surgery was most commonly diagnosed during the preoperative period. This finding underscores the importance of a thorough preoperative physical examination, which may facilitate earlier recognition of scabies-related cutaneous findings, including characteristic rashes and burrow (tunnel) formations. However, approximately one-third of patients in the present cohort were diagnosed during the postoperative period. This delay may be attributable to the absence of visible lesions in the immediate surgical field, leading to diagnostic oversight, or to incomplete physical examination. These findings highlight the necessity of performing a comprehensive dermatological assessment in all surgical patients, particularly those with a history of residence in communal living environments such as nursing homes, with careful attention to potential rashes and burrow-like lesions.

In scabies infection, mite-induced disruption of the epidermal barrier—through scratching, excoriation, and fissure formation—creates portals of entry for bacterial pathogens, most commonly *Staphylococcus aureus* and *Streptococcus pyogenes* [11,14,15]. In the presence of internal fixation devices or prosthetic implants, secondary bacterial infection may progress to surgical site infection, deep soft tissue involvement, or implant-associated infection, including osteomyelitis. Indeed, several case reports have documented severe musculoskeletal infections following scabies-associated cutaneous superinfection. For instance, in 2022, a pediatric case of methicillin-resistant *Staphylococcus aureus* (MRSA) femoral osteomyelitis secondary to superinfected scabies lesions have been reported [13]. These evidences emphasize that scabies in surgical patients should not be regarded as a benign comorbidity but rather as a potentially modifiable risk factor for postoperative morbidity. Despite these risks, current clinical guidance is rarely adapted for perioperative or inpatient surgical settings. Most existing scabies management protocols

primarily focus on community outbreaks or long-term care institutions (e.g. nursing homes) [16,17]. Although such guidelines emphasize diagnosis and mass drug administration, few, if any, incorporate structured strategies for scabies screening, treatment, and infection prevention within the preoperative workflow of orthopedic surgical services. This gap represents a critical deficiency in patient safety protocols. The findings of the present study may therefore provide a foundation for the future development of targeted, surgery-oriented scabies management guidelines.

The principal limitations of the present study include its retrospective design and reliance on dermatology consultation records. Additionally, the relatively limited sample size may have reduced the statistical power of the analyses and constrained the generalizability of the findings to broader orthopedic populations. Subclinical infestations, mildly symptomatic cases, or instances in which dermatology consultation was not requested may have been overlooked, potentially leading to an underestimation of the true prevalence of scabies. The exclusion of patients with incomplete data may also have introduced selection bias. Furthermore, the absence of prospective long-term follow-up precludes definitive conclusions regarding the impact of scabies on surgical outcomes, including wound infection rates, implant failure, non-union, or the need for reoperation.

Conclusion

In conclusion, scabies appears to be an increasingly relevant concern in orthopedic and trauma inpatient care, particularly in healthcare settings influenced by demographic changes and increased migration. The increasing incidence of scabies among trauma patients, coupled with the risk of bacterial superinfection and severe musculoskeletal complications, strongly supports the implementation of dedicated institutional management protocols. Recommended measures include systematic skin inspection at admission, prompt dermatology consultation for suspicious or non-specific cutaneous findings, preoperative treatment of identified cases whenever feasible, implementation of contact precautions or isolation when indicated, and vigilant perioperative skin monitoring. Integrating scabies screening and management into standardized orthopedic care pathways may enhance patient safety and expand the scope of perioperative risk mitigation.

Ethical Approval

Approved by the Marmara University Faculty of Medicine Ethics Committee (No: 09.2025.25-0458 Date: 23 May 2025).

Patient Consent

Informed consent was waived due to the retrospective design.

Conflict of Interest

The authors declare no conflict of interest.

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References

- Öztekin C, Öztekin A, Şenel E, et al. Retrospective analysis of scabies cases admitted to a Turkish hospital according to the citizenship status of the patients: Analysis of scabies cases. *The Injector*. 2022;1:97-105.
- Bosetti P, Poletti P, Stella M, et al. Heterogeneity in social and epidemiological factors determines the risk of measles outbreaks. *Proc Natl Acad Sci USA*. 2020;117:30118-25.
- Özden M, Ertürk K, Kartal S, et al. An extraordinary outbreak of scabies in Turkey. *J Eur Acad Dermatol Venereol*. 2020;34.
- Çil B, Kabak M, Bodur MS, et al. Syrian civil war and assessment of tuberculosis among Syrian refugees and local citizens in Mardin. *Front Public Health*. 2025;13:1729829.
- Doğru S, Döner P. Frequency and outcomes of new patients with pulmonary tuberculosis in Hatay province after Syrian civil war. *Indian J Tuberc*. 2017;64:83-8.
- Bener F. Analysis of dermatological diseases of Syrian asylum seekers. *Turkderm-Turk Arch Dermatol Venereol*. 2020;54:96-102.
- Hengge UR, Currie BJ, Jäger G, et al. Scabies: a ubiquitous neglected skin disease. *Lancet Infect Dis* 2006;6:769-79.
- Heukelbach J, Feldmeier H. Scabies. *Lancet*. 2006;367:1767-74.
- Thompson M, Engelman D, Gholam K, et al. Systematic review of the diagnosis of scabies in therapeutic trials. *Clin Exp Dermatol*. 2017;42:481-7.
- Uzun S, Durdu M, Yürekli A, et al. Clinical practice guidelines for the diagnosis and treatment of scabies. *Int J Dermatol*. 2024;63:1642-56.
- Sunderkötter C, Wohlrab J, Hamm H. Scabies: epidemiology, diagnosis, and treatment. *Dtsch Arztebl Int*. 2021;118:695.
- Daştan AE, Vahabi A, Öztürk V, et al. Scabies infestation might predispose surgical site infection: Case report. *Int J Surg Case Rep*. 2024;119:109747.
- Sartorio MUA, Munari AM, Carlucci P, et al. MRSA femoral osteomyelitis from superinfected scabies lesions: A pediatric case report. *Int J Environ Res Public Health*. 2022;19:1007.
- Thomas C, Coates SJ, Engelman D, et al. Ectoparasites: scabies. *J Am Acad Dermatol*. 2020;82:533-48.
- Chiriac A, Diaconeasa A, Miulescu R, et al. Scabies in infants and children—a narrative review. *Eur J Pediatr*. 2024;183:2527-36.
- Wilson MM, Philpott CD, Breer WA. Atypical presentation of scabies among nursing home residents. *J Gerontol A Biol Sci Med Sci*. 2001;56:M424-27.
- Engelman D, Yoshizumi J, Hay R, et al. The 2020 international alliance for the control of scabies consensus criteria for the diagnosis of scabies. *Br J Dermatol*. 2020;183:808-20.