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Unilateral Hand Eczema

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Abstract

Background: Recently, increasing numbers of cases with unilateral hand eczema with quite resemblance and difficult to differentiate from Tinea mannum (a superficial fungal infection of the hand) are seeking dermatology clinic. Some of which wasn't respond to conventional antifungal therapy instead they show a substantial response to topical steroid.

Aim of the study: To assess the real presence of unilateral hand eczema in patients presented with unilateral hand scaly dermatoses.

Patient and methods: This study is cross sectional descriptive study that was done in Dermatology Department of Salah-Aldin General Hospital in Tikrit city in a period from October 2019 till June 2020. A sample of 50 patients were included and complete information were recorded including history , clinical examination and investigation (scrapping test with Potassium hydroxide (KOH) mount and fungal culture) were taken from all lesions of all participants.

Results: 30 (60%) of patients with unilateral hand eczema had negative KOH mount and fungal culture all of which didn't show response to 4-5 weeks of topical and systemic antifungal. However, they respond excellently to topical steroid. While, 13(26%) of cases had both KOH examination and fungal culture positive and all of which respond excellently to 4-5 weeks of systemic and topical antifungal. The rest 7(14 %) of cases had 3(6%) positive fungal culture with negative koh and 4(8%) positive koh with negative culture. Both groups were significantly different in residence, risk of animal contact, occupational risk and feet involvement. (p=0.008, p=0.003, p=0.01, 0.02) respectively. Gender, age, clinical feature and distribution of lesions duration, history of atopy and diabetes mellitus had no significant association. (P value = > 0.05)

Conclusion: This study proved that unilateral hand eczema is present and existent and not all unilateral hand scaly lesion are fungal as previously believed.

Keywords: unilateral hand eczema, hand dermatitis, superficial fungal infection

Introduction

Hand (eczema or dermatitis) means; inflammation of the skin of the hand. In addition to the irritating itching, it looks unappealing. Beside it impedes considerably the everyday activities and in the severe cases it may hinder occupation [1]. The commonest calibrated allergens were nickel, cobalt, balsam of Peru, fragrance mix and colophony. Regarding professions studied, cleaners had the highest prevalence. Hand eczema may be elicited by exogenous and endogenous factors. The most common exogenous factor is the occupational exposure to irritants chemicals , water and detergents etc.., sometime this might be severe enough

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pushing them to quit their jobs reported by 8% specially cleaners and Hairdressers.[2] Recently many patient present complaining of one hand involvement that exact eliciting factor of unilateral hand involvement is not established. Abroad differential diagnosis, whether it is dermatitis; contact or allergic, atopy, fungal; dermatophytes infection (Tinea mannum). As the dermatophyte infection is a known cause for single hand infection (but associated with feet involvement). Searching for it presence became imperative. However, few case report available such as a case by Farheen et al; mentioned unilateral dermal dermatitis association with allergic contact dermatitis related to occupational exposure. This encourage us to look for unilateral hand eczema in depth as it observed frequently in dermatology outpatient clinic.[3]

Patients and methods

Across sectional study that carried out in dermatology Department clinic of Salah-Alden General Hospital in Tikrit city in a period from October 2019 till June 2020. A fifty patients with unilateral eczema like dermatoses were ncluded, selected according specific inclusion criteria and excluded any patients with typical, proved Tinea mannum and onychomycosis.

After recording patients 'full information and KOH examination of hand lesion scraping and fungal skin culture is sent. All patients are given a trial of topical and systemic antifungal (clotriamazole cream and fluconazole capsules) and asked to revisit when the rash disappear or after 4-5 weeks whatever come first. At around 4 weeks from the last visit all patient are reassessed and the result were recorded , all those whom didn’t respond were given topical steroid for another 4 weeks and asked to come again , result were also recorded. Data analysis were assessed using Microsoft Excel version 2016. P- Value with numbers ≤ 0.05 was considered statistically significant.

Results

50 patients were included in the study; (20%) were males and (80%) were females. Patients’ age ranged from (11 – 60) years with mean ± SD is 29.18 ± 10.5. Regarding patients’ occupations; (38%) patients were housewives and (14%) were students. Unilateral hand manifestation ranging from itching 45 (90 %), burning 22(44%) dermatitis like features (dryness and scaliness), redness 9(18%), vesiculation 1(2 %), pustules 2(4 %), fissuring and lichenification 3(6%). Fingers alone were involved in 2(4%), dorsum of hands solely involved in 18(36 %) and palms with dorsum (Extensive involvement of hands) is seen in 20(40%) out of all patients. Dominant hand affected in 41 (82%) of cases while not dominant hands affected only in 9 (18 %) of cases. As shown in tab.1 KOH was positive and show hyphae in 17 (34 %) of cases while it was negative in 33 (66%) of cases. Fungal cultures have sent to confirm the

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final diagnosis. Of all cases, 16 (32 %) have positive culture while 34 (68%) reported negative culture. Differences between fungal positive group and eczema group and the inconclusive groups was statistically significant regarding residence, occupation risk, risk of close animal contact and feet involvement (p value <0.05). However, it wasn't statistically significant with regard to age, sex, dominance, rash distribution and duration of the lesion. (**Table 2)**

Table (1): clinical features of unilateral hand lesions

Propotion of symptoms	N	%
Dryness and scaliness	50	100%
Pustules	2	(4%)
Vesicles	1	(2%)
Fissuring&Lichenification	3	(6%)
Burning/pain	22	(44%)
Itching	45	(90 %)
Redness	9	(18%),
Distribution of lesion:		
Extensive (dorsum & palm)	20	(40%)
Palm		
Dorsum	10	(20%)
Fingers	18	(36 %)
	2	(4%),
Dominance		
Dominant hand	41	(82%)
notdominant hand	9	18 %
Duration		
<1 year	30	(60%)
>1 year	20	(40%)
Feet involvement	8	(16%)
KOH examination		
+ve	17	(34 %)
-ve	33	(66%)
Fungal culture		
+ve	16	(32 %)
-ve	34	(68%)
Response to antifungal at 1 month	16	(32%)
Response to steroid at 2 months	34	(68%)

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Table(2): relationship between different clinical features of KOH and culture

Clinical feature	Cult – ve KOH - ve	Cult and KOH + ve	Inconclusive (either culture or KOH +Ve)	P – value
Gender **Female** **Male**	 23 7	 11 2	 6 1	 0.6
Residence **Rural** **Urban**	 15 15	 1 12	 3 4	 0.008
Dominance	26	11	4	0.8
Feet lesion	3	5	0	0.02
Dorsum	9	6	3	0.3
Duration **<1 yr** **>1yr**	 16 14	 10 3	 4 3	 0.1
Occupatio **Present** **Abscent**	 16 14	 12 1	 4 3	 0.01
Risk f. **AD** **Animal contact** **Chemicals** **DM**	 2 5 2 1	 0 8 0 1	 0 2 0 0	 0.3 0.003 0.3 0.5
Response to antifungals	0	13	3	
Response to steroid	30	0	4	
Total	30	13	7	

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Discussion

In this study 60% of cases with unilateral hand scaly lesion showed -VE result in both KOH, fungal culture examination and had no response of 4 to 6 weeks of mycological therapy while 100% response to topical steroid confirming the diagnosis for hand eczema. Other 26% of cases revealed positive result in both KOH and fungal culture examination and had 100% response to mycological therapy thus confirm the diagnosis for superficial dermatophyte infection. The rest 14% of cases gave inconclusive features 4 showed positive result on KOH examination with negative fungal culture and no response to month trial of antifungal medication but respond to topical steroid while 3 had positive fungal culture with negative KOH and response to antifungal therapy (Table 2). occupational risk for developing eczema and fungal infection were assessed in all groups with statistically significant difference (p value = 0.01). Age distribution of eczema is in concordance to study by Kishore NB et al. who found (64%) of cases was found between 20 -39 year while in this study it was 62% of cases. [4] Female most likely have higher ontact to allergens that found in the washing detergents, hence higher number of hand involvement. This is also noticed in a study by Diepgen TL et al especially at their twenties.[5] Regarding patients' residence whether living in rural or urban area it was found that difference was also significant and (p value =0.008). This may be attributed to the risk of animal exposure. Sixty-one percent of cases who had fungal infection had also close animal contact versus 16% only in eczema group. (p value =0.003). In study by C. Ralph et al, patients who had more intense work and with significant contact to animal had more risk to develop Tinea pedis and Tinea manuum than those who work less intense jobs.[3] In eczema group 10% of cases with feet involvement while 38% were affected in fungal group. The difference was statistically significant (p = 0.02). The association between feet involvement and Tinea manuum also confirmed in study by C. Ralph et al. Dominant hand was closely involved in both the eczema group (86.6%) and fungal group (84.6%) with no significant difference (p =0.8), in concordant to Daniel et al

study.[3] Regarding KOH and Fungal culture sensitivity and specificity in diagnosis, the sensitivity for KOH smear is 73.3% and 42.5% for specificity so it has so it has high rate of false positive cases, while the sensitivity for culture is 41.7%, and specificity is 77.7%. So it has higher rate of false negative, accordingly KOH smear and fungal culture are balancing diagnostic tests, with the KOH being the more sensitive test of the two, and the culture being more specific.[6]

Conclusion

Animal contact, occupational risk such as working with detergents, residence whether urban and rural area and feet affection can be indispensable predictive factors. Also Feet examination as a rule, should always done when unilateral hand scaly lesion present. As in eczema, it may start unilaterally and then become after a while bilateral.

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Figure 1: patient diagnose with Tinea manuum

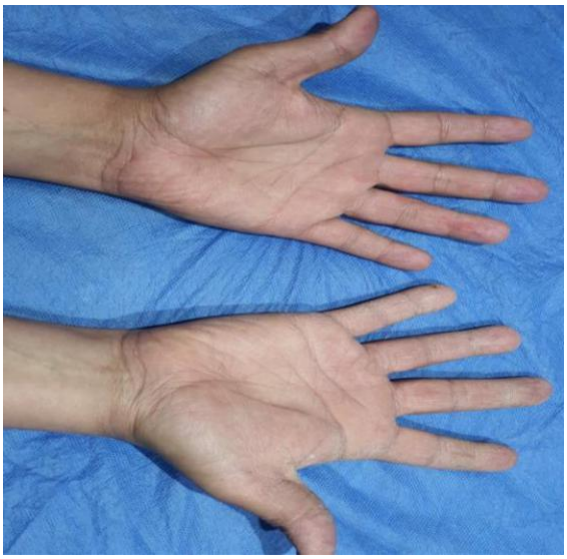

Figure (2): patient diagnose with Eczema

Figure (3): patient diagnose with Eczema