

Study of scabies in Tikrit Teaching Hospital (clinical, parasitological, and immunological aspect)

Wisam S .Najem *, Muhmed S. Naef*, Rafal K. Farhan**, Mossa M. Marbut***.

* Dept. of Dermatology, College of Medicine, Tikrit University

** Dept. of Microbiology, College of Medicine, Tikrit University

***Dept. of Physiology, College of Medicine, Tikrit University

Abstract

A distinctive problem has been observed for last few years with increased numbers of patients who attend dermatology; with suspected scabies. This has encouraged us to conduct this study, to evaluate its clinical, parasitological, and some immunological aspect. The total numbers of suspected patients with scabies were five hundred; one hundred from them were enrolled in this study in the Tikrit Teaching Hospital, Department of Dermatology from October 2008 to April 2008. They were fully interrogated and examined. The study also includes the estimation of IgE and eosinophilia in 30 patients in compares with control group. The study showed that this disease affects males (53%), more than females (47%), was more common in children's and adults than elderly. The first patient (primary cases) who got scabies was fathers (69%), than mothers (18%). The source of infestations was from prison (60%), military (17%), and relatives (15%). The clinical forms were classical types (78%), then atypical forms (20%), and Norwegian cases (2%). The IgE and eosinophilia were higher in the patients than control group. From the present study appears that scabies tends to affect younger age group, the frequency decreased in older age. Ordinary scabies was the commonest type but other forms also seen especially atypical cases and Norwegian form. Prisoners and military personal were the main source of infestations. Allergic sensitivity to the mite or its products appears to play an important role in determining the development of the disease.

Introduction

Scabies (L., from scabere scratch) (1). The human itch mite, *Sarcoptes scabiei*, which infests some 300 million persons each year, is the one of the most common causes of itching dermatoses throughout the world (2).

Scabies is undoubtedly an ancient disease far in the period of Babylon, Nineveh, and Tyre, and later on Roman Era. Bath in hot springs was known to be curative (3).

In the early Islamic Era many Muslims physicians described the itch mite; as very small organism related to the group Of mites. It can be seen in the crusted or thickened ears of the dog (4).

In 1786 Wichman wrote a monograph on the disease and Hebra 1868, father of modern dermatology, delineated much of the knowledge Of scabies (5).

The classification of Acari is continually under revision. In the scheme proposed by Kranz the Acari are a subclass of the Arachnida in witch he recognizes two orders, the Acariformes and the Parasitiformes. Most of the mites of medical imporatance belong to three suborders, the Astigmata, prostigmata, and Mesostigmata (6).

Scabies is transmitted by person-to-person contact, including sexual contact. It is also transmitted by contact with mite-infested sheets in hospitals and nursing homes, because the mite can live up to 2 days on sheets or clothing. Scabies affects all people in all socioeconomic classes, although African Americans seem more resistant. Usually more prevalent in times of ware and famine, it reached pandemic proportion in the 1970s, perhaps as a result of poverty, sexual promiscuity, and

worldwide travel. Outbreaks continue to occur, but they are mostly sporadic and localized to nursing homes and families (7).

Scabies is caused by the mite *Sarcoptes scabiei* var. *hominis*. Adult mites are 0.3-0.4 mm long and therefore just visible, although hard to see except through a lens. It is now well established that the mites are transferred from person-to-person by close bodily contact and not via inanimate objects (8).

S. scabiei has four pairs of legs and transverse corrugations and bristles on its dorsal aspect. The female mite, just visible to the human eye, excavates a burrow in the stratum corneum and travels as much as 5 mm every day for 1-2 months before dying. Each female lays a total of 10-38 eggs, which hatch in about one week, reach maturity in about 3 weeks, and start a new cycle. Fewer than 10% of deposited eggs produce adult mites. Most infected adults will harbor 10-12 mites (9).

Scabies is characterized by pruritic papular lesions, excoriations, and burrows. Sites of predilection include the finger webs, wrists, axillae, areolae, umbilicus, lower abdomen, genitals, and buttocks. An imaginary circle interesting the main sites of involvement-- axillae, elbow flexures, wrists and hands, and crotch—has long been called the *circle of Hebra*. In adults, the scalp and the face are usually spared, but in infants lesions are commonly present over the entire cutaneous surface. To identify burrows quickly, a drop of India ink or gentian violet can be applied to the infested area, then removed with alcohol. Thin threadlike burrows retain the ink (10).

The mite can be identified at low magnification under the microscope, especially by its lively leg movements. Sometimes only typical eggs and fecal balls (scybala) are found. The demonstration of mites is regarded as an unequivocal confirmation of the diagnosis. The diagnosis is largely

confirmed by the presence of burrows, severe nocturnal pruritus at the sites of predilection, and pruritus affecting contacts, for instance, several members of one family (11).

Other clinical variants of human scabies are also well described. Nodular lesions occur in 11 percent of patients and are most commonly seen in the groin area or axillae, but they may be seen elsewhere in infants. In crusted Norwegian scabies, literally thousands of mites instead of the usual 3 to 50 female mites may be found. Secondary lesions found in the typical case of acute scabies include urticarial papules, eczematous papules, excoriation, and impetiginization of existing lesions (12).

Patients with crusted scabies usually are immunocompromised (HIV disease, organ transplant recipient) or have neurologic disorders (Down's syndrome, dementia, strokes, spinal cord injury, neuropathy, leprosy) (13).

Patients and Methods

The study was carried out in six months (from October 2008 to April 2009), in the Tikrit Teaching Hospital, Department of Dermatology. The total numbers of suspected patients with scabies were five hundred; one hundred from them were enrolled in this study with positive skin scraping.

The study also includes the estimation of IgE and eosinophilia in 30 patients (15 male and 15 female) selected randomly.

Laboratory work was done for 100 cases selected randomly from the original number diagnosed clinically:

- 1) Extraction of mites and transferred directly to the glass slide and examined carefully under microscope (14).
 - A) If the burrows were undamaged, usually a small vesicle seen at the end of the burrow; pricking maneuver

with pointed needle will extract the mite.

- B) If the burrows were scratching; by using scraping mineral oil using scraped blade no. 15 (curved), placing one drop of oil over the burrow and scrap.
- 2) Blood sample, were withdrawn from 30 patients, who have had the disease more than one month (10mm of blood were taken for IgE; and another 10mm for eosinophiia).For total IgE in human plasma Phadebas IgE PRIST Immunoassay kits were used.

Results

Of one hundred patients fifty three were (53%) male and forty seven (47%) were female their aged group ranged (17.68) with SD (± 0.461) (table 1).

The first patients who got scabies were fathers (69%), then mothers came secondary (18%) table (2).

The possible source of infection were, prison (60%), then came military (17%), relatives (15%) table (3).

Three types of clinical forms were noticed (78%) with classical clinical picture, (20%) atypical cases, and third group (2%) were Norwegian form table (4).

IgE in scabies: the total numbers of the patients were 30; 15 males, their ages were from 15 to 53 years (mean age 26.351 ± 0.686) and 15 females their ages were from 17 to 60 years (mean age 13.967 ± 0.520). The control group was 15 healthy subjects; table (5).

The eosinophilia count: the total numbers of the patients were 30 The control group were 15 healthy subjects; table (6).

Discussion

Scabies is most common in children and young adults, but may occur

at any age. These are probably related to customs, family size, and social factors rather than inherent susceptibility.

Overcrowding, which is common in the underdeveloped countries and is associated with poverty and poor hygiene, encourages the spread of scabies, among children and young adults.

In such disease whose transmission requires close personal contact, cultural factors are extremely important. Therefore transmission mostly occurs within families, when one member (fathers and mothers in our study) of a family requires scabies entire family often become infested as well.

In a study to identify the source of infestation prison, and military personal were the important factors in the spread of infestation. This may due to overcrowding, population movement.

To an extent the war are a composite of factors. It is possible that war may translate minor increase in the incidence of scabies, into a more substantial epidemic.

Allergic sensitivity to the mite or its products appears to play an important role in determining the development of lesions other than burrows, and in producing pruritus. However, the sequence of immunological events is unclear and requires further elucidation.

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Table (1): age and sex of patients with scabies.

Age	0-9	10-19	20-29	30-39	40-49	50-59	60-70	total	%
Male	18	15	10	6	2	1	1	53	53
Female	22	10	5	4	3	3		47	47
Total	40	25	15	10	5	4	1	100	100

Table (2): The first patient in the family who got scabies (primary case).

Family member	Numbers	%
Father	69	69
Mother	18	18
Children	8	8
Visitors	3	3
Unknown	2	2
Total	100	100

Table (3): The source of infestations.

Source	Numbers	%
Prison	60	60
Military	17	17
Relatives	15	15
Hotels and hostels	3	3
Funerals	3	3
Unknown	2	2
Total	100	100

Table 4: Clinical forms of scabies.

Clinical forms	Numbers	%
Classical form	78	78
Atypical form	20	20
Norwegian form	2	2
Total	100	100

Table (5): The IgE level in patients with scabies and control group.

Groups	Numbers	Mean-IgE KU/I
Patients group	30	495.121±30.116
Control group	15	130.211±22.217

Table (6): The eosinophilia level in patients with scabies and control group.

Groups	Numbers	Eosinophilia
Patients group	30	Increased
Control group	15	normal