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The characteristics of scabies in human community in Bashagard district, Iran

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Abstract

Scabies is the transmittable skin diseases and it quickly spreads among the human population. A long period of contact with an infected case through direct skin touch is the most significant antecedence associated with this infestation. 122 individuals identified as classic scabies in Bashagard county over 2016-2017. The significant incidence of scabies was observed in rural areas moreover, the older group (>18) more involved in both urban and suburban regions of Bashagard district. The predominant scabies cases were presented in September followed by January and October. The pruritic and papular rashes were more involved plica axillary in adult people. Acaricides such as lindane shampoo and permethrin cream were used in Bashagard extremely. Afterward, resistance to using scabicides is concerning issue in our site study. Access to running water and promoting personal hygiene habits can prevent people from scabies indirectly. In fact, clothing and fomites should be laundered and sanitized properly.

Keywords: Scabies, skin, Permethrin, Bashagard, Iran

1. Introduction

Sarcoptes scabiei var. hominis (Sarcoptidae) as the itch mite responsible for scabies infestation in human. The female mites make a tunnel into the epidermis by their mouthparts in order to lay eggs and depositing feces for around 4-6 weeks. However, larvae treks to the skin surface after 3-4 days upon hatching. They then evolve to protonymphs, tritonymphs and adult. Male perforates the molting pouch of the adult female result matching. Impregnated female mite burrows and re-infects the skin of the targeted host. Approximately, symptoms reveal after one month. Intense pruritus occurs at night. In adults and older children the pruritic papules and vesicular eruptions observe in confined sites such as the space between finger and appendage of hand, extensor of wrist, outward of elbow, the periumbilical skin, ankles, the apex of the breast in female and the penis in males. In younger children, the palms, soles, and neck are underlying parts of bodies. The ordinary, nodular, vesicular – bullous scabies, crusted, and incognito are the important forms of scabies [1-3]. Crusted or Norwegian scabies is a hyperkeratotic skin disease occurs in susceptible persons associated with immunocompromised condition like HIV and HTLV-I (Human T-lymphotropic virus 1), leukaemia, and Systemic lupus erythematosus [4, 5]. Secondary bacterial infection becomes manifest due to streptococcus pyogenes or *Staphylococcus aureus*. Moreover, cellulitis, renal disease, rheumatic heart disease (RHD) and acute post-streptococcal glomerulonephritis (APSGN) may develop from impetigo [6, 7]. This obligate parasite can remain alive host-off for 24 to 36 hours. Therefore, the infested bedclothes, blanket, textile or other soft goods are the possible routes of transmission. Physical contact and sexual activity are considered to be the major ways of transmission of Scabies [8]. Skin scrapings and microscopic examination of mites, eggs, or feces materials at high magnification is the common producer of diagnosis. Moreover, epiluminescence light microscopy (ELM) introduced an alternative method [9]. Scabies is ubiquitous especially in tropical areas. East Asia, southeast Asia and Oceania are ranked as the highest involvement regions of this infection [10]. Notably, socioeconomic factors, sex, age, family size, personal hygiene and residency are can affect the modality of scabies [11]. There are no reliable statistics about scabies in Iran. Although, some documents have shown that scabies was more prevalent in Gilan and Mazandaran provinces, south of Iran. Probably the high population density and humidity made this profile. Moreover, some prisons and garrisons scrimmaged with scabies in Iran [12]. In recent years, west region of Iran particularly Kermanshah province is influenced by scabies [13].

The aim of this study was to describe some features of scabies diseases in Bashagard county, south of Iran. We believe that our sequel will be helpful into control intercession of scabies in Iran and maybe other parts of the world.

2. Materials and Methods

The retrospective study was performed in Bashagard county over 2016-2017. Bashagard is the impoverished region with hot and humid climate in south of Iran. The dynamic of population changes because laborers move to neighborhood counties for working so that all population decline in distinct season and once increase in other months ^[14]. In current research 122 cases identified by dermatologists and health providers through skin scrapings from papules. History of nocturnal itchy skin also was considered as additional parameter in this study. Our representative patients inscribed into regular tables. Some cases omitted from database due to imperfective features. Then scabies cases and relevant variables were entered into Excel and SPSS v19.0 (SPSS, Inc., Chicago, IL, USA). The listed values` included age, gender, locality and monthly distribution of scabies. This project was confirmed by ethics committee of Hormozgan University of Medical Sciences (HUMS). The Chi-square test used to measure any contrast between statistical units. P-value

of ≤ 0.05 was done to determine the significant difference.

3. Results

In this project 122 individuals diagnosed as classic scabies. Overall, 66 male and 56 female suffer this infestation. Of these 43 (35.24%) and 79 (64.75%) inhabited in urban and rural areas respectively (Table 1). The significant incidence was observed in villagers ($P=0.03$). The prevalence of diseases was inconsistency based on months. The predominant scabies cases were presented in September followed by January and October so that 50 (40.98%) of patients detected in September (Figure 1). The older group (>18) more involved in both urban and suburban regions of Bashagard county. The skin lesions centralized in the different sites of body. The pruritic and papular rashes were more embraced plica axillary (26.22%), belt line (22.13%), between finger spaces (19%), wrist (14.41%), ankles (11.24g%), back of the neck and shoulders (5%), and others (hip, groin area, genitals, penis) (2%) in the >10 age group. The lesions were more seen in palms (47.56%), neck (38.99%) and other parts of body (13.45%) in the <10 age category (Figure 2). Notably, no crusted scabies was recorded in this study. All patients were treated by lindane shampoo and permethrin cream according to national policy

Table 1: Scabies infestation based on age group within sex and residency

Age group	Gender		Residency		Total (%)
	Male (%)	Female (%)	Urban (%)	Rural (%)	
≤ 6	6 (4.91)	5 (4.09)	6 (4.91)	5 (4.09)	11 (9.01)
7-12	14 (11.47)	16 (13.11)	11 (9.01)	19 (15.57)	30 (24.59)
13-18	10 (8.19)	8 (6.55)	7 (5.73)	11 (9.01)	18 (14.75)
>18	36 (29.50)	27 (22.13)	19 (15.57)	44 (36.06)	63 (51.63)

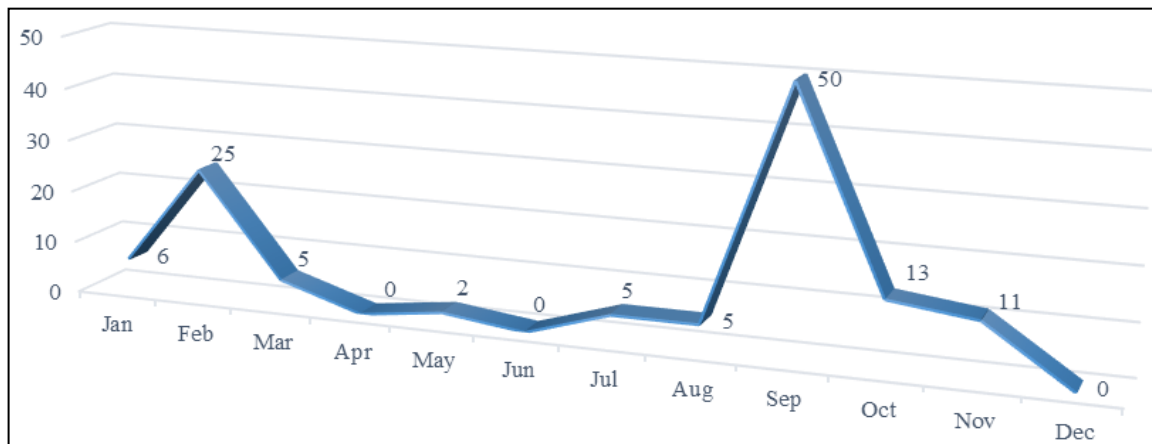


Fig 1: Monthly distribution of Scabies in Bashagard county, over 2016-2017 (no. 122)

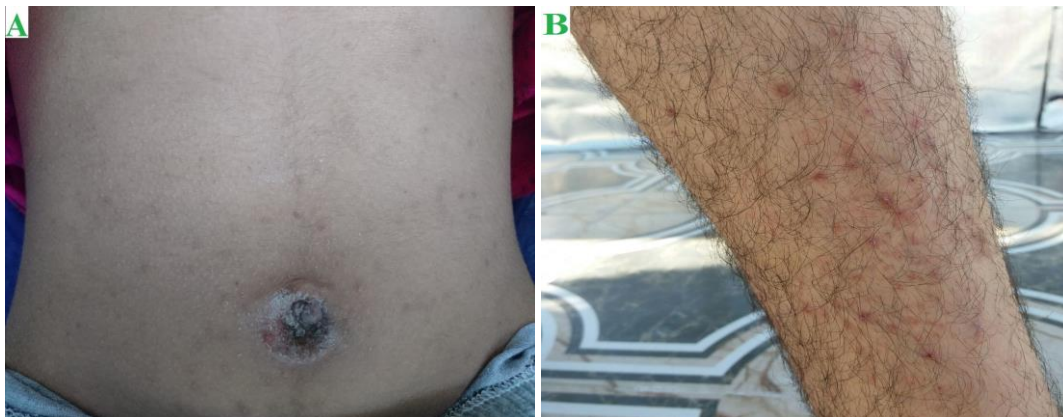


Fig 2: Classic scabies in kid (A) and adult (B) in Bashagard county

4. Discussion

Scabies is a problematic dermatosis in humans and animal hosts. This infection causes immunomodulatory effects due to mites, eggs, and excremental matters [15]. The infestation of the female *Sarcoptes* mite is determined by many factors such as sex, overcrowding, education, and income status [16]. In our research, the rural areas more involved with scabies (Table 1). Several villages in Bashagard district are accounted as impoverished regions. The distance from rural residents to the nearest health services are far away. Also, they didn't have access to sanitary facilities. For example, there was shortage of safe toilets/pit latrines and running water. That means, less frequent bathing or showering is may even a risk factor for mite infestation. Evidence was shown that children or sibling shared their bedsheet, linen and bath towel in poor income families. It sounds that they changed their clothes or underwear after a long time and done laundry fortnight due to poor access to pipe water. Moreover, the families with high member lived in tight spaces. In addition, crowded families are predisposing parameter of scabies [17]. Nevertheless, more schools didn't have washing aids. In some cases, an infected student attended school and public schools didn't provide the homebound services for children with health problems. For this reason, many schools of south and north of Iran involved with scabies and pediculosis [18, 19]. Scabies has often bothered older people especially male in this recent study. This outcome is supported by another study [20]. Furthermore, a number of young males were soldiers. They mostly served 12 to 24 months into military headquarters in boundary areas or islands of Hormozgan province. Notably, scabies has been frequently reported from Iranian's army particularly Hormozgan province [21]. In our view, infestation rate contracted during sexual behavior in spouses due to direct physical contact but the accurate rate couldn't be estimated in Bashagard district. This is possibly rashes appeared suddenly without pain or symptoms. Moreover, these couples didn't see a dermatologist for further assessment due to lacking knowledge. Plica axillary and belt line were typical fondness sites for infestation in older ages. Besides palms and neck were the priority spots for female mite in younger children (Figure 2). The same results have been reported in previous research [22]. Most patients diagnosed in the late of summer (Figure 1). In contrast, scabies has been widespread during spring and winter in central of Iran [23]. Infant, young children, pregnant and lactating women treated by topical application of permethrin cream 5%. Lindane (gamma benzene hexachloride 1%) shampoo also used for first-line treatment for adult people in Bashagard county based on Iranian guideline. Permethrin is a synthetic pyrethroid affects the sodium channels and cause immobility and death of mite. Lindane induces central nervous system (CNS) and penetrates into the skin or adipose tissues [24]. Various trials confirm tolerance/resistance to lindane in the worldwide. Adverse circumstances have been also reported after administration in infant and children. Users with scratched or impaired skin more absorb toxic doses. Idiosyncratic aplastic anemia has been demonstrated rarely. Permethrin more likely has a persuasive effect due to less poisonous than lindane but otherwise, it isn't favorite substance when outbreaks occur. In addition to, it showed resistant frequently [25, 26]. Benzyl benzoate and ivermectin were helpful in combination therapy associated with crusted scabies in other communities. Crotamiton was employed as alternative acaricide for treatment of babies cases but its practical power needs to be the further investigation [27]. There is no a consensus on the

safety and efficiency of acaricides. Indeed, there are no sizeable different among chemical compounds in term of efficiency but evaluations present that they have a non-identical impact with respect to the frequency of application within the special population and places such as prisoners, nursing home and headquarters [28-33]. Basically, determination of mite's biology, human-mite interactions, and immunologic agents are necessary for best control of infection. Vaccination is the potential technique to protect parasitized hosts against scabies mites. On the other hand, immunization can be used as an authentic method into ongoing programs [34].

5. Conclusion

Acaricides pose health hazards to human result from exposure to them continuously. Therefore, the usage of these chemical products was banned or limited in developed countries. Unfortunately, these substances used in Bashagard extremely. Afterward, resistance to using acaricides is a predictable issue in our site study. Although no assessment of scabicides has been performed, treatment failure and reinfection has occurred in this region. Access to running water and promoting personal hygiene habits can prevent people from scabies indirectly. In fact, clothing and fomites should be laundered and sanitized properly.

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7. Conflict of Interest: None declared.

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