Okmeydanı Tıp Dergisi 32(4):190-194, 2016
doi:10.5222/otd.2016.1064

Araştırma

Bcl-2: Is it an Easier Way to Differentiate Psoriasis and Eczema?

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**Şişli Hamidiye Etfal Eğitim ve Araştırma Hastanesi, Patoloji Kliniği*

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ABSTRACT

Objective: *Differentiation of eczema and psoriasis can be difficult clinically and histopathologically. In this study, it is designed to evaluate the histological features and bcl-2 expression of cases clinically prediagnosed with psoriasis and eczema in our pathology deparment of Şişli Etfal Training and Research Hospital.*

Material and Methods: *The biopsy results with psoriasis and eczema of 80 cases that clinically prediagnosed with psoriasis and eczema were collected from pathology archives. All biopsies were interpreted by two different dermatopathologists blinded clinical diagnosis and data collection forms were completed. Then data obtained were analyzed by SPSS.*

Results: *There were histopathologic difference between palmoplantar psoriasis and eczema. Hypogranulosis ($p=0.001$; $p<0.01$), Munro's microabscess ($p=0.001$; $p<0.01$), tortuous blood vessels in papillary dermis ($p=0.001$; $p<0.01$), suprapapillary plate thinning ($p=0.001$; $p<0.01$), plasma mounds ($p=0.033$; $p<0.05$), parakeratosis ($p=0.001$; $p<0.01$) ve kogoj ($p=0.001$; $p<0.01$) were found that statistically significant contributors for clinicopathological concordance in cases of psoriasis. Spongiosis ($p=0.001$; $p<0.01$), spongiotic vesicle ($p=0.001$; $p<0.01$), eosinophil infiltration in upper dermis ($p=0.001$; $p<0.01$) were significantly associated with diagnosis of eczema. In immunohistochemical studies, while it is found that bcl-2 expression is negative in psoriasis, it is showed that bcl-2 expression in eczema is positive and same intensity as much as bcl-2 expression of normal skin ($p=0.001$; $p<0.01$).*

Conclusion: *Histopathologic finding like hypogranulosis, Munro's microabscess, tortuous blood vessels in papillary dermis, suprapapillary plate thinning, plasma omunds, parakeratosis and kogoj had significant associated with psoriasis and might be utilized in establishing its diagnosis. The differentiation between psoriasis and eczema can be made by bcl-2 immunohistochemical study.*

Keywords: *bcl-2, eczema, psoriasis*

ÖZ

Bcl-2: Psöriasis ve Egzema Ayrımında Daha Kolay Bir Yol mudur?

Amaç: *Psöriasisin ve egzemanın klinik ve histopatolojik olarak ayrimi zor olabilir. Bu çalışmada, ön tanıları psöriasis ve egzema olarak değerlendirilen olguların histolojik özellikleri ve bcl-2 ekspresyonları Şişli Etfal Eğitim ve Araştırma Hastanesi Patoloji Bölümü tarafından değerlendirilmiştir.*

Gereç ve Yöntemler: *Patoloji arşivinden klinik ön tanıları psöriasis ve egzema olan 80 olgunun biyopsi sonuçları toplandı. Tüm biyopsiler 2 farklı dermatopatolog tarafından klinik tanıları bilinmeden değerlendirildi ve verileri toplandı. Elde edilen veriler SPSS ile analiz edildi.*

Bulgular: *Palmoplantarpsöriasis ile egzema arasında histopatolojik farklar vardır. Hipogranülasyon ($p=0.001$; $p<0.01$), Munromikroabseleri ($p=0.001$; $p<0.01$), papiller-dermiste kıvrımlı kan damarları ($p=0.001$; $p<0.01$), suprapapiller tabakada incelme ($p=0.001$; $p<0.0001$), plazma tepecikleri ($p=0.033$; $p<0.005$), parakeratoz ($p=0.001$; $p<0.01$) ve kogoj ($p=0.001$; $p<0.01$) bulguları psöriasis olgularının histopatolojik özelliklerine uyumlu olarak istatistiksel olarak anlamlı bulunmuştur. Spongioz ($p=0.001$; $p<0.01$), spongiotik vezikül ($p=0.001$; $p<0.01$), üst epidermiste eozinofil infiltrasyonu ($p=0.001$; $p<0.01$) egzema tanısı ile anlamlı olarak ilişkilendirilmiştir. Bcl-2 ekspresyonu ile yapılan immunohistokimyasal çalışmada psöriasiste bcl-2 ekspresyonu negatif bulunurken, egzema olgularında normal deri ekspresyonu ile aynı şiddette ve pozitif ekspresyon göstermiştir.*

Sonuç: *Hipogranülasyon, Munro mikroabseleri, papiller dermişte kıvrımlı kan damarları, suprapapiller tabakada incelme, plazma tepecikleri,parakeratoz ve kogoj gibi histopatolojik bulgular anlamlı olarak psöriasis ile ilişkili olup, tanı koymada kullanılabilir. Bcl-2 immunohistokimyasal çalışması ile de psöriasis ve egzema ayrımı yapılabilir.*

Anahtar kelimeler: *bcl-2, egzema, psöriasis*

Alındığı Tarih: 14.04.2016
Kabul Tarihi: 26.04.2016
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INTRODUCTION

Psoriasis is a common, chronic, inflammatory and proliferative skin disease characterized by abnormal keratinocyte hyperproliferation resulting in thickening of the epidermis [1]. Eczema is a non-contagious inflammation of epidermis and dermis with characteristically clinical signs (itch, erythema, papule, sero papule,vesicle, squames, crusts, lichenification, in synchronous or metachronous polymorphous) and dermatopathology (spongiosis, acanthosis, hyper- and parakeratosis, lymphocytic infiltrates and exocytosis, eosinophils) [2]. The identity of molecular mediators that regulate keratinocyte survival and cell death are largely unknown, although some preliminary evidence has suggested that keratinocytes located in the basal cell layer express Bcl-2, and cultured keratinocytes express the Fas antigen [3]. This study was designed to (a) evaluate common histopathologic findings of psoriasis and eczema, and (b) identify diagnostic findings in distinguishing them. In addition, we examine the relative levels and patterns of expression of Bcl-2.

MATERIALS and METHODS

In this cross-sectional study, biopsies of patients with psoriasis or eczema primary clinically diagnosed referring to our hospital, between 2010 and 2011 years were examined. After confirmation of diagnosis and clinical biopsies and taking of ethical consent, patients were included to this study. The biopsies from new lesions of the patients were examined and the sildes were reviewed under the light microscope by two experienced dermatopathologists separately. The data obtained after data collection were analyzed by SPSS. The streptavidin biotin-peroxidase immunohistochemical staining method was used to show bcl-2 expression for evaluation of immunohistochemical staining and immune reactivity. The external control for Bcl-2 was tonsil.

Statistical Analysis

The program of NCSS (NumberCruncher Statistical System) 2007 (NCSS, LLCKaysville, Utah, USA) was used for statistical analysis. Data were analyzed by using Student's t test for descriptive statistical methods (mean, standard deviation, median, frequency and percentage) as well as age of the comparison between groups. In the comparison of qualitative data; Pearson's chi-square test, Yates Continuity Correction and fisher's exact test were used. The results in the 95% confidence interval and the $p<0.05$ level were evaluated.

RESULTS

This study between 2010 and 2011 years in Şişli Etfal Training and Research Hospital was performed with a total of 80 patients; 45% (n=36) were male and 55% (n=44) were female. Age ranged between 7 and 74, it is observed that the mean age 41.24±17.13. 50% of patients (n=40) were patients with psoriasis, 50% (n=40) were with eczema.

Statistically significant difference was found between the incidence of patients with hypo granulosis according to the groups ($p=0.001$; $p<0.01$); in the psoriasis group suprapapillary plate thinning rate is significantly higher than in the group of eczema. There was also found that statistically significant difference between plasma mounds incidence of cases according to the groups ($p=0.033$; $p<0.05$); the psoriasis group's plasma mounds rate was significantly lower than the eczema group's. According to the groups; statistically significant difference was found between the proportion of parakeratosis of patients ($p=0.001$; $p<0.01$); the group with psoriasis had significantly higher parakeratosis proportion than the group eczema (Table 1).

Kogoj incidence of caes were found statistically significant difference between these two groups ($p=0.001$; $p<0.01$); the kogoj incidence rate of the group with psoriasis were significantly lower than the rate of the group with eczema. The rate of moderate level of severity of spongiosis in eczema was significantly higher than psoriasis ($p=0.001$; $p<0.01$). The group with psoriasis had significantly lower rates of spongiotic vesicle than the group with eczema ($p=0.001$; $p<0.01$). In eczema group the mild eosinophilic infiltration in the upper dermis there was higher rate than in psoriasis group ($p=0.001$; $p<0.01$). In immunohistochemical studies, while it is found that bcl-2 expression is negative in psoriasis, it is showed that bcl-2 expression in eczema is positive and same intensity as much as bcl-2 expression of normal skin ($p=0.001$; $p<0.01$) (Table 1).

Table 1. Demographic characteristics in comparison with patient population.

		Total (n=80)	Psoriasis (n=40)	Eczema (n=40)	
Age (years),	Mean±SD	41.24±17.13	37.45±17.75	45.03±15.81	[a]0.047*
	Min-Max (Median)	7-74 (43)	7-70 (38)	8-74 (46)	
Gender	Male	36 (45.0)	21 (52.5)	15 (37.5)	[b]0.178
	Female	44 (55.0)	19 (47.5)	25 (62.5)	
Hypogranulosis	Exist	40 (50.0)	33 (82.5)	7 (17.5)	[c]0.001**
	Non-Exist	40 (50.0)	7 (17.5)	33 (82.5)	
Munro's microabscess	Exist	32 (40.0)	26 (65.0)	6 (15.0)	[c]0.001**
	Non-Exist	48 (60.0)	14 (35.0)	34 (85.0)	
Tortous vessels	Exist	38 (47.5)	38 (95.0)	0 (0)	[c]0.001**
	Non-Exist	42 (52.5)	2 (5.09)	40 (100)	
Suprapapillary plate thinning	Exist	41 (51.2)	37 (92.5)	4 (10.0)	[c]0.001**
	Non-Exist	39 (48.8)	3 (7.5)	36 (90.0)	
Plasma mounds	Exist	53 (66.3)	22 (55.0)	31 (77.5)	[b]0.033*
	Non-Exist	27 (33.8)	18 (45.0)	9 (22.5)	
Parakeratosis	Low	29 (36.3)	6 (15.0)	23 (57.5)	[b]0.001**
	Middle	13 (16.3)	0 (0)	13 (32.5)	
	High	38 (47.5)	34 (85.0)	4 (10.0)	
Kogoj	Exist	30 (37.5)	28 (70.0)	2 (5.0)	[c]0.001**
	Non-Exist	50 (62.5)	12 (30.0)	38 (95.0)	
Spongiosis	Non-Exist	25 (31.3)	25 (62.5)	0 (0)	[b]0.001**
	Low	35 (43.8)	15 (37.5)	20 (50.0)	
	Middle	20 (25.0)	0 (0)	20 (50.0)	
Spongiotic vesicle	Exist	27 (33.8)	5 (12.5)	22 (55.0)	[b]0.001**
	Non-Exist	53 (66.3)	35 (87.5)	18 (45.0)	
Infiltration in upper dermis Eosinophil	Non-Exist	42 (52.5)	29 (72.5)	13 (32.5)	[d]0.001**
	Low	36 (45.0)	11 (27.5)	25 (62.5)	
	Middle	2 (2.5)	0 (0)	2 (5.0)	
BcL2 Expression	Exist	23 (28.7)	1 (2.5)	22 (55.0)	[c]0.001**
	Non-Exist	57 (71.3)	39 (97.5)	18 (45.0)	

*[a]Student T Test, [b]Pearson Chi-Square Test, [c]Yates Continuity Correction, [d]Fisher Exact Test, *p<0.05, **p<0.001*

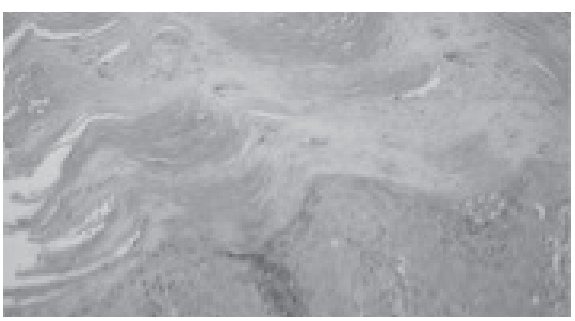

Figure 1. Parakeratosis.

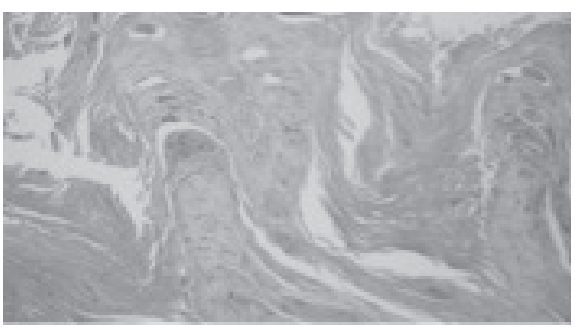

Figure 2. Plasma mounds.

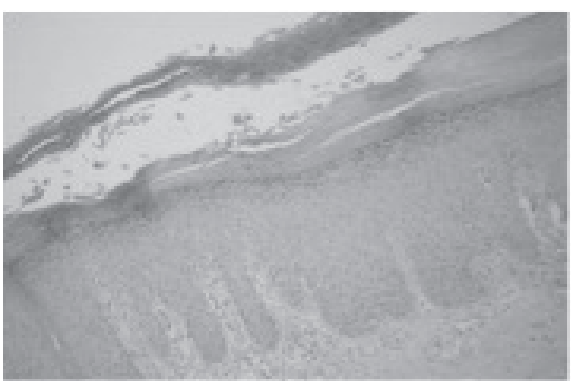

Figure 3. Psoriasiform acanthosis.

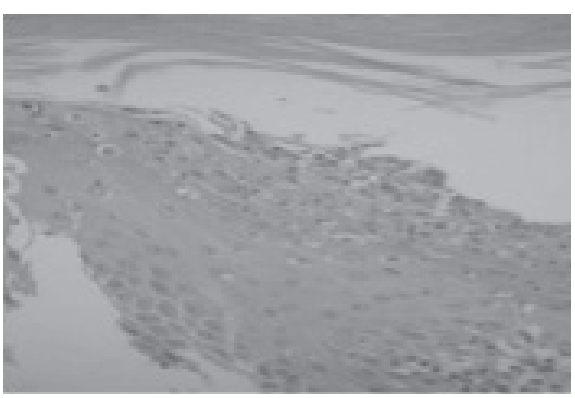

Figure 4. Munro's microabscess.

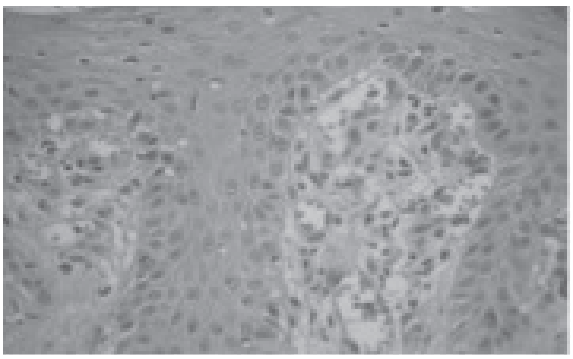

Figure 5. Tortous vessels.

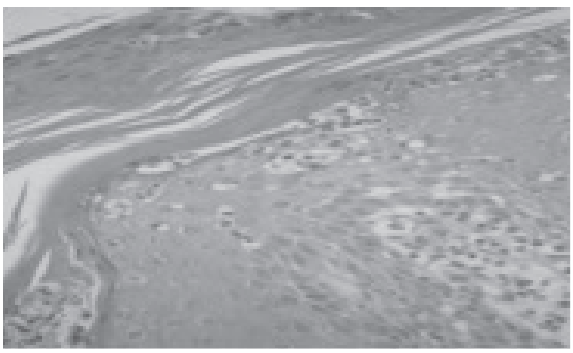

Figure 6. Kogoj.

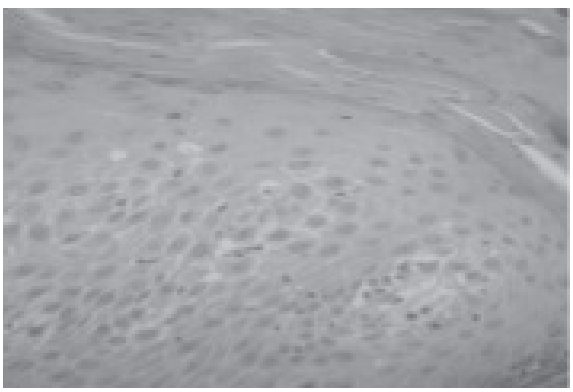

Figure 7. Spongioz.

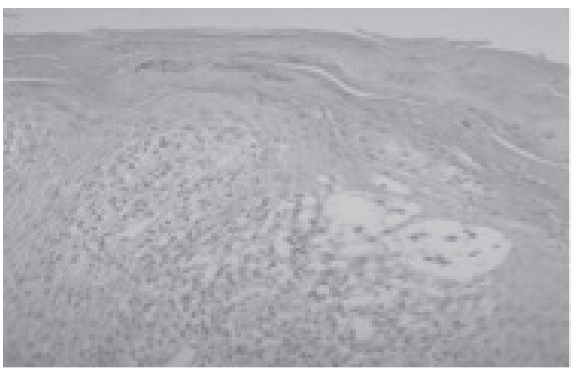

Figure 8. Spongiotic vesicle.

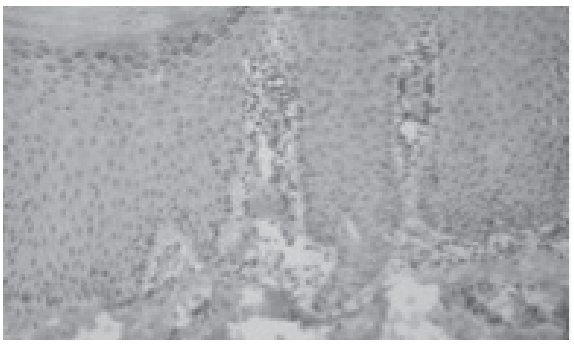

Figure 9. bcl-2 in psoriasis (- expression).

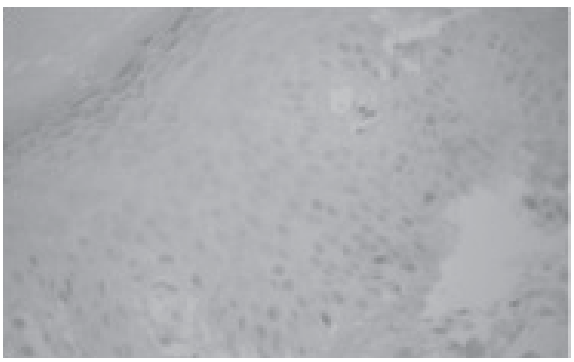

Figure 10. bcl-2 in eczema (+ expression).

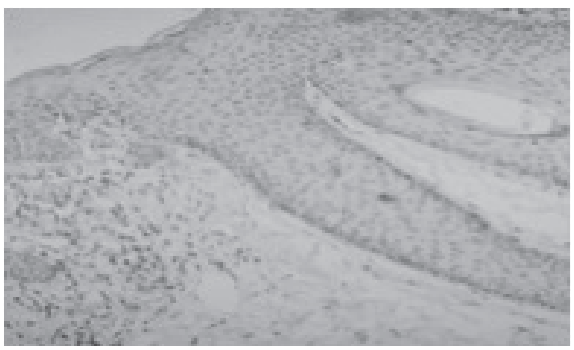

Figure 11. bcl-2 in normal skin (+ expression).

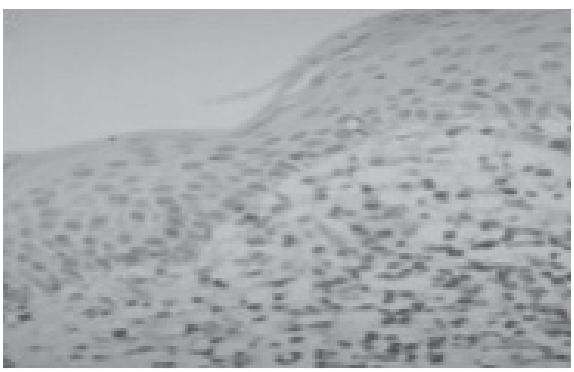

Figure 12. bcl-2 in normal skin control (+ expression).

DISCUSSION

Our study showed that histopathological features for distinction of psoriasis and eczema are still valid. In another study; histopathologic differences in the distinction between psoriasis and eczema; hypogranulastion, munro's microabscesses, tortuous vessels, suprapapillary plate tinning were more seen in psoriasis than eczema. Also in this study, parakeratosis and Kogoj signs significantly more prevalent in psoriasis although they were seen as almost rare in eczema [4].

It was reported in another study that when palmoplantar psoriasis and eczema share the same anatomical regions, they have similar clinical skin findings. It is shown that the most important histopathological distinction between these two diseases is multi focal parakeratosis [5]. In the other study, while it is emphasized even the histopathological differentiation of psoriasis and eczema is very difficult, it has been suggested that these two diseases have similar clinical, histologic, biologic and therapeutic responses and there is an overlap condition [6].

The researches has been led to the apoptotic process in the pathogenesis of psoriasis because psoriasis is an inflammatory disease characterized by accelerated epidermal turnover. It was emphasized that upregulation of antiapoptotic and downregulation of proapoptotic bcl-2 protein family molecules has very significant role in psoriasis development [7]. In our study showed that bcl-2 expression in cases of psoriasis was markedly less, while in cases of eczema and in normal epidermis it has similar expression. In analogy to these findings in another study; bcl-2 expression was found to be significantly less in psoriatic epidermis than normal epidermis [8].

The conspicuous sign in other studies are that in a case of psoriasis; bcl-2 expression was significantly decreased in involved psoriatic skin as compared to normal and uninvolved psoriatic skin for same case [9]. It was observed that it is a proapoptotic protein, also known as bcl-2 homologue, Bad expression was found to be weak also in psoriasis patients [10].

CONCLUSION

There are prominent histopathologic features of psoriasis and eczema. These histopathologic features are used in the diagnosis and differentiation of both two diseases. Palmar psoriasis is more common than eczema. Hypogranulation, Munro's microabscess, tortous vessels in papillary dermis, suprapapillary plate tinning, plasma mounds, parakeratosis and kogoj are significantly associated with psoriasis and can be used in the diagnosis of psoriasis. Bcl-2 expression in psoriasis cases were found negative in comparison with in eczema cases and in normal skin that bcl-2 expression positive. Today histopathological findings still have great importance in the diagnosis of patients with psoriasis but when the differentiation of psoriasis and eczema is very difficult, the immunohistochemical study can be utilized.

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