

## Diagnosis, Treatment and Prevention of Scabies: A Short Commentary

Christiana Williams\*

### INTRODUCTION

Skin is the external barrier of the body which is directly exposed to the environment. This serves as a common entry portal for different pathogens, mostly parasites. Pervasions with parasites can cause fundamental diseases in people, however, these infections frequently bring about cutaneous sores which are on the ascent in dermatology clinical practice due to an increase in travel and immigration. The most common parasitic infections of the skin are caused by ectoparasites. Ectoparasites are the parasites that infect the outer coat or the skin of its host and cause immunopathological responses, cutaneous lesions which further leads to allergic reactions, secondary bacterial or fungal infections and various kinds of dermatitis respectively. One of the most common ectoparasitic infections is scabies [1].

Scabies is a cutaneous infection caused by the eight-legged mite, *Sarcoptes scabiei* var. *hominis*. It affects people of all ages, particularly in children and is characterized by severe pruritus leading to excoriation and secondary infection (pyoderma) [2].

### LIFE CYCLE OF *Sarcoptes scabiei*

The life cycle of the scabies mite (*S. scabiei* var. *hominis*) starts with the pregnant female tunneling into the human epidermis and laying 2-3 eggs for each day. Larvae are produced after 48-72 hours and form new tunnels. The larvae reach adulthood in 10-14 days, mate, and the cycle is reshaped. Transmission is by direct skin-to-skin contact. Human scabies parasites are equipped for getting by in the earth, outside of the human body, for 24-36 hours in typical room conditions (21°C and 40%-80% relative humidity); during this time, they remain viable for infection. Indirect transmission (through clothing, bedding and different fomites) has been proposed. Nonetheless, this has been hard to demonstrate tentatively. Early tests led by Mellanby [3,4] indicated that indirect transmission does not play a significant role, with the exception in instances of crusted scabies where the host is intensely infected.

### DIAGNOSIS

Definitive diagnosis is accomplished by demonstrating the mite or ova within a skin scraping. Application of a drop of mineral oil to a lesion and identification of a minute black dot within

the lesion promotes easy scrapping of the stratum corneum with shavings placed on a glass slide and observed under the microscope [2]. Alternative diagnostic methods include the burrow ink test, video-dermatoscopy, newly serologic tests like PCR/ELISA, and specific IgE directed toward major mite components [5].

### TREATMENT

Treatment of scabies consists of either topical permethrin or oral ivermectin, although the optimal regimen is still unclear. Successful treatment of scabies is affected by certain factors such as correct diagnosis, elimination of scabies mites with the help of scabicides, treatment of the associated secondary infections.

Topical treatments include ointments, gels, or lotions of permethrin and/or malathion. The appropriate treatment is selected based on the epidemiology of resistance, drug toxicity, cost and availability of the drug. The most commonly used topical agent is 5% permethrin dermal cream because of its tolerance and low toxicity. Malathion is usually considered as a second treatment option as the alcohol lotions can sting and can even cause wheeze in children.

To achieve maximum treatment success, topical applications should be applied correctly. Permethrin 5% dermal cream is usually applied twice with a one-week time interval between the applications. It should be applied all over the body, particularly web spaces of fingers and toes, the genitalia, and under the nails. In children aged up to 2 years and in elderly and immunocompromised people the application should be extended to the scalp, neck, face, and ears [6]. All members of the affected household should be treated at the same time. The topical cream is then washed off after 12 hours and clothes and bed linen have to be machine washed at temperatures above 50°C.

Ivermectin is the most widely used oral anti-scabietic agent. It works by suppressing the conduction of nerve impulses in the nerve-muscle neurotransmitters of mites by stimulating gamma-aminobutyric acid from presynaptic nerve endings and by enhancing the binding to postsynaptic receptors. Scabies is treated with ivermectin 0.2 mg/kg in a single dose. It is relatively safe with side effects such as headache, pruritus, pains in the

**Correspondence to:** Christiana Williams, Longdom Group SA, Avenue Roger Vandendriessche, Brussels, Belgium. E-mail: dermatolgyres@emedicinejournals.com

**Received date:** August 04, 2020; **Accepted date:** August 04, 2020; **Published date:** August 14, 2020

**Citation:** Williams C (2020) Diagnosis, Treatment and Prevention of Scabies: A Short Commentary. *Dermatol Case Rep* 5:162. doi: 10.35248/2684-124X.20.5.162

**Copyright:** © 2020 Williams C. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

joints and muscles, fever, maculopapular rash, and lymphadenopathy, which were seen in patients with filariasis. Regardless of whether these side effects are straightforwardly identified with drug action or secondary to destruction of the filariae remains unclear. Ivermectin is contraindicated in patients with hypersensitivity to ivermectin and CNS disorders, pregnancy, lactating women, and children below 5 years of age. There is a wide scope in the future for the advancement in the treatment with ivermectin as it is very effective, safe to use, cheap and convenient. However, ivermectin is unlicensed for this indication in many countries [7,8].

## PREVENTION AND MANAGEMENT

Early discovery, treatment and implementation of appropriate infection control precautions are basic in forestalling scabies outbreaks. The outbreak can be prevented and managed by increasing the surveillance for early detection of new cases, proper use of infection control measures when handling patients by avoidance of direct skin-to-skin contact, handwashing, confirmation of the diagnosis of scabies, early and complete treatment and follow-up of cases, and prophylactic treatment of staff, other patients, and household members who had prolonged skin-to-skin contact with suspected and confirmed cases. Skin-to-skin contact with scabies patients should be avoided for at least 8 hours after treatment. Because it is so highly transmissible, it requires rapid and aggressive detection, diagnosis, infection control, and treatment measures to prevent and control spread [9,10].

## CONCLUSION

Further investigation of medicines for the treatment of scabies is additionally required, including the roles of isolation of the

index case, combined oral and effective treatment, rehashed organization of treatment, and the utilization of a softening agent to treat hyperkeratosis and to build the viability of skin scabicides. The expected rise of ivermectin-safe scabies mites ought to be assessed alongside the danger of cross-resistance of different parasites. The resistance of mites to permethrin has been exhibited in vitro, however, there has not been in vivo proof of resistance.

## REFERENCES

1. Meštrović T. Parasitic skin infestations. *News-Medical*. 2018.
2. Dowell LD. Ectoparasitic infections: Diseases caused by parasites: Current therapy in pediatric infectious diseases: Jaypee Brothers Medical Publishers, 1992.
3. Chandler DJ, Fuller CL. A review of scabies: An infestation more than skin deep. *Dermatol*. 2019;235:79-90.
4. Mellanby K. The development of symptoms, parasitic infection and immunity in human scabies. *Parasitol*. 1944;35:197-206.
5. Shimose L, Munoz-Price LS. Diagnosis, prevention, and treatment of scabies. *Curr Infect Dis Rep*. 2013;15:426-431.
6. Johnston G, Sladden M. Scabies: Diagnosis and treatment. *BMJ*. 2005;331:619-622.
7. Karthikeyan K. Treatment of scabies: newer perspectives. *Postgrad Med J*. 2005;81:7-11.
8. Strong M, Johnstone P. Interventions for treating scabies. *Cochrane Database Syst Rev*. 2007;3:CD000320.
9. Scabies. Centers for Disease Control and Prevention, 2010.
10. Chosidow O. Scabies. *N Engl J Med*. 2006;354:1718-1726.