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Short communication

Mass scabies management in an orphanage of rural community: An experience

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Introduction

Scabies is an important health problem characterized by continuous transmission throughout the year. It is ubiquitous, contagious, and debilitating parasitic dermatoses, known since antiquity and having widespread distribution in the tropics. The worldwide prevalence has been estimated at about 300 million cases yearly, although it may be an overestimate.¹ Scabies occurs in both sexes, at all ages, in all ethnic groups, and at all socioeconomic levels. In India, the incidence ranges from 13% to 59% in rural² and urban areas.³

Scabies is a Latin word that simply means to scratch and is caused by the mite *Sarcoptes scabiei* var-*hominis*, and is usually associated with conditions of overcrowding, low socioeconomic standards, low level of education and poor hygiene.⁴ Overcrowding and sexual contacts are the most common,

but not exclusive modes of transmission. The mite of scabies burrows into the outer layer of the skin (stratum corneum) and feeds on skin cells and fluids. It is this feeding action, and its products (digestive secretions and feces) that provoke an immune reaction from the body which results in itching and other symptoms of scabies. Scabies causes considerable discomfort and can result in severe secondary complications such as impetigo, cellulitis, pyoderma, bacteraemia and post-streptococcal glomerulonephritis.^{5–7}

The study was undertaken in the Rural Health Training Centre of a medical college located at Kasurdi village, in Pune district of Maharashtra. During routine visits, three school going children of a nearby orphanage reported with the clinical symptoms suggestive of Scabies i.e. insomnia due to severe itching at night, rashes, irritability leading to school absenteeism and poor quality of life. On examination, the

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children were found to be having scabies. Scabies in orphanages are not uncommon but unfortunately are hard to treat because of reasons like delayed diagnosis, inadequate treatment, malnutrition, associated allergic and bacterial infections and inadequate follow-up.⁸ It was thus decided that all the children at the orphanage be examined and an intervention to cure all children of the orphanage be undertaken.

The study thus aimed to assess the prevalence of Scabies in an orphanage in a rural village of Maharashtra State and to conduct a mass Scabies treatment and follow-up of all children and care givers. The study in addition also provided health education and trained the care givers for timely management of scabies in the setup.

Methodology

A medical team comprising residents of Community Medicine Dept along with a medicosocial worker visited the orphanage housing 50 children on 12 Sep 08. The Team was adequately trained by an entomologist and Community Medicine specialist on investigation and treatment. A written informed consent from care taker was taken.

The case definition for scabies which was considered in the present study was all cases presenting with the following symptoms:

- pimple-like rashes or burrows between fingers, on wrist, elbows, armpits, belt line, navel, abdomen, and/or buttocks;
- itch which is insidious and relentless and became typically worse at night; and
- the presence of sores on the body due to scratching.

All the children along with the care takers and workers of the orphanage were examined thoroughly for any local or systemic disorder especially Scabies. Differential diagnosis of Impetigo, Insect bites, drug eruptions, Varicella, and eczema had been kept in mind before concluding clinically in favour of Scabies. Overcrowding and poor hygiene practices among inhabitants were identified as contributing factors.

Mass treatment strategy

A Health Education cum Mass Treatment drive was planned for all the children along with the care takers and workers on a holiday. Prior instructions were given to all children and their care takers to take bath with soap and water (so that excess oil is removed from body to facilitate absorption of medicine), trim their nails, take a hair cut and shave axillae and pubic hair, before the stipulated time of treatment.

The mass treatment was carried out post dinner before going to bed so that children do not wash their hands and also feel less itchy during sleep. All children were separated in two groups with boys and girls in different rooms. The girl children were treated by a lady resident along with the lady medicosocial worker. All the 50 children irrespective of their infestation (though infestation was found to be 82%) were given mass treatment with 25% Benzyl Benzoate lotion. Children were asked to remove all personal clothing including undergarments. Lotion was applied with the help of a shaving

brush over entire body starting from below the nape of the neck and brushing the lotion with downward strokes upto the distal phalanges of the extremities especially covering the skin folds e.g. Axillary folds, Groin and genital area, in the web spaces, the wrists, the antecubital fossae, popliteal fossae, around the waist and umbilicus, the sides and backs of the feet and the buttocks. Application of lotion under the nails of both hand and feet was done by an old toothbrush. Due care was given to genital areas while painting lotion to avoid glans/labia and anal folds and any cuts or chapped skin. The topical medicine was allowed to dry up first for almost 20 min under the fan and then the children were told to wear the washed and ironed clothes. Due personal protection was observed by the residents in the form of gloves, aprons and other protective devices.

Health education regarding transmission and prevention of scabies was carried out. Few older children of the orphanage and care takers were selected and trained on the spot to ensure stringent re-application of lotion to all children (Fig. 1) after 24 h and then once weekly for 3 weeks thereafter.⁹ However, all children were followed up for 6 weeks for effectiveness of control measures. Anti histamine syrup/tab was given to all those who complained of burning sensation and itching after application of topical BB lotion. A log register was given to the care takers to maintain date-wise record of re-application of 25% BB lotion of each child to ensure proper treatment follow-up.

During the day, practical demonstrations on personal and environmental hygiene were given so as to prevent re-infection. Methods applied for environmental hygiene drive were:

- 1) Scrubbing of walls and floors of residential rooms/dormitories with bleach solution.
- 2) Proper mopping and cleaning of bathrooms and toilets with 5% savlon.
- 3) Washing of all clothing, towels and linen in hot water at 50 °C for minimum 10 min followed by sunlight exposure and ironing.
- 4) All personnel items of use e.g. toys, copies, books, furniture, mattress, pillows etc. were also exposed to direct sunlight for 4–6 h.

Fig. 1 – Training of children for re-application.

Table 1 – Age and sex wise distribution of orphanage children.

Age group (yrs)	No. of children No. (%)	Males No. (%)	Females No. (%)	No. of infected children No. (%)
5 to <10	14 (28)	14 (31)	00 (0)	11 (27)
10 to <15	25 (50)	20 (45)	05 (100)	21 (51)
15 to <20	10 (20)	10 (22)	00 (0)	08 (20)
>20	01 (02)	01 (2)	00 (0)	01 (02)
Total	50 (100)	45 (100)	05 (100)	41 (100)

5) Creams, ointments, lotions, and cosmetics, used by a symptomatic individual within the past two weeks were discarded.

Results

Out of total 50 children, 45 (90%) children were males and 05 (10%) were females. All the girls were found to be infested with scabies. Total children infected were 41 (82%) out of which 36 (88%) were males (Table 1). In the age wise distribution, 21 (51%) of the infected were in age group 10–15 yrs followed by 11 (27%) in 5–10 yrs (Table 1).

The site of involvement was noted and it was found that majority of children had generalized scabies 20 (60.9%) followed by web spaces and wrist (Table 2). All the children were followed up for two weeks and final treatment evaluation was undertaken at the end of six weeks. The results indicate a reduction in symptoms amongst 36 (88%) cases within a week with few minor left over lesions. None of the children had scabies after 2nd week of treatment and there was no case of relapse of symptoms or lesions after six weeks (Fig. 2). All care takers were found to be free of scabies.

Discussion

In our case study it has been seen that about 81% of the inmates of the orphanage were suffering from frank scabies and its associated problems. The study found that health education, community participation and simple intervention with cheap and readily available lotions like 25% Benzyl Benzoate could drastically improve the patients symptomatically reducing their itching and irritation along with sound

Fig. 2 – Six week follow-up of infected children.

sleep in the night thus improving quality of life and reduction in school absenteeism.

In an epidemiologic study in the United Kingdom, scabies was shown to be more prevalent in urban areas and among women and children and more common in winter than in summer.¹⁰ In India, a study conducted in a rural community found the prevalence rates of 13% by population and 30.9% by household.² The disease is reported to be more common in pre-school and school age group though no age is immune to it. A prevalence of 65% in age group of less than 15 years has also been reported by Desai and Nair.¹¹

Introduction of a single case of scabies into crowded living conditions can result in an epidemic.^{12,13} The population at risk is the underprivileged, alcoholics, drug addicts, homeless persons, refugees, serving soldiers, small children in day care centres, handicapped persons as well as aged people in nursing homes. In a study conducted in inmates of prison, scabies accounted for 57.6% of skin conditions and had significant association between infection and the duration of stay of inmates in the prison.¹⁴

Various options for the treatment of scabies exist.^{9,15} Local application of 2–10% Sulphur in petroleum base, 10% Crota-miton ointment, 25% Benzyl Benzoate lotion, 1% Lindane cream/lotion, 5% Permethrin cream and oral Ivermectin 200 µg/kg body weight. Topical treatment of scabies suffers from certain disadvantages like being cumbersome, time-consuming, associated with treatment failure due to poor compliance, insufficient application of scabicide, inappropriate frequency or technique of application, and inadequate treatment of close contacts.⁸ Oral ivermectin on the other hand is safe for humans and easy to use by individuals and families and can be used on a large scale.^{6,15–17}

The choice of options are varied, however the study reports the effectiveness of 25% Benzyl Benzoate which is readily available, cheapest and also relatively free from toxic effects. If properly applied and followed up, the BB lotion is cost-effective treatment modality for mass anti-scabies treatment in high risk groups like soldiers, prisoners, residential schools, orphanages etc. which have high incidence due to their living conditions and require anti-scabies treatment in large numbers. Similar findings have been reported in a comparison study of three treatment modalities in scabies viz. Benzyl Benzoate (BB) 25% lotion, Permethrin 5% cream and tablet Ivermectin for safety, efficacy, and economy in a local population of Nagpur. Benzyl Benzoate as first line intervention gave best cost-effective results in the study patients of

Table 2 – Distribution of scabies according to the site of infestation.

Site of infestation	Cases with scabies No. (%)
Generalized	25 (60.97)
Webs spaces	07 (17.07)
Wrists	04 (9.75)
Antecubital fossae	03 (7.31)
Glans	01 (2.43)
Umbilicus	01 (2.43)
Total	41 (100)

scabies.¹⁸ These initiatives, however, require community awareness, cooperation and active participation in order to be successful. Medical Officers in both field and peace should be aware of its correct application and importance of follow-up.

Conclusion

Community scabies is an important health problem characterized by continuous transmission throughout the year with high prevalence in susceptible population. The disease is embedded in a complex web of causation characterized by poor living conditions and a low level of education. This study has clearly shown that Mass treatment and follow-up, if properly undertaken along with its environmental component and health education is curative, cheap and an effective long term community treatment tool for scabies.

Conflicts of interest

All authors have none to declare.

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