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Research Article

Efficacy of a Unani formulation in the treatment of *Quba* (Dermatophytosis): a single blind, randomized and standard controlled trial

Jameel Ahmed[1], Shameem Ahmad Rather[2] & Shabir Ahmad Bhat*[3]

1. *MD Scholar (Moalajat), Regional Research Institute of Unani Medicine, Naseem Bagh, University of Kashmir, Srinagar J&K, India*
2. *Reader, Regional Research Institute of Unani Medicine, Naseem Bagh, University of Kashmir, Srinagar J&K, India*
3. *Assistant professor, Kashmir Tibbia College Hospital and Research Centre, Shilvat, Kashmir, India*

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*Address for Correspondence:

Dr. Shabir Ahmad Bhat, Assistant professor, Kashmir Tibbia College, Hospital and Research Centre, Shilvat, Kashmir, India, 193501.

Abstract

Background and objectives: Dermatophytosis or ringworm (*Qūbā*) is one of the commonest and oldest skin diseases, existing before its true mycological nature was discovered. More than a million healthy as well as immunocompromised individuals are the victims of this infection worldwide. *Quba* is a well-known disease entity in Unani medicine andis treated successfully since centuries. The present study was designed to compare the safety and efficacy of a Unani formulation and Terbinafine in its management.

Methods: Sixty diagnosed cases of ringworm aged between 15- 60 years fulfilling the inclusion criteria were selected for the study and randomly allocated after obtaining voluntary informed consent into two groups of 30 each viz. Group A (test) and Group B (control). A Unani topical formulation, *Ushq* (*Dorema ammoniacum*) & *Sirka* (Vinegar) in test group and Terbinafine 1% Cream in control group was applied locally twice a day for 60 days. Patients were followed and assessed clinically for severity score of color, scaling, itching, margins, size of the lesion and Dermatology Life Quality Index scoreon every follow up, and KOH mount test was done before and after the study.

Results: The test and control drugs showed statistically significant reduction in scores of most of the subjective parameters and KOH ($p<0.001$) for intra group analysis, while as no significant difference for inter group analysis ($p>0.05$) was observed statistically.

Conclusion: Unani topical formulation, *Ushq* (*Dorema ammoniacum*) & *Sirka* (Vinegar) is equally effective and safe as Terbinafine 1% Cream in treating ringworm.

Keywords: Dermatophytosis, *Dorema ammoniacum*, *Qūbā,* Ringworm, *Sirka, Ushq*

1. INTRODUCTION

Dermatophytosis (ringworm) is fungi that infect epidermis of the skin, hair and nail due to colonization in the keratinized layers.[1] It is transmitted by direct contact with other infected individual orby infected animals.[2] Several Ancient physicians of Unani medicine have given a detailed description about this disease. Lots of treatments are prescribed in authentic classical literature of Unani system of Medicine. *Rabban Tabri* (850-925 AD) in his book *Firdous-ul-Hikmat*, *Zakariya-al-Razi* (850-925 AD) in *Al-Hawi-Fittib*, *Ahmad Tabri* (10 century AD) in *Al-Moalijat-i-Buqratiya* and *Ibne Sina* (980-1037 AD) in his treatise *Al- Qanoon-Fit-Tib* gave a comprehensive description of the disease.[3,4,5] According to *Allama Kabeeruddin Qūbā* is due to *Hiddat-e-Khoon* (deranged blood), *Borqiyat-e-Balgham* (abnormal phlegm), *Ahtaraq-e- Khoon* (burnt blood) and *Sawdawiyat.*[6] Gurby in the year 1841isolated the organism of favus in culture and experimentally produced disease in normal skin. Later in 1910 CE, Sabouraud, the father of modern medical mycology, published "Les Teignes" in which he classified the dermatophytes as tinea cruris, corporis etc., depending on the parts affected.[7] The clinical appearance is quite variable and depends on number of factors. The typical lesion of Tinea is an annular or arcuate plaque which spreads centrifugally. The edge is active showing papulo-vasiculation, pustulation and scaling, while the center is usually relatively clear, though in chronic lesions there may be nodules, hyperpigmentation and even lichenification in the center.[2,8] The people suffering from this disease are in great agony. As even the common presenting symptoms like itching, burning sensation and physical disfigurement caused by this disease often lead to social embarrassment and psychological turmoil.[9] Inspite of the advances in anti-fungal and corticosteroid therapy which have completely altered the nature of skin clinics there is no diminution in the number of patients with dermatophytosis (ringworm) attending for help. Subsequently the adverse effect of the drugs has also worsened the condition. Hence it is the need of the day to provide a safe and effective medicine. This was the main motivating factor behind the selection of this study, i.e., to evaluate the safety and efficacy of Unani formulation (*Ushq* and *Sirka*) as topical application in patients of *Qūbā* (Dermatophytosis, Ringworm).

2. MATERIAL AND METHODS

A single blind randomized study entitled "Clinical Study to Compare Safety and Efficacy of Unani Formulation *Ushq* (Dorema ammoniacum) & Sirka (Vinegar) with Terbinafine

1% cream as control, in Patients of *Qūbā* (Dermatophytosis, Ringworm)" was conducted at Regional Research Institute of Unani Medicine, Naseem Bagh, Srinagar, J&K. An inclusive protocol was framed and approval was obtained from the Institutional Ethics Committee of Regional Research Institute of Unani Medicine (RRIUM), Srinagar and was also registered in Clinical Trials Registry-India (CTRI/2020/05/025361) on dated 26.05.2020. Recruitment of patients was done during the study duration of 12 months, from OPD/IPD of RRIUM Hospital, on the basis of clinical diagnosis and KOH test. After taking written consent from each eligible patient, they were randomly distributed using computer generated randomization chart in two groups, test group and control group. The patient's summary is given in figure 1.

2.1. Duration of Protocol and Follow ups: protocol duration was 60 days with four follow-ups each at 15th, 30th, 45th and 60th day.

2.2. Sample Size: 60 patients were selected during the course of this study (30 in test groupand 30 in control group).

2.3. Inclusion Criteria: Clinically diagnosed patients of *Qūbā,* of any gender between age group of 15 and 65 years were included in this study.

2.4. Exclusion Criteria

• Patients below the age of 15 years and above the age of 65 years.

• Pregnant and lactating women.

• Patients suffering from concomitant disease like Psoriasis and Eczema.

• Patient suffering from severe systemic and metabolic diseases like Diabetes, HTN, COPD, Thyrotoxicosis and HIV patients etc.

• Patients with any trauma and accidents and who are unable to give consent.

2.5. Subject selection:

Patients were selected on the basis of following criteria.

- Lesion with Itching
- Scaling
- Erythema
- Papule
- Vesicle
- Vesico-pustules
- KOH positive

2.6. Withdrawal criteria:

- Failure to follow-up.
- Poor compliance to protocol such as not using drug at regular basis.
- Any adverse reactions.
- Voluntary withdrawal from this study.

2.7. Treatment Allocation: Treatment allocations were predetermined as per the online computer generated randomization schedule.

2.8. Investigational Product

a. Test Drugs (Topical use): A Unani formulation as mentioned in the classical literature was selected for the treatment of test group in this study. It consisted of the following ingredients- *Ushq* (*Dorema ammoniacum*), *Sirka* (Vinegar).

b. Control Drug (Topical use): Standard Cream Terbinafine 1% (Terbinafine) was applied to control group subjects. Both the drugs were applied topically twice a day.

2.9. Investigations for assessment: In addition to KOH mount test some investigations were performed to screen for fulfilling inclusion criteria and safety assessment of both the drugs. These include Hb%, TLC, DLC, ESR, serum bilrubin, SGOT, SGPT, ALP, Serum creatinine, thyroid profile, blood urea, blood sugar fasting and postprandial.

2.10. Assessment: The assessment of efficacy was made at 15 days intervals for 60 days and safety was assessed before and after treatment, i.e. at basal (0thday) and 61st day on completion of therapy.

2.11. Evaluation of study results: Results were drawn on the basis of reduction in skin lesion, itching and erythema, KOH mount, and relief in clinical symptoms of dermatophytosis, ringworm.

2.12. Statistical Analysis: For statistical analysis, recorded data was compiled and entered in a spread sheet and then exported to data editor of SPSS version 20.0 and Graph pad prism software. The continuous variables were expressed as mean ± standard deviation and categorical variables were expressed in terms of frequency and percentage. Chi-square test was employed for inter group comparison of categorical variables and for intra group comparison of categorical variables we used McNemar's test. Student's independent t- test was employed for inter-group analysis of data and for intra-group analysis paired t- test was applied subject to the condition that data is measured on continuous scale and satisfies assumption of normality. However, if the assumption of normality did not hold we applied Friedman's test for the intra group with different follow-ups and Mann -whitney U test was employed for the intergroup (test vs. control) comparison of data at different follow-ups. A p-value of less than 0.05 was considered statistically significant.

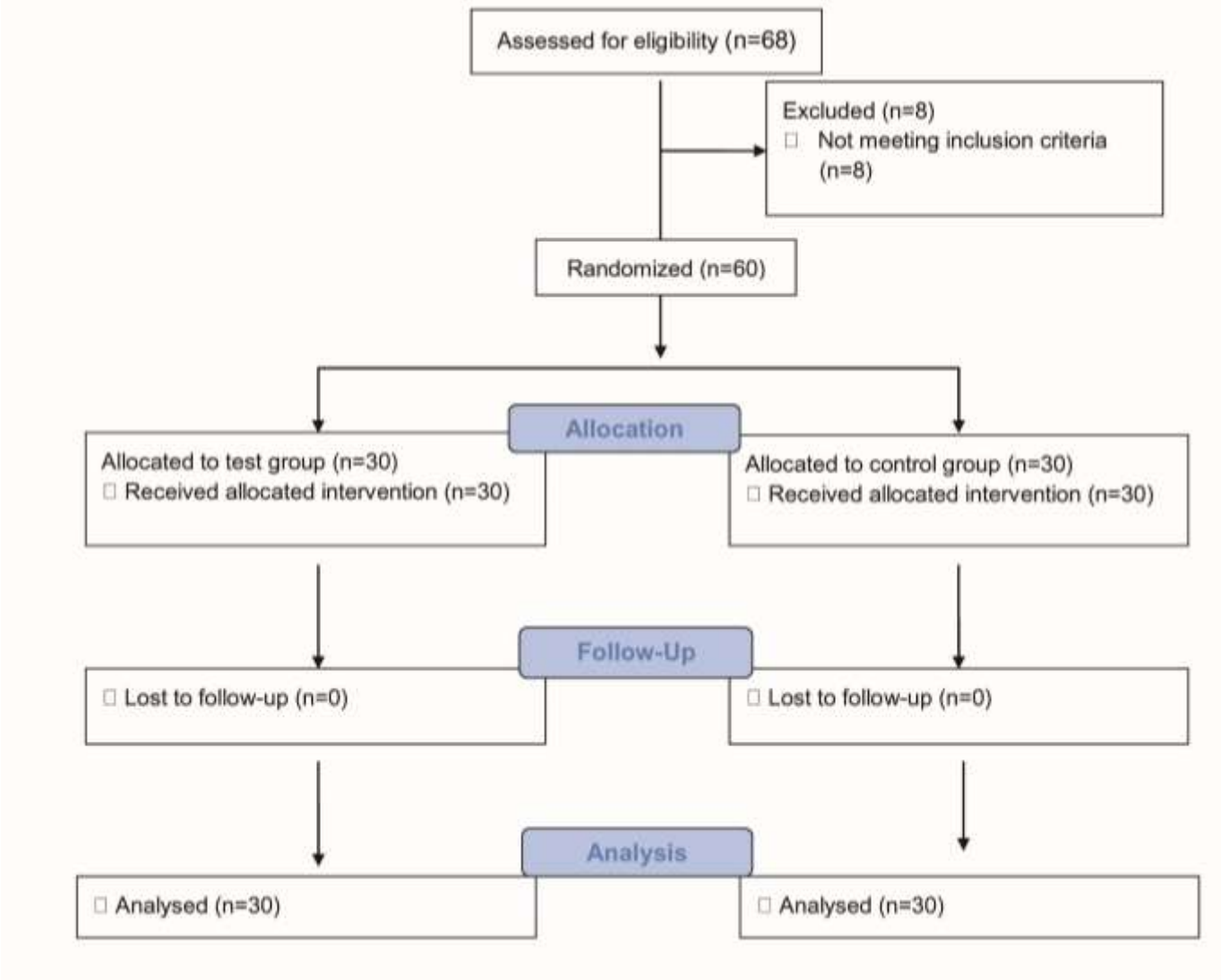


Figure 1: Patients summary

3. RESULTS

In the present study it was found that 33% patients were found in the age group of 21-30years, 32% patients in the age group of 31-40 years, 12% patients in the agegroup of 41-50 years, 12% patients in the age group of 51-60 years, 7% patients inthe age group of less than 20 years and 5% patients in the age group of 60-65 years of age. In the process of observation different subjective parameters like itching, size, color and margin of the lesion was assessed via respective grading scales at every follow up and the data so collected has been shown in tabular form. Table 1-5 clearly depicts the results of each subjective parameter and their comparison in each, test and control group.

In table 6 it is evident that, all 30 (100%) patients were KOH positive at baseline in test group, after the treatment 27 (90%) patients were negative and only 3(10%) patients remained positive. In control group, all 30 (100%) patients were KOH positive at baseline, after treatment 23 (77%) patients were negative and 7 (23%) patients remained positive. Table 7 shows inter and intra group comparison of dermatology life quality index (DLQI). The questionnaire was structured with each question having four alternative responses: 'not at all', 'a little', 'a lot'. or 'very much' with corresponding scores of 0, 1, 2 and 3, respectively. The DLQI is calculated by summing the score of each question, resulting in a maximum of 30 and minimum of 0. Higher the score, greater is the impairment of quality of life. In present study, DLQI was assessed in Mean ± SD. DLQI score in test group were 12.63±2.042 at baseline and 2.467±2.788 at the end of treatment. While in control group, score was 14.07+2.716 at baseline and 4.1±3.188 at the end of treatment. Both the drugs were found safe for the set duration of protocol with no gross changes in safety parameters (CBC, KFT, LFT) following the treatments.

Table 1 : Showing inter and intra group comparison of two treatments based on grading Scale of itching at different follow-ups (F)							
Test	Grading	Baseline	F1	F2	F3	F4	P-value
	Minimum	2	1	1	1	0	< 0.0001*
	Median	2	2	2	1	0	
	Maximum	4	3	3	3	3	
Test Applied: Friedman Test							
Control	Grading	Baseline	F1	F2	F3	F4	
	Minimum	2	1	1	0	0	< 0.0001*
	Median	2	2	2	1	0	
	Maximum	3	2	2	2	2	
P-value (test vs. control) Mann Whitney Test		0.007	0.72	0.924	0.27	0.339	

Table 2 : Showing inter and intra group comparison of two treatments based on grading Scale of scaling at different follow-ups (F)							
Test	Grading	Baseline	F1	F2	F3	F4	P-value
	Minimum	2	1	1	0	0	< 0.0001*
	Median	2	2	1	1	0	
	Maximum	3	3	3	3	3	
Test Applied: Friedman Test							
Control	Grading	Baseline	F1	F2	F3	F4	
	Minimum	2	2	1	1	0	< 0.0001*
	Median	2	2	2	1	0	
	Maximum	3	2	2	2	2	
P-value (test vs. control) Mann Whitney Test		0.038	0.024	0.062	0.195	0.305	

Table 3: Showing inter and intra group comparison of two treatments based on grading Scale of color of lesion at different follow-ups (F)							
Test	Grading	Baseline	F1	F2	F3	F4	P-value
	Minimum	2	1	1	1	0	< 0.0001*
	Median	2	2	1.5	1	0	
	Maximum	3	3	3	3	3	
Test Applied: Friedman Test							
Control	Grading	Baseline	F1	F2	F3	F4	
	Minimum	2	2	1	1	0	< 0.0001*
	Median	2	2	2	1	0.5	
	Maximum	3	2	2	2	2	
P-value (test vs. control) Mann Whitney Test		0.048	0.024	0.103	0.264	0.155	

Table 4: Showing inter and intra group comparison of two treatments based on grading Scale of margin at different follow-ups (F)							
Test	Grading	Baseline	F1	F2	F3	F4	P-value
	Minimum	0	0	0	0	0	< 0.0001*
	Median	2	2	1	1	0	
	Maximum	4	2	2	2	2	
Test Applied: Friedman Test							
Control	Grading	Baseline	F1	F2	F3	F4	
	Minimum	2	1	1	1	0	< 0.0001*
	Median	2	2	1.5	1	1	
	Maximum	3	2	2	2	2	
P-value (test vs. control) Mann Whitney Test		0.688	0.092	0.07	0.01	0.043	

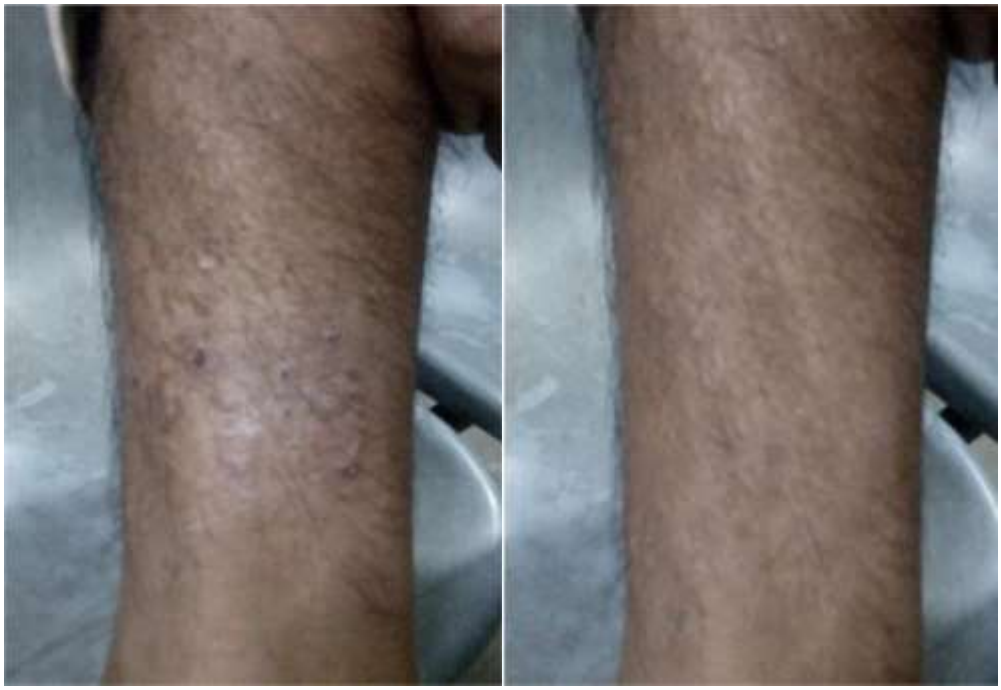
Table 5: Showing inter and intra group comparison of two treatments based on grading Scale of size of the lesion at different follow-ups (F)							
Test	Grading	Baseline	F1	F2	F3	F4	P-value
	Minimum	0	0	0	0	0	< 0.0001*
	Median	2	2	1	1	0	
	Maximum	3	2	2	2	2	
Test Applied: Friedman Test							
Control	Grading	Baseline	F1	F2	F3	F4	
	Minimum	2	1	1	0	0	< 0.0001*
	Median	2	2	1.5	1	1	
	Maximum	3	3	2	2	2	
P-value (test vs. control) Mann Whitney Test		0.835	0.372	0.312	0.045	0.015	

Table 6: Showing comparison of KOH before and after the treatment in both the groups							
KOH		Test		p value	Control		p value
		No.	%age		No.	%age	
BT	Positive	30	100	* (McNemartest)	30	100	* (McNemartest)
	Negative	0	0		0	0	
	Total	30	100		30	100	
AT	Positive	3	10		7	23	
	Negative	27	90		23	77	
	Total	30	100		30	100	

Table 7 Showing inter and intra group comparison of DLQI					
	Test		Control		P-value Test vs. control
Follow up	Mean	SD	Mean	SD	
Base Line	12.63	2.042	14.07	2.716	0.0244
F1	10.37	1.938	11.4	2.111	0.053
F2	8.233	2.096	9.1	1.863	0.0959
F3	5.733	2.067	6.767	2.223	0.0673
F4	2.467	2.788	4.1	3.188	0.039
Comparison within test group <0.0001*			Comparison within control group <0.0001*		

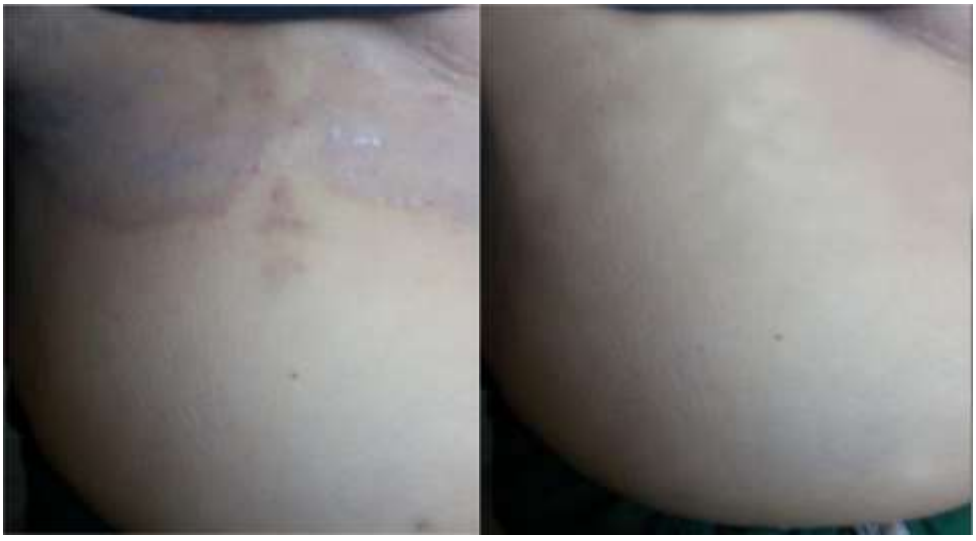
DLQI: dermatology life quality index

Figure 2(A): Pre and post study photographs of patients' skin lesion in Group A



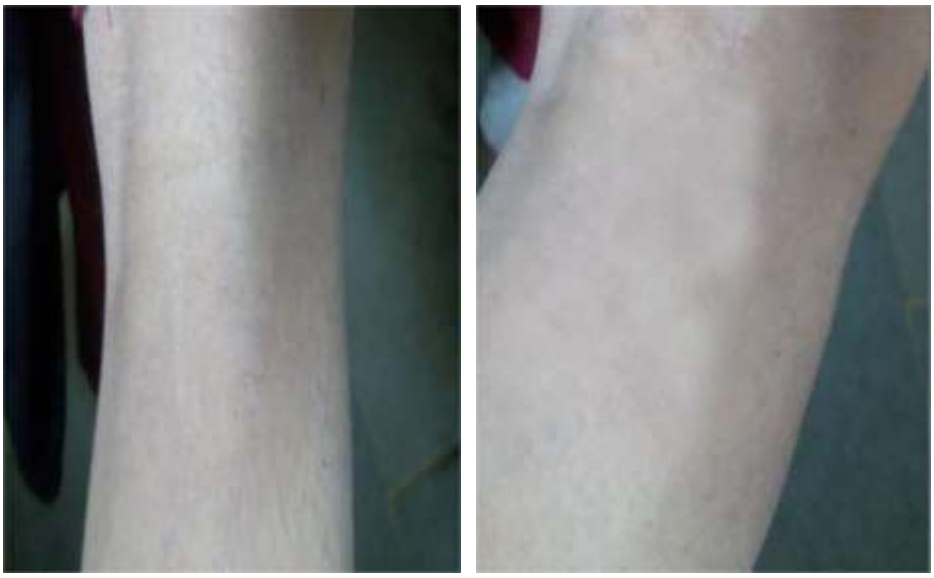
Pre treatment ***Post treatment***

Pre treatment ***Post treatment***

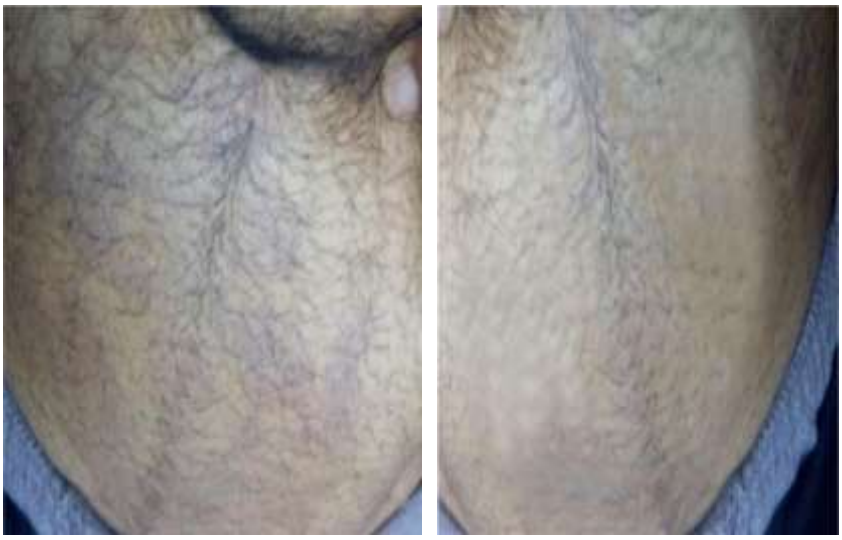


Pre treatment ***Post treatment***

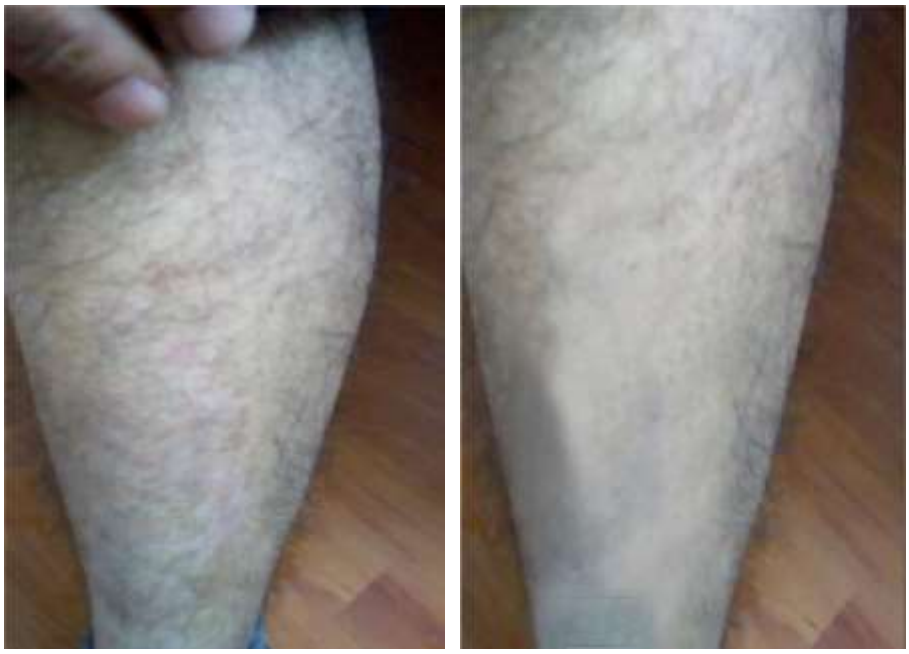
Figure 2(B): Pre and post study photographs of patients' skin lesion in Group B



Pre treatment ***Post treatment***



Pre treatment ***Post treatment***



Pre treatment ***Post treatment***

4. DISCUSSION

After completion of the trial the score of both subjective and objective parameters obtained post treatment was compared. For statistical analysis, recorded data was compiled and entered in a spread sheet and then exported to data editor of SPSS version 20.0 and Graph pad prism software. It is evident that maximum numbers of patients were belonging to the age group of 21-30 years. This data support the study conducted by the Mastan et al and study conducted by the Sharma N, Tendolkar U.[10]

The given table 1-5 displays the inter and intra group comparison of test and control group where it is obvious that the parameters, itching, scaling, color, margin and size of the lesion were significantly improved ($p<0.0001$) in both, the test and control group. This improvement is also obvious from the given pictures showing before and after treatment changes in skin lesion. However, statistically we found little or no significant difference in improvements between the test and control group after the treatment which means that both the drugs are equally effective in reducing the symptoms and improving the signs of lesion. The improvement in test group may be due to *Dafae ta'affun* (antiseptic),*Mulatiff* (demulcent),*Qatie akhlate ghiliza* (evacuates bad humors), *Muhallil* (anti-inflammatory), *Jali* (detergent), activities of vinegar (*Sirka)*[11,12,13] and *Muhallil* (anti-inflammatory), *jazib ratoobat* (drying) and antifungal activity of *Ushq* (*Dorema ammoniacum*).[14,15]

From table 6 it is evident that there is a significant difference in KOH mount test ($p<0.001$) in both the groups. The improvement in KOH in test group may be due to antifungal, anti oxidant and anti-inflammatory activity of *sirka* (vinegar) and ushq (*Dorema ammoniacum*).[16,15,18]

Moreover, DLQI score in test and control group were 12.63±2.042, 14.07±2.72 at baseline and 2.467±2.788, 4.1±3.19 at the end of treatment respectively (table 7). This shows a significant reduction in DLQI score ($p<0.001$) in both the test and control group. Theimprovement in DLQI score in test group may be again due to *Dafe ta'affun* (antiseptic), *Mujaffif* (drying), *Qabiz* (astringent),and *Jali* (detergent) activity of *Sirka* (vinegar) and us (*Dorema ammoniacum*).[12,13,15] Interestingly the intergroup comparison shows less significant difference in efficacy for improving DLQI by test and control drug. Finally the effect of both the test drug formulation (group A) and control drug
(group B) is obvious from the photographs in figure 2A and 2B respectively. Furthermore, both the drugs were found safe for the selected protocol duration.

5. CONCLUSION

On the basis of results and discussion, it can be concluded that topical application of *Ushq* (*Dorema ammoniacum*) & *Sirka* (Vinegar) twice a day was quite effective and safe drug in the management of *Qūbā (*Dermatophytosis, Ringworm).

Conflict of Interest

The authors declare to have no conflict of interest.

Authors' contribution

All the authors participated finely in collecting the patient data, its analysis and interpretation. The first author has a major contribution in writing the manuscript, examining the patient, and collecting the data. All authors read and agreed for the manuscript.

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REFERENCES

1. Khanna N. Illustrated Synopsis of Dermatology and Sexually Transmitted Diseases, 6th ed. Thomson press India Ltd. 2019: 291-298.
2. Denk L. Tinea corporis. In: Pediatric clinical advisor (second edition), instant diagnosis and treatment. 2007; 562-563. https://doi.org/10.1016/B978-032303506-4.10327-X
3. Razi AMBZ. Alhavi fit Tib (Urdu translation by jafri sab and siddiqui).Vol-23. Aligarh: Saba Publication; 1994:46-52
4. Qamri AMH. Ghina Muna. Central Council for Research in Unani Medicine. New Delhi. 2008: 481
5. Ibn-e-Sina. Al Qanoon fit Tib. Vol-4. 1st ed. Beirut: Darul Kutub Al Ilmiyah; 1999: 415-17.
6. Kabeeruddin M, Tarjuma-e-Kabir (Urdu Translation of Sharah-e-Asbab wa Alamat), 1st ed. Ajaz Publishing. House, New Delhi; 2007: Pp. 285-286.
7. Mukhopadhyay AK. A historical note on the evolution of ringworm. Indian J Dertmatol Venerol Leprol 2019; 85:125-128. https://doi.org/10.4103/ijdvl.IJDVL_56_18
8. Leung AKC. Tinea corporis: an updated review. Drugs Context. 2020; 9:2020-5-6. https://doi.org/10.7573/dic.2020-5-6
9. Khan A, Hazique, Beesween Sadi Book Depot, N.S. Marg, New Delhi, pp.546-47.
10. Mastan A et al. Demographic Assessment of Patients Diagnosed with Qooba (Dermatophytosis): An Observational Study. European Journal of Pharmaceutical and Medical Research. 2016; 3(7):564-567.
11. Baitar AAI. Al Jamiul Mufradat al Adviya wal Aghziya. Vol 2. New Delhi: Central Council for Research in Unani Medicine. YNM: pp 138-140.
12. Ibn Sina. Al Qanoon (Urdu translation by Kantoori GH). Vol 1. Part 2. Idara Kitabul Shifa, Delhi; 2007: pp 227-228.
13. Khan HA. Majma ul Behrein. Lucknow (India). Matba Munshi Nawal Kishore. 1870: pp 147.
14. Baitar I. Al Jamiul Mufradatul Advia Wal Aghzia. (Urdu Translation CCRUM). New Delhi: Ministry of Health and Family Welfare, Govt. of India. 1999:pp. 1, 77.
15. Bagdadi IH. Kitabul Mukhtarat Fil Tibb. (Urdu Translation by Central Council for Research in Unani Medicine, New Delhi; 2005: pp 2, 64.
16. Entani E, Asai M, Taujihata S, Tsukamoto YK, Ohta M. Antibacterial action of vinegar against foodborne pathogenic bacteria including Escherichia coli. 0157:H7. J Food Prot. 1998; 61:953-959. https://doi.org/10.4315/0362-028X-61.8.953
17. Nishidai S, Nakamura Y, Torikai K, et al. Kurosu, a traditional vinegar produced from unpolished rice, suppresses lipid per oxidation in vitro and in mouse skin. Biosci Biotechnol Biochem. 2000; 64:1909-1914. https://doi.org/10.1271/bbb.64.1909
18. Rajani M et al. Evaluation of the Antimicrobial Activity of Ammoniacum Gum from Dorema Ammoniacum; Pharmaceutical Biology. 2002; 40(7):534-541. https://doi.org/10.1076/phbi.40.7.534.14686