

Gross and Histopathological Study of Postscabietic Nodules

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Abstract Background: Nodular postscabietic scabies refer to the persistent intermittent signs of scabies that are seen in active and post-treatment period that might last for months. The spectrum of clinico-morphological ranges that can be observed with sarcoptic nodules is broad, and most of the entity's criteria can be elicited histopathologically and pathologically. The management of such nodules may be a challenge. They are commonly treated through local application of corticosteroids or injection of corticosteroids to nodules but the response to treatment is less than clent and relapses are very frequent. The objective of this study was to illuminate which of these features prevail and which ones fade in scarred sites which undergo postscabietic nodule development. The time span between August 2021 to May 2022 was allowed to collect samples from patients with (1-60) years old and full of scabies burrows who visit teaching hospitals and private dermatology clinics in Kut, Wasit Province, Iraq. Treat groups were split into 30 females, and 20 males; with persistent itchy nodular lesions of scabies demonstrated clinically and histopathologically. Everity grade scabies was evaluated by the number of lesions and rated it as severity of itching. Long-term treatment with topical glucocorticoids for 14 days in every age. Tissue from the blisters of patient was obtained after medication. The specimens were washed, fixed and cut to 4-5 μm and stained with H&E. The staining allowed us to observe the fragments of tissues under light microscope with different magnification power. We have observed excessive males and the prevalence of SCABies were more in a young adult group in comparison with other age groups. It was found that lesions with wiry projections tended to persist for two weeks to 52 weeks and the number of nodules had varied from one to fourteen lesions. Examination of Histopathological slide showing acanthosis in 80, histolymphocytic infiltration in 76, and eosinophilia in 100 of total cases in the whole period. After the scabietic nodule loop, the body experiences a hypersensitivity reaction. From the three hundred cases examined microscopically, most (80%) of them were found to be characterized by acanthotic epidermis and diffuse dense dermal lymphocytic infiltration. Neutrophilic reaction, epithelioid-granulomatous inflammation and eosinophilia have been diagnosed in 76 % sight upon while 100 % of other nodules have shown eosinophilia.

Keywords: Histopathological, Scabies, Postscabietic nodules



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Introduction

Itch mite infestation is a horrible pruritis (extreme itching) caused by *Sarcoptes scabiei* var *hominis* mite (mites that attack humans), the host mite that is claimed to be the reason of this. Males remains with the females only for mating and then die, while females' cells expand their burrow and start laying eggs at the same time. The unfortunate reality is that the female mites can go past the

barrier and tunnel into the stratum corneum in as short duration as twenty minutes (Burkhart, C. G., Burkhart, C. N., & Burkhart, K. M., 2000; 2. Huynh, T. H., & Norman, R. A., 2004). Besides, vigorous, stubborn nodules at varying sizes can develop in the armpit, groin, scrotum, and/or penis; the patient may suffer from severe and profound itching that may persist for a couple of weeks after scabies infection has been successfully cured (Burn) (Sharquie, K. E., Al-Mashhadani, S. A., Noaimi, A. A., & Katof, W. M., 2013). In clinical terms, the nodular scabies or post-scabetic nodules are described as having a previous history of definitive scabies disease or a presumptive scabies diagnosis as well as distribute of papulonodular lesions are not scabetic, and in the early stages, itching—or pruritus—may be intense, but in the latter stages, it may be minimal to absolutely. Although the disease customers high potency corticosteroid and I.V. injection produce good outcomes, anti-scabetic regimens no longer acts curative, and the condition lasts for more than a year (Sharquie, K. E., & Shanshal, M. M., 2019; Hashimoto, K., Fujiwara, K., Punwaney, J., DiGregorio, F., Bostrom, P., El-Hoshy, K., ... & Schoenfeld, R. J., 2000). The histological changes like lymphomas have been found in scabies nodules. This is explained by a predominance of eosinophils in the nodules inflammatory infiltrate, the latter of which gave rise to the term "eosinophilioma" (Sharquie, K. E., & Samer, A. D., 1997). As a result, evaluation of the thickened and histopathological features of these post scabies nodules warranted further investigations and was explored in this study.

Methods

In this observational clinical and histopathological study, Dermatology and Venereology Department at Al-Karama Teaching Hospital in Kut city, Wasit where Iraq is involved from 08/2021 till 05/2022.

After an exclusion of patients with scabetic nodules and excluding those patients who were positive with scabies from this research, these were given scabicides via distinct methods. When the session was held, there were seven people that were in the process of developing scabies and had been infested with the mite *Sarcoptes scabiei*. Hence, I am relating five dates of the event that helped me develop and mature as a student nurse. The discovery of burrows in the areas in which sand-dunes form as well was the biggest clue we had to disease. During the consultation, thirty-nine people reported having dried patches of scabies (only 26.52 %). Every patient had a history of scabies treatment where they were inflicted with intractable nodules and brought on by not only traumatically, but also by members of the family that could have touched a patient. After the lidocaine-based local anesthetic injection at the biopsy sites, clinical specimens were obtained from several scabetic nodules of different time after the scabies outbreak. By using this hematoxylin-eosin stain, these samples were first treated, and then histopathological analysis was next done. These sections were cut at 4-6 μm thickness level. The epidermis was influenced by pseudonormal and parakeratosis hyperplasia, spongiosis, acanthosis, and hypergranulosis.

Statistical analysis

Using Minitab V.16 software, the chi test was used to assess the statistical data, with a P value <0.05 being supposed statistically significant.

Results and Discussion

Results

Through the period from August 2021 and May 2022, a total of fifty patients, thirty-five males (70%) and fifteen females (30%) attended to the teaching hospitals and private dermatology clinics in Kut, Wasit Province, Iraq diagnosed as post-scabietic nodules were included in this study.

1. Age and gender distribution

Patients in this study with a total number of fifty and their age varied between two and sixty nine years with a median 35.5 years. The lesions were more predominant in young adult aged group 30-39 years where fourteen patients (28%) and 20-29 years eleven patients (22%) which was statistically not significant which demonstrated in table 1

Table 1: Age and gender distribution

Category		N. of patients	%	P
Age	2-9	4	8	0.071
	10-19	9	16	
	20-29	11	22	
	30-39	14	28	
	40-49	6	12	
	50-59	5	10	
	60-69	1	2	
gender	Male	35	70	0.03
	female	15	30	

2. The frequency and distribution of nodules by their size and number

The numbers of cases varied from one patient to another, in general there are ranged between (1-10) lesions as demonstrated in figure 1, while their sizes arranged between (0.5-2 cm) which was statistically significant.

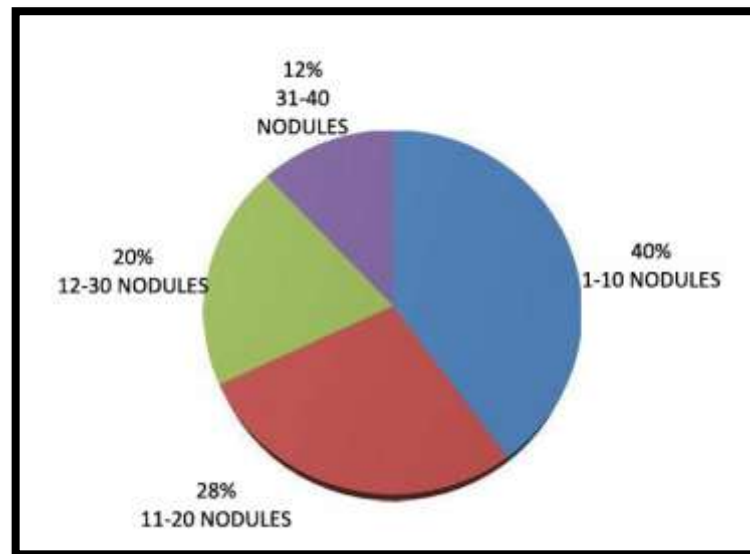
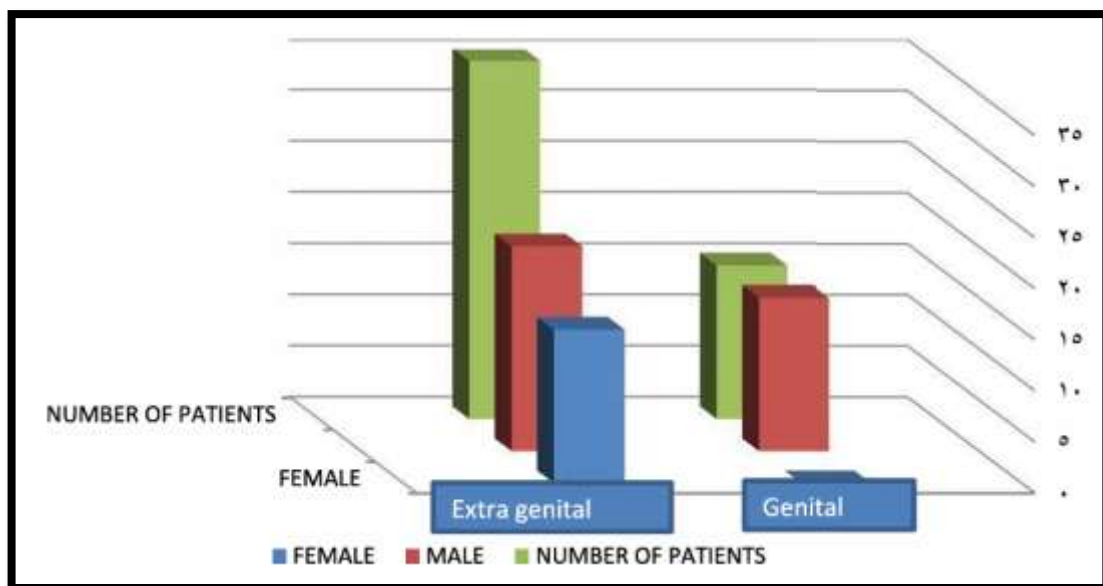


Figure 1: The frequency and distribution of nodules by their number

These nodules were more heavily involving the extra genital regions in (70%) and (30%) involving the genital region with male predominance as showed in figure 2.



P= 0.014

Figure 2: The frequency and distribution of nodules by their sites

Histopathological changes in nodules according to duration

The histopathological the post scabies nodules is variable as timing of the biopsy affects the description mainly. In our study, the depiction of histopathological events start from the nodules in period 1 up to 52 weeks and we included the histopathological figures for post scabies nodules comprising the bulky acanthosis in 80% of cases, dense histolymphocyt

Table 2: Histopathological changes in nodules according to duration

Duration of nodules (in weeks)	Marked acanthosis	dense histolympocytic infiltration	Tissue eosinophilia
1-3	-	-	+
4-7	+	+	+
8-12	+	+	+
13-25	+	+	+
26-42	+	-	+
43-52	+	-	+



Figure3: scabetic nodule before topical treatment



Figure4: scabetic nodule after topical treatment



Figure5: scabetic nodule before topical treatment



Figure6: scabetic nodule after topical treatment

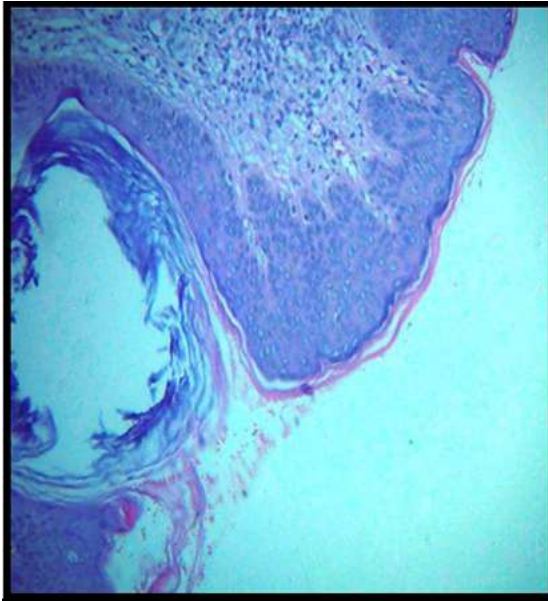


Figure 7: scabatic nodules showing acanthosis, H&E, 100x.

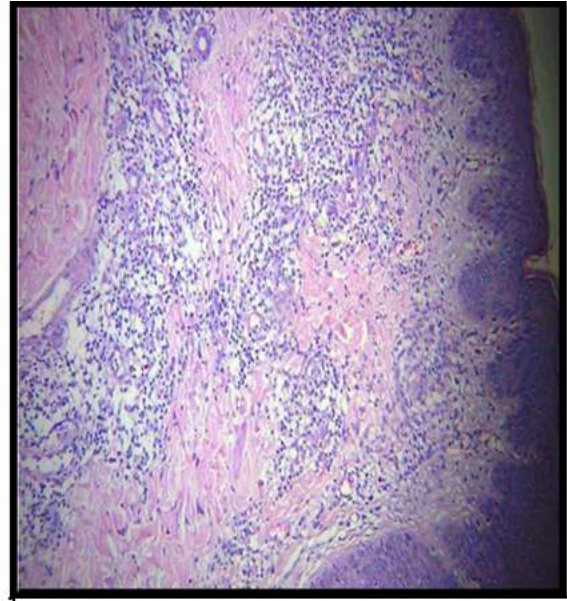


Figure 8: scabatic nodules showing histolymphocytic infiltration, H&E, 100x.

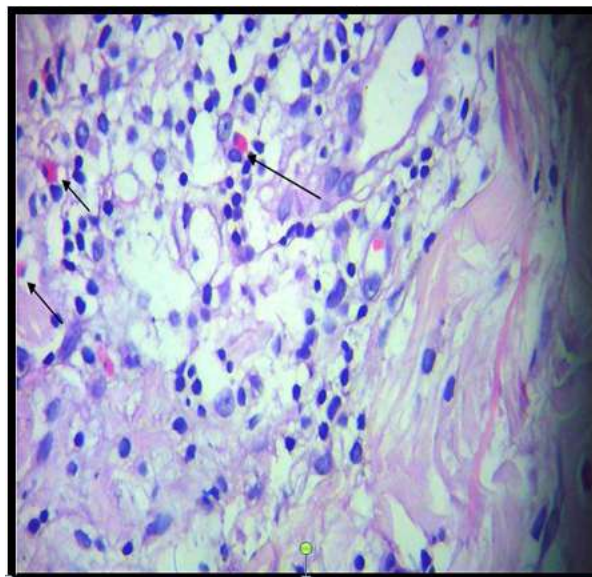


Figure 9: scabatic nodules showing scattered eosinophilia, H&E, 400x.

Discussion

Nodular scabies is a usual clinical feature of scabies and as a symptom of the patient's hypersensitivity to its components or antigens, it suits this case (Tai, D. B. G., Saleh, O. A., & Miest, R., 2020). The most integrated place for the skin abnormalities and scabies is the hardy skin and scrotal area where multiple remedies have proved to be effective around the world (Santi, C. G., Gripp, A. C., Roselino, A. M., Mello, D. S., Gordilho, J. O., Marsillac, P. F. D., & Porro, A. M., 2019). The incidence of secondary scarring in this investigation mostly manifested within the age groups (20-29) and (30-39), (50%), which is similar to the findings of the previous studies that exhibited a notable rate across young age category (Yamamah, G. A., Emam, H. M., Abdelhamid, M.

F., Elsaie, M. L., Shehata, H., Farid, T., ... & Taalat, A. A., 2012; Walton, S. F., & Currie, B. J., 2007). Despite equal distribution of scabies between the sexes, the present study observed that (70%) were males. This may be the reason the selected patients so fewer complications. The presented findings corresponded to those of other reported studies which have demonstrated that in Africa more cases of scabies were noted in males (60%) than in females (40%) (Zayyid, M. M., Saadah, R. S., Adil, A. R., Rohela, M., & Jamaiah, I., 2010). Frequently authors have corresponded to the histological presentation of post-nodules reminiscent of an arthropod bite or sting and compounded the histological picture to lymphoma which makes the case of nodules post scabies among the differential diagnosis of pseudolymphomas (James, W. D., Berger, T., & Elston, D., 2006). In particular, the histopathological tissue demonstrates acanthosis (90%) and profuse lymphohistiocytic infiltration (72%). At a certain point, condensation happening in the lymphomas develops when the density of the infiltrate becomes lowest when weeks, eosinophils stay throughout the areas from all weeks for a duration of 1 to 52 weeks and these findings were consistent with (Mittal, R. R., Singh, S. P., Dutt, R., Gupta, S., & Seth, P. S., 1997) finding positivity rate of 100% acanthosis, 8% for pseudoepitheliomatous

Conclusion

Scabies is notable by the common appearance of scabs and is an age-variable disease with a tendency to affect adult males more severely and may last for up to a year. The prevailing set of histopathological images indicate acanthotic epidermis, dermal eosinophilic aggregation and in other places there are lymphocytes proliferating.

References

- [1] Burkhart, C. G., Burkhart, C. N., & Burkhart, K. M. (2000). An epidemiologic and therapeutic reassessment of scabies. *CUTIS-NEW YORK-*, 65(4), 233-242.
- [2] Hashimoto, K., Fujiwara, K., Punwaney, J., DiGregorio, F., Bostrom, P., El-Hoshy, K., ... & Schoenfeld, R. J. (2000). Post-scabetic nodules: a lymphohistiocytic reaction rich in indeterminate cells. *The Journal of Dermatology*, 27(3), 181-194.
- [3] Huynh, T. H., & Norman, R. A. (2004). Scabies and pediculosis. *Dermatologic clinics*, 22(1), 7-11.
- [4] James, W. D., Berger, T., & Elston, D. (2006). Cutaneous lymphoid hyperplasia, cutaneous T-cell lymphoma, other malignant lymphomas, and allied diseases. *Andrew's disease of the skin clinical dermatology*. 10th ed. Philadelphia: Elsevier Saunder, 725-48.
- [5] Mittal, R. R., Singh, S. P., Dutt, R., Gupta, S., & Seth, P. S. (1997). Comparative histopathology of scabies versus nodular scabies. *Indian Journal of Dermatology, Venereology and Leprology*, 63, 170.
- [6] Santi, C. G., Gripp, A. C., Roselino, A. M., Mello, D. S., Gordilho, J. O., Marsillac, P. F. D., & Porro, A. M. (2019). Consensus on the treatment of autoimmune bullous dermatoses: bullous pemphigoid, mucous membrane pemphigoid and epidermolysis bullosa acquisita-Brazilian Society of Dermatology. *Anais brasileiros de dermatologia*, 94, 33-47.
- [7] Sharquie, K. E., & Samer, A. D. (1997). Post-scabetic allergic nodules, Clinical and Histopathological study. *J. Pan Arab League of Dermatology*, 8, 29-35.
- [8] Sharquie, K. E., & Shanshal, M. M. (2019). Post-scabetic mastocytoid nodules: a clinical and histopathological evaluation with new pearls. *Am J Dermatol Venereol*, 8, 37-40.

- [9] Sharquie, K. E., Al-Mashhadani, S. A., Noaimi, A. A., & Katof, W. M. (2013). Clinical and sequential histopathological study of scabietic and postscabietic nodules. *Iraqi Postgraduate Medical Journal*, 12.
- [10] Tai, D. B. G., Saleh, O. A., & Miest, R. (2020). Genital nodular scabies. *IDCases*, 22, e00947.
- [11] Walton, S. F., & Currie, B. J. (2007). Problems in diagnosing scabies, a global disease in human and animal populations. *Clinical microbiology reviews*, 20(2), 268-279.
- [12] Yamamah, G. A., Emam, H. M., Abdelhamid, M. F., Elsaie, M. L., Shehata, H., Farid, T., ... & Taalat, A. A. (2012). Epidemiologic study of dermatologic disorders among children in South Sinai, Egypt. *International journal of dermatology*, 51(10), 1180-1185.
- [13] Zayyid, M. M., Saadah, R. S., Adil, A. R., Rohela, M., & Jamaiah, I. (2010). Prevalence of scabies and head lice among children in a welfare home in Pulau Pinang, Malaysia. *Tropical biomedicine*, 27(3), 442-446.