Histologic grading system for psoriasis vulgaris*

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A histologic grading system is necessary for psoriasis vulgaris patients which were evaluated clinically with the Psoriasis Area and Severity Index (PASI). For this reason a histologic grading system proposed by Trozak DJ may be an alternative. In this study biopsy materials of chronic plaque type psoriasis patients were graded with Trozak's system. This histologic grading system may provide an objective evaluation facility for diagnosis and a follow up treatment. [Turk J Med Res 1996; 14(2):54-57]

Key Words: Psoriasis vulgaris

Psoriasis vulgaris is a common disorder. The disease is characterized by rounded, well-circumscribed erythematous patches and/or plaques of various sizes. The patches/plaques are covered by abundant whitish scales. The lesions have a predilection for the extensor surfaces of the extremities, kness, elbows, scalp and sacral area (1-3).

A currently popular clinical scoring system is, the psoriasis area and severity index (PASI).

A histologic grading system is necessary for psoriasis patients. For this reason a histologic grading system proposed by Trozak may be an alternative. In this study, biopsy materials of chronic plaque type psoriasis were graded with Trozak's system (4).

MATERIALS AND METHODS

This study included 67 non-treated chronic type psoriasis patients.

In dermatology department punch biopsies were performed. In pathology department, from formalin fixed, paraffin embedded materials 5 mm sections were obtained.

Hematoxyline-eosin stained sections were examined with light microscopy.

In this study Trozak's histologic grading system was used (4). Table 1 decipits this system; with a numerical value assigned to each microscopic criterion. A total score is recorded for each biopsy specimen.

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RESULTS

In total 67 patients, 43 were women, 24 were men. Age range was from 6 to 85. Median age was 36.5.

Results according to Trozak's system are in Table 2. For each separately evaluated criterion the results are below and they are in Table 3.

Elongation of the rete ridges was found in 66 of the total 67 patients (98.5%). Club shaped rete ridges, and elongation and edema of the dermal papillae were present in 56 cases (83.5%). Perivascular mononuclear infiltrate in the papillary dermis was found in 66 cases (98.5%).

Focal absence of the granular cell layer was present in 45 cases (67%) and total absence of the granular cell layer were present in 22 cases (32.8%).

Focal parakeratosis was present in 30 cases (44.7%), total parakeratosis was present in 37 cases (55.2%).

Suprapapillary plate thinning was present in 57 cases (85%).

Munro microabcesses were found in 37 cases (55.2%). Spongiform pustule of Kogoj was found in 16 cases (23.8%).

Median total score was 11.79.

Median epidermal thickness was 318.6 mm, median suprabasiller mitosis average per 8 HPF was 0.55.

DISCUSSION

The histologic changes in psoriasis are usualy diagnostic (1-6). In the fully developed lesions of psoriasis the his-

Table 1. Trozak's histologic grading system

Name nf Study:			
siidp A^^^jfn Number			
HISTOLOGIC GRADING SYSTEM FOR PSORIASIS			
Microscopic Criteria		Value/Criteria	Score
1. Regular elongation of the rete ridge		1	
2. Club shaped rete ridges		2	
3. Elongation and edema of the dermal papillae		1	
4. Perivascular mononuclear infiltrate in the upper dermis of papillae		1	
5. Absent granular layer	a. focal	1	
	b. total	2	
b. Parakeratosis	a. hocai	1	
	b. total	2	
7. Suprapapillary plate thinning		2	
8. Mitosis above basal cell layer		2	
9. Munro microabcesses		3	
10. Spongiform pustule		3	
	Score total:	19	
Epidermal Thickness			
Suprabasiller Mitosis Average Per 8 HPF			
Investigators Signature		Date	

tologic picture is characterized by; regular elongation of the rete ridges with thickening in their lower portion (club-bing), elongation and edema of the papillae, thinning of the suprapapillary portions of the stratum malpighii, the absence of granular cells, parakeratosis, perivascular mononuclear infiltrate in the upper dermis of papillae,

Table 2. Results in each biopsy material

	1	2	3	4	5	6	7	a	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	25	30	3 I	32	33	34	35
Reg. elongation of lhe rete ridges	1	1		1	1	1	1	1	1	1	1	1	I	1	1	1	1	1	1	t	1	1	1	1	1	1	1	I	1	1	1	1	1	1
Club shaped rele ridges		2		2	2	2	2	2	2		2	2	2		2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Elongat. -edema of the dermal pap.	1			1	1	1	1	1			1	1	1			1	1	1	.1	1	1	1	1	1	1	1	1	. 1	1	1	1	. 1	1	1
Perivas. MN Inf. in upper dermis	1	1		1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
FOCAL Absenl gran.	1			1	1	1			1	1	!	I	1	1	1	1			1	1		1		1		1	1	1	1					1	
TOTAL		2					2	2									2	2			2		2		2					2	2	2	2		2
FOCAL Parakeratos.	1	1	1	1	1		1	1			1									1		1	1		1				1		1	1		1	
TOTAL						2			2	2		2	2	2	2	2	2	2	2		2			2		2	2	2		2			2		2
Suprapapillary plate thinning		2	2	2	2	2	2	2			2	2	2			2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mlitosis above basal cell layer	2	2	2	2	2		2		2	2			2			2	2							2	2		2					2		
Munro microabscesses	3			3		3	3	3			3		3			3	3	3	3		3		3		3	3				3	3	3			3
Spongiform puslulo								3	3					3		3					3		3			3							3	
SCORE TOTAL	10	11	11	14	11	13	15	16	12	7	12	10	15	7	7	18	16	12	9	7	17	a	16	12	15	16	12	ID	g	14	13	15	11	12	12
Epidermal thickness (f*.m)	500	300	300	400	250	400	400	300	300	250	300	300	450	•too	400	400	500	300	300	400	350	3U0	150	300	400	400	400	300	250	250	250	300	4M	300	250
Suprabasilar mitosis average per 8 HPF	2	3	3	2	1	0	1	0	3	I	0	0	1	0	0	I	2	0	0	0	0	0	0	2	2	0	1	0	0	0	0	1	o	0	1

Table 2. (Continued)

	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67
Reg. elongation of the rete ridges	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1
Club shaped rete ridges	2	2	2	2	2	2	2		2				2		2		2	2	2	2	2	2	2	2	2		2	2	2	2	2	
Elongat. -edema of the dermal pap.		1	1	1	1		1	1	I	1			1	1	1		1	T		1	1	1	1	1	1		1	1	1	1	1	1
Perivas. MN Inf. in upper dermis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I	1	1	1	1		1	1	1	1	1	1
FOCAL Absent gran.	1	1	1				1	1	1		1			1	1	1	1		1	1	1	1	1	1	1		1		1	1	1	
TOTAL				2	2	2				2		2	2					2										2				2
FOCAL Parakeratos.		1									1			1		1				4		1	1	4			1			4	
TOTAL	2		2	2	2	2	2	2	2	2		2	2				2	2			2					2			2	2		2
Suprapapillary plate thinning		2	2	2	2	2	2	2	2	2	2	2	2	2	2		2	2		2	2	2	2	2	2	2	2	2	2	2	2	2
Mlitosis above basal cell layer		2	2	2			2		2				2												2							
Munro microabscesses		3	3	3	3	3			3	3	3	3	3	3	3			3								3		3	3	3		3
Spongiform pustule			3									3		3				3			3		3			3		3				
SCORE TOTAL	7	14	.18	16	14	12	12	7	15	12	9	14	16	13	12	4	10	17	6	9	13	9	12	9	11	16	9	16	13	13	9	13
Epidermal thickness (U in)	300	300	250	200	300	200	350	250	300	250	400	300	350	300	350	300	350	250	300	250	300	250	300	250	300	300	250	350	300	200	300	300
Suprabasilär mitosis average per-8 HPF	0	1	1	2	0	0	1	0	2	0	0	0	2	0	0	0	0	0	0	"0	0	0	0	0	2	0	0	0	0	0	0	1

Munro microabscesses, spongiform pustule of Kogoj (4-6). Of all the listed features, only the spongiform pustule of Kogoj and Munro microabscesses are truly diagnostic of psoriasis (4,5).

Regular elongation of the rete ridges is a constant feature of active psoriasis. In psoriasiform dermatoses the ridges have uneven lengths (4-6). In our study we found regular acanthosis in 98.5% of the patients.

Another characteristic finding in psoriatic epidermis is club shaped rete ridges. When present, helps to differentiate it from dermatoses like seborrheic dermatitis and nummuler dermatitis (4-6). In our study expanded tip or club shaped rete ridges were found in 83.5% of patients.

Perivascular mononuclear infiltrate in the upper dermis of papillae is present in most cases except in early lesions (5,6). We found it in 98.5% of patients.

Partial or complete absence of the stratum granulosum that correlates with the presence of the parakertosis often occurs in cyclical fashion (4,5,7). Cox and Watson studied 107 random biopsy specimens from "well within" 107 psoriatic plaques and found absent granular layer (7). Griffin and colleagues found the granular layer intact in chronic psoriasis lesions (8). In 100 cases of untreated psoriasis reported by Gordon and Johnson, the granular layer and stratum corneum were "relatively normal" in 10 cases. The granular layer was completely absent in 15; it was decreased in the remaining 75 cases (9). In our study we found focal absence of granular layer in 67.1% and found total absence in 32.8% of patients.

In the fully developed lesions of psoriasis, parakeratosis is also among characteristic histopathologic findings (4-8). Cox and Watson in their above mentioned study, found that less than a third of the specimens showed extensive parakeratosis at the base of the stratum corneum (7). Griffin and colleagues in their study found that parakeratosis is either focal or absent (8). We found focal parakeratosis in 44.7%, total parakeratosis in 55.2% of patients.

Table 3. Results according to Trozak's system

		n 67	%
Reg. Elongation of the rete ridges		66	98.5
Club shaped rete ridges		56	83.5
Elongation, -edema of the dermal pap.		56	83.5
Perivas MN Inf. in upper dermis		66	99.5
Absent gran.	Focal	45	67.1
	Total	22	32.8
Parakeratos.	Focal	30	44.7
	Total	37	55.2
Suprapapillary plate thinning		57	85
Mitosis above basal cell layer		22	32.8
Munro microabscesses		37	55.2
Spongiform pustule		16	23.8

Thinning of the suprapapillary late, with a living stratum malpighii only two to four cell layers thick, is a feature seen in fully developed plaques and is not a mark of other psoriasiform criterion conditions (4-6). The presence of this microscopic criterion strongly supports the diagnosis of psoriasis vulgaris (4). We found it in 85% of the patients.

Suprabasilar mitoses are not seen in the normal epidermis, but are occasionally a feature of psoriasiform dermatoses (4). We found it in 32.8% of patients.

Munro microabscesses and spongiform pustule of Kogoj are variably present, but truly diagnostic of psoriasis (4-6). In their absence, the diagnosis rarely can be made with certainity on a histologic basis (5,6). These findings are a reflection of disease activity (4). In our study we found, Munro microabscesses in 55.2% of patients and spongiform pustule of Kogoj in 23.8% of patients.

Epidermal thickness as measured from the base of the stratum corneum to the tip of the rete ridges is an average value of six measurements obtained with a standard ocular micometer (4). In our study median epidermal thickness was 318.6 urn.

Suprabasilar mitosis counts may be worthwhile when comparing treatment and control lesions in the same patient (4). Several authors show direct correlation between mitotic counts with disease activity. But some authors think, this criterion has no value for comparison between patients (4,7,10). We found it 0.55 per 8 HPF.

An entirely typical histologic picture as described above is actually found in only a small percentage of biopsy specimens even if only clinically typical lesions of psoriasis are examined (5). Our 9 patients have typical histologic picture (13.4%) mentioned in Lever's textbook.

In Trozak's system total score may be maximum 19 (4). In our study median total score was 11.79.

As a results, we think Trozak's histologic grading system may provide an objective evaluation facility for diagnosis and follow up treatment.

Psoriasis vulgariste histolojik skorlama sistemi

Klinik olarak PASI ile değerlendirilen psoriasis vulgarisli hastalarda histolojik skorlama sistemine ihtiyaç duyulmaktadır. Bu amaçla Trozak DJ'nin önerdiği skorlama sistemi bir alternatif olabilir. Bu çalışmada, kronik plak tip psoriasisli hastaların biyopsi materyelleri, Trozak'ın skorlama sistemine göre skorlandı. Bu skorlama sistemi, psoriasis vulgarisin tanı ve tedavi takibi için objektif histolojik değerlendirme imkanı sağlayabilir. [Turk J Med Res 1996; 14(2):54-57]

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