

# Can we treat scabies adequately using topical medication? Retrospective analysis of 74 patients

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## Abstract

**Aim:** Scabies is a contagious parasitic skin disorder, which is characterized by severe pruritus. Scabies usually presents with papules and excoriations on hands, feet, axillae, umbilicus and genitalia. Recently, both increased prevalence of the disease and resistance to anti-scabies treatment have been reported. Therefore, early diagnosis and appropriate treatment of scabies are crucial. The aim of this study was to evaluate the characteristics of patients with scabies and treatments that the patients received in order to provide successful management of scabies.

**Material and Methods:** Medical records of the patients who were diagnosed with scabies between June 2019 and February 2020 were reviewed retrospectively. Age, gender, disease duration, similar symptoms in household members, dermatological examination, prior treatments and treatments that we recommended were recorded.

**Results:** The study included 74 patients (39 female, 35 male) with scabies. The mean age of the patients was  $40.6 \pm 16.7$  years. The mean disease duration was  $53.5 \pm 5.5$  days. Pruritus was observed in the household members of 37 (50%) patients. 18 (24.3%) patients received only symptomatic treatment since they were diagnosed as other pruritic dermatoses including xerosis or dermatitis, previously. However, we treated 58 (78.4%) patients using topical permethrin 5%. In addition, 4 (5.4%) patients were treated with topical sulfur 12.5% and 3 (4.1%) patients were treated with balsam of Peru. 9 (12.2%) patients who were resistant to topical treatment received oral ivermectin for complete cure of scabies.

**Conclusion:** The results indicated that most of the patients with scabies (78.4%) were treated with topical permethrin successfully, whereas 12.2% patients required oral ivermectin in addition to topical anti-scabies treatment. Nevertheless, delay in diagnosis of 24.3% patients might increase the risk of spread of scabies. Therefore, we recommend topical permethrin, oral ivermectin and immediate further clinical and laboratory evaluation for indeterminate cases.

**Keywords:** Pruritus; scabies; treatment

## INTRODUCTION

Scabies is a frequent parasitic infection caused by *Sarcoptes scabiei* variety *hominis*. The prevalence of scabies is 0.2%-71% worldwide. The risk factors include poor hygiene, malnutrition, crowded environment and immigration. Scabies can spread through close and long-time skin contact with infected individuals (1). The disease usually presents with erythematous papules and excoriations on hands, chest, axilla, and umbilical and gluteal region. Scabies is characterized with severe pruritus that is worse at night. Furthermore, immunosuppressed patients may develop widespread, erythematous, squamous and crusted plaques which are termed as crusted scabies (2). Scabies can mimic various skin disorders including atopic dermatitis, contact dermatitis, urticaria, folliculitis, lichen planus and dermatitis herpetiformis (3,4). The diagnosis of scabies is

usually made based on clinical findings (5). Dermoscopy and microscopic examination may also be used to show the parasite. The disease can be treated by both topically and systemically (2). It has been suggested that most patients with scabies were treated with topical agents successfully (6). Moreover, increased drug resistance has been reported in scabies treatment (7). However, data on efficacy of scabies treatment was inadequately reported (8). Hereby, characteristics of patients with scabies and treatments that the patients received were evaluated. These results will hopefully guide physicians for the diagnosis and treatment of scabies.

## MATERIAL and METHODS

Medical records of the patients with scabies were reviewed retrospectively between June 2019 and February 2020. The study was approved by local ethics committee (approval number: 2020-133). Age, gender,

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disease duration, pruritus that was worsening at night, similar symptoms in household members, dermatological examination, prior treatments and treatments that we recommended were evaluated. The diagnosis of scabies was made based on clinical findings. Topical permethrin was applied once a week for two weeks. Topical sulfur was applied for three consecutive nights and washed off 24 hours after the last application. Balsam of Peru was applied once daily for three days. Oral ivermectin was administered at a single dose of 200 mcg/kg and repeated after a week. The exclusion criteria were pregnancy, lactation and having a dermatologic disease that leads to itching like generalized pruritus, urticaria, atopic dermatitis and dermatitis herpetiformis.

### Statistical analysis

It was performed using SPSS version 22.0. Data were represented as mean±standard deviation or median for quantitative variables; counts and percentage for categorical variables. Differences between two groups were evaluated with Mann Whitney U test for continuous variables and chi-square test as appropriate for categorical variables.

## RESULTS

The study included 74 patients (39 female, 35 male) with scabies. The mean age of the patients was 40.6±16.7 (range: 18-65 years). The mean disease duration was 53.5±5.5 days (range: 7-240 days). Pruritus was exacerbated at night in 67 (90.5%) patients. However,

7 (9.5%) patients with scabies did not admit nocturnal pruritus. Pruritus was disturbing the patients mostly during the day. Pruritus was present in the household members of 37 (50%) patients whereas, 29 (39.2%) patients stated that the people whom they had close contact with, did not complain of pruritus. Nevertheless, 8 (10.8%) of the patients were living alone (Table 1).

32 (43.2%) patients did not receive any treatment previously, while 18 (24.3%) patients received only symptomatic treatments such as oral antihistamines, emollients, topical and systemic corticosteroids. In addition, 19 (25.7%) patients were treated with permethrin 5% cream or lotion, 3 (4.1%) patients were treated with sulfur 12.5% ointment and 2 (2.7%) patients were treated with balsam of Peru, previously.



**Figure 1.** Scabies. Erythematous excoriated papules on the extensor surface of the leg

The lesions were localized on trunk, upper and lower extremities and genital region in 10 (13.5%) patients (Figure 1). The lesions were localized on trunk, upper and lower extremities in 27 (36.5%) patients. In addition, 37 (50%) patients had lesions like excoriated erythematous papules and vesicles on trunk or upper extremities. We treated 58 (78.4%) patients with topical permethrin 5%. Four (5.4%) patients were treated with topical sulfur 12.5% and 3 (4.1%) patients were treated with balsam of Peru. Furthermore, 9 (12.2%) patients required oral ivermectin for complete cure of scabies. Moreover, 23 (31.1%) patients received topical corticosteroids and oral

Table 1. Characteristics of patients with scabies	
Female	39 (52.7%)
Male	35 (47.3%)
Mean age (years±sd)	40.6±16.7
Mean disease duration (days±sd)	53.5±5.5
Nocturnal pruritus	67 (90.5%)
Pruritus during day	7 (9.5%)
Pruritus in household members	37 (50%)
No pruritus in household members	29 (39.2%)
Patients living alone	8 (10.8%)
No prior treatment	32 (43.2%)
Only symptomatic treatment previously	18 (24.3%)
<b>Localization of the lesions</b>	
Trunk or upper extremities	37 (50%)
Trunk, upper/lower extremities	27 (36.5%)
Trunk, upper/lower extremities, genital region	10 (13.5%)
<b>Treatment</b>	
Permethrin	58 (78.4%)
Oral ivermectin	9 (12.2%)
Sulfur	4 (5.4%)
Balsam of Peru	3 (4.1%)

**Sd: Standard Deviation**  
**We treated 58 (78.4%) patients with topical permethrin 5%. However, 9 (12.2%) patients with scabies required oral ivermectin for complete cure**

antihistamines for the treatment of intense pruritus. Age, gender and disease duration did not show statistically significant difference in patients who required antipruritic treatment and in patients who did not require antipruritic treatment ( $p=0.60$ ,  $p=0.62$ ,  $p=0.43$ , respectively). No serious side effects were observed in patients due to scabies treatment.

## DISCUSSION

Scabies has been reported to be more frequently detected in recent years. Immunosuppression, advanced age, immigration and resistance to scabies treatment have been implicated in increased prevalence (9). Studies on epidemiology and treatment of scabies are limited in Turkey. Cetinkaya et al. evaluated 3908 patients who were diagnosed with scabies between 2006 and 2017 in Kayseri. Cetinkaya et al. reported that scabies was more frequent in female patients than in male patients. Most of the patients were between the age of 25-44 (10). Aktas et al. evaluated 1947 patients with scabies between 2013 and 2018 in Karabuk. 56% of the patients were female and 44% of the patients were male. The mean age of the patients was 41.1. Aktas et al. reported a statistically significant increase in scabies incidence in 2018 compared to 2013 (11). Similarly, within this study, scabies was more common in female patients than in male patients.

Scabies is primarily treated by topical drugs (12). Topical permethrin 5% is considered as an effective treatment option in scabies, even if it is used once. Topical permethrin 5% is used as the first line treatment in the USA. Scabies can also be treated using topical 10% precipitated sulfur, 10%-25% benzyl benzoate, 0.5% malathion, 10% crotamiton and topical ivermectin 1% (2,8,13). Chhaiya et al. reported that single application of topical permethrin 5% was efficient in 74.8% of patients with scabies and single application of topical ivermectin 1% was efficient in 69.3% of patients with scabies. Chhaiya et al. reported that repeated use of topical permethrin and ivermectin increased the cure rates (14). In addition, oral ivermectin is used in refractory disease, crusted scabies and in poor adherence to topical treatment (6). Treatment success is considered as the absence of pruritus and the skin lesions (2). On the other hand, inappropriate use of the drug, reinfection or drug resistance may lead to treatment failure (9). Increasing drug resistance has been reported in scabies. Various factors like mutations in sodium and chloride channels of the parasite and glutathione S-transferase hyperactivity have been implicated in resistance to permethrin and ivermectin (15). It has been suggested that permethrin is not as effective as it used to be in the treatment of scabies. Even repeated application of permethrin may not be able to treat scabies sufficiently (9).

## CONCLUSION

Within this study, most of the patients with scabies (78.4%) were treated with topical permethrin 5% successfully, whereas 12.2% patients who were unresponsive to topical anti-scabies treatment required oral ivermectin. On the

other hand, 24.3% patients received only symptomatic treatment previously. Delay in the definitive diagnosis in these patients might increase the risk of spread of scabies. Supporting this, our results indicated that similar disease symptoms like pruritus and skin lesions were observed in the half of the individuals who were in close contact with the scabies patients. Therefore, scabies should be kept in mind in all patients with excoriation on predilection sites, and especially in patients with itching exacerbated at night. Topical anti-scabies drugs seem to be effective in the treatment of scabies, however, oral ivermectin may also be considered in treatment-resistant cases. Since early diagnosis and appropriate treatment are crucial in this public health problem, these results will hopefully guide physicians for the efficient management of scabies.

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