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Surgical Evaluation of Common Benign Skin Lesions in Primary Care

Birinci Basamakta Sık Karşılaşılan Benign Cilt Lezyonlarının Cerrahi Değerlendirilmesi

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ABSTRACT

Objective: Skin tumours are common tumors and they are mostly benign. Benign skin lesions (BSLs) may be a sign of a syndrome or of a systemic malignant state. Sometimes they can transform into malignant types. The aim of the present study is to evaluate the prevalence and the clinico-pathological characteristics of a large series of BSLs which were excised in our clinic. **Methods:**The patients with skin lesions who underwent a total excisional biopsy in the general surgery clinic between the years 2012 and 2016 were reviewed. Malignant skin lesions were excluded from the study. The BSLs were classified according to the Pathology and Genetics of Skin Tumours of the World Health Organization Classification of Tumours. **Results:** A total of 551 patients with BCL were included in the study. Of the patients, 241 (43.7%) were female and 310 (56.7%) were male. The age range was between 2 and 98 years and the mean age was 39.7. The most common benign skin lesions (n = 184, 33.3%) were appendageal tumors and this finding was statistically significant (p = 0.001). The most common appendageal tumor type (n = 75, 13.6%) was verruca vulgaris. **Conclusion:** Benign skin lesions are usually seen by family physicians. Some of the BCLs may be confused with malignant skin lesions and may even be associated with systemic malignancies. It is very important that family physicians can recognize benign skin lesions and plan for diagnosis and treatment such as biopsy.

Keywords: Benign skin lesions, primary care, surgical evaluation

ÖZET

Amaç: Deri tümörleri çok yaygın olup çoğunlukla iyi huyludurlar. Benign cilt lezyonları (BCL), bir sendromun veya sistemik malign bir durumun belirtisi olabilirler. Bazen de malign lezyonlara dönüşebilirler. Çalışmamızın amacı, kliniğimizde eksize edilen geniş bir BCL serisinin prevalansını ve klinikopatolojik özelliklerini ortaya koymaktır. **Gereç ve Yöntem:** Genel cerrahi kliniğimizde 2012-2016 yılları arasında total eksizyonel biyopsi yapılan cilt lezyonları olan hastalar retrospektif olarak çalışmaya dahil edildi. Malign cilt lezyonları çalışma dışı bırakıldı. Benign cilt lezyonları Dünya Sağlık Örgütü Tümör Sınıflandırmasının Deri Tümörlerinin Patolojisi ve Genetiği'ne göre sınıflandırıldı. **Bulgular:** Çalışmaya BCL olan toplam 551 hasta dahil edildi. Bu hastaların 241'i (%43,7) kadın, 310'u (%56,7) erkekti. Yaş aralığı 2 ile 98 yaş aralığında olup, ortalama 39.7 idi. Benign cilt lezyonlarından en sık olarak (n=184, %33,3) appendageal tümörler yer almaktaydı ve bu bulgu istatistiksel olarak anlamlıydı (p=0.001). En sık görülen appendageal tümör tipi (n=75, %13,6)verruca vulgaris idi. **Sonuç:** Benign cilt lezyonları çoğunlukla aile hekimleri tarafından görülürler. Bunların bazıları malign cilt lezyonları ile karışabilir ve hatta sistemik maligniteler ile ilişkili olabilir. Benign cilt lezyonlarının aile hekimleri tarafından tanınması, biyopsi gibi tanı ve tedavi için planlama yapabilmesi çok önemlidir.

Anahtar Kelimeler: Benign cilt lezyonları, birinci basamak, cerrahi değerlendirme

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INTRODUCTION

The vast majority of skin lesions is benign in character[1]. A benign skin lesion (BSL) does not spread to other parts of the body but continues its growth at the location where it first took its origin.[2,3] Premalignant skin lesions (PSLs) can transform into malignant ones at a rate of 10%.[2,4] They are most commonly seen in males.[2,3] The lifetime risk of getting a skin cancer has been reported to be one out of five people in the United States.[2,3]

Skin lesions are usually sporadic; however, they can also be a component of a syndrome or they may be associated with systemic malignancies.[1,2] Therefore, clinicians should differentiate between the benign and malignant lesions and should follow a systematic approach in evaluating these lesions.[3,4] If there is a clinical suspicion of malignancy, biopsy should be performed definitely.[3,4]
In a large series and along with the reported findings in the literature, the present study aims to review and evaluate the prevalence and clinico-pathologic features of the BSLs surgically excised in our clinic.

MATERIALS AND METHODS

The patients with skin lesions treated in our general surgery clinic between 2012 and 2016 were included in our study. This study was approved by the local ethics committee. Reviewing the patients' charts revealed that a total of 712 patients underwent excisional biopsy due to several types of skin lesions.[5] Of these patients, 27 were diagnosed with non-specific skin lesions and 136 were diagnosed with malignant skin lesions (MSLs). These patients were excluded from the study. Of the patients who were diagnosed with a MSL by the pathological examination, nine had been pre-diagnosed with a BSL after the physical examination, however, the excisional biopsy was reported to be a malignant lesion. A total of 551 patients with BSLs were included in the study. The age and gender of the patients; and the number, size (millimeter-mm), anatomic location, and the histo-pathological diagnosis of the skin lesions were evaluated. As in the studies on large patient series reported in the literature previously, the patients were assigned into age groups as 0-14, 15-59, and 60 +.[6]

The BSLs in the study were classified according to the Pathology and Genetics of Skin Tumours, World Health Organization (WHO) Classification of Tumours.[7] Accordingly, the lesions were examined under six main headings: Keratinocytic BSLs, Melanocytic BSLs, Appendageal BSLs, Haematolymphoid BSLs, Soft tissue BSLs, Neural BSLs. The lesions included in these main groups were examined (Table 1).

Table 1. Subtypes of benign skin lesions

Benign skin lesions		Number and percent of the lesions	
		n	%
Keratinocytic	Verruca plantaris	75	53.19
	Verruca vulgaris	29	20.57
	Seborrhoeic keratosis	27	19.15
	Keratoacanthoma	5	3.55
	Lichen planus-like keratosis	5	3.55
Melanocytic	Melanocytic naevi	55	77.46
	Combined naevus	16	22.54
Appendageal	Hidrocystoma	1	0.54
	Cystic sebaceous tumour	144	78.26
	Chondroid syringoma	2	1.09
	Hidradenoma	2	1.09
	Pilomatricoma	8	4.35
	Trichoblastoma	1	0.54
	Tricholemmoma	24	13.04
	Sebaceoma	2	1.09
Haemato-lymphoid	Lymphomatoid granulomatosis	3	60
	Juvenile xanthogranuloma	2	40
Soft tissue	Dermatofibroma	33	22.76
	Cherry haemangioma	15	10.34
	Pyogenic granuloma	19	13.1
	Cavernous haemangioma	2	1.38
	Arteriovenous haemangioma	3	2.07
	Lymphangioma circumscriptum	2	1.38
	Digital fibrokeratoma	4	2.76
	Dermatomyofibroma	3	2.07
	Lipoma	41	28.28
	Digital mucous cyst	1	0.69
	Keloid scar	17	11.72
	Hypertrophic scar	5	3.45
Neural	Neurothekeoma	3	60
	Neuroma	1	20
	Granular cell tumour	1	20

Statistical analysis

The data obtained from the present study were analyzed with IBM SPSS Statistics Version 22 package software (IBM Corp., Armonk, NY, USA). The Mann-Whitney U test and the Kruskal Wallis H test were used to examine the differences between the groups as the variables were not normally distributed. The Chi-square (χ^2) analysis was used to analyze the associations between the groups of nominal variables. Fisher's Exact Test was used when the expected values in the cells of the 2x2 tables did not achieve a sufficient size. The Cochran's q test was used to compare the groups within themselves. The significance level of 0.05 was used to interpret the results. A p-value <0.05 indicated a significant association, whereas p values >0.05 indicated that there was not a significant association.

RESULTS

The present study included a total of 551 patients. The majority of the patients (n=310, 56.2%) were males and the study population had a female/male ratio of 0.77. The age of the patients in the study ranged from 2 to 98 years and the mean age was 39.7 years. The most common (n=96, 18.8%) accompanying disease group was the hepato-biliary disorders (fatty liver, gall bladder stone etc.). Benign skin lesions were most commonly located in the head and neck region (n=220, 43.1%). The lesions were mostly solitary (n=421, 82.5%) with a mean diameter of 14.1 mm. The success rate of excisional biopsy diagnosis was 100% (510). Rate of local recurrence was 2.3% (12) (Table2)

Table 2. Demographic and clinical characteristics of the subjects

Demographic and clinical features	Distribution of properties
Gender (Female/Male)	0.77
Age (years)	2-98 (mean 39.7) years
Age distribution	0-14 (6.1%)
	15-59 (79.8%)
	60 + (13.9%)
Distribution of blood types	A (39.4%)
	B (14.4%)
	AB (17.1%)
	0 (28.9%)
Rh distribution	Rh (+) (88%)
	Rh (-) (12%)
Haemoglobin	7.5-16.8 (mean 13.1) g/dl
Haematocrit	24.4-48.2 (mean40.3)%
Comorbidities	Hepatobiliary disease (18.8%)
	Renal disease (12.5%)
	Endocrine diseases (7.0%)
	Vascular disease (6.2%)
	Gynaecological disease (2.3%)
The main complaint	Painless swelling (90%)
	Color change (75%)
Lesion localization	Head and neck (43.1%)
	Trunk (25.9%)
	Upper extremities (13.7%)
	Lower extremities (17.0%)
Number of lesions	Solitary (82.5%)
	Multiple (17.4%)
Lesion diameter	1-70 (mean 14.1) mm

There was a statistically significant difference between the gender and the BSL groups (p = 0.001), 29.05% (70) of the females and 36.77% (114) of the males had ABSLs. In our study, there was a statistically significant difference between the BSL groups and the age distribution (p = 0.008). Patients aged between 15-59 years and over 60 years old were found to have ABSL (Table 3).

In the present study, there was a statistically significant difference between the BSL groups and the age distribution (p = 0.008). In the age group of 0-14 years, 2.94% (1) of the patients had ABSLs. This ratio was 35.23% (155) in the 15-59-year-old age group and 36.36% (28) in the age group of patients who were 60 years old or over (Table 3).

There was a statistically significant difference between the original location of the tumour and the BSL groups (p = 0.001). The ABSLs comprised 36.55% (87) of the lesions originating from the head and neck region, 48.95% (70) of the lesions originating on the trunk, 26.32% (20) of tumours of the upper extremities, and 7.45% (7) of the tumours of the lower extremities (Table 3).

Table 3. The relationship between gender, age, number of lesions and localization of benign skin lesions

Benign skin lesions	**Gender**				
	Female		**Male**		p*
	n	%	n	%	
Keratinocytic	63	26.14	78	25.16	
Melanocytic	52	21.58	19	6.13	
Appendageal	70	29.05	114	36.77	
Haematolymphoid	3	1.24	2	0.65	**0.001**
Softtissue	52	21.58	93	30	
Neural	1	0.41	4	1.29	

	Age groups						
	0-14 years		**15-59 years**		**60 + years**		**p***
	n	**%**	**n**	**%**	**n**	**%**	
Keratinocytic	14	41.18	99	22.5	28	36.36	
Melanocytic	5	14.71	59	13.41	7	9.09	
Appendageal	1	2.94	155	35.23	28	36.36	
Haematolymphoid	1	2.94	4	0.91	0	0	**0.008**
Soft tissue	12	35.29	119	27.05	14	18.18	
Neural	1	2.94	4	0.91	0	0	

	Localization								
	Head and neck		**Trunk**		**Upper extremity**		**Lower extremity**		**p***
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	
Keratinocytic	52	21.85	20	13.99	14	18.42	55	58.51	
Melanocytic	57	23.95	9	6.29	3	3.95	2	2.13	
Appendageal	87	36.55	70	48.95	20	26.32	7	7.45	
Haemato-lymphoid	1	0.42	1	0.7	3	3.95	0	0	**0.001**
Soft tissue	37	15.55	43	30.07	36	47.37	29	30.85	
Neural	4	1.68	0	0	0	0	1	1.06	

p<0,01: Chi-square Test*

There was a statistically significant difference between the number of the lesions and the BSL groups (p = 0.001). ABSLs comprised 35.82% (163) of the solitary lesions and 21.88% (21) of the multiple lesions. There were statistically significant differences between BSL groups in terms of the diameters of the lesions (p = 0.001). The lesion diameter of the MBSLs was significantly lower compared to the main groups of ABSLs and STBSLs (Table 4).

Table 4. The relationship between number and diameter of benign skin lesions

Benign skin lesions	Number of lesions				p*
	Single		Multiple		
	n	%	n	%	
Keratinocytic	106	23.3	35	36.46	**0.001**
Melanocytic	48	10.55	23	23.96	
Appendageal	163	35.82	21	21.88	
Haemato-lymphoid	5	1.1	0	0	
Soft tissue	128	28.13	17	17.71	
Neural	5	1.1	0	0	
	Lesion diameter (mm)				p**
	n	Mean	Min	Max	SD	
Keratinocytic (1)	141	11.26	1	35	7.19	**0.001**
Melanocytic (2)	71	8.73	2	50	6.2	
Appendageal (3)	184	17.33	3	55	9.68	
Haemato-lymphoid(4)	5	9.2	3	16	5.81	
Soft tissue (5)	145	15.66	2	70	13.22	
Neural (6)	5	15.8	6	35	11.92	
Total	551	14.14	1	70	10.32	2<5 2<3 1<3 5<3

p<0,01: Chi-square Test, p**<0,01: Kruskal–Wallis Test,*
SD: Standard deviation

DISCUSSION

The epidemiologic studies on skin diseases have reported the rates of BSL and MSL at 4.5-12% and 1.5-6%, respectively.[8-11] In general, the ratio of BSLs to the malignant ones is 1.5-4.5.[8-11] Recent studies have reported a tendency to increase in the PSLs over the last years, with rates 1.82-4% found in large-scale epidemiological studies.[12-14] In the present study, the ratio of BSL/MSL was found to be 4.05 similarly to the results reported by previous studies.

Several epidemiologic studies conducted in various countries report the most common BSL as seborrheic keratosis (SK) in some series and as verruca vulgaris (VV) in the other series.[9-11]In our study, the most common BSL group was the ABSLs at a rate of 33.3% with a statistical significance. In general, the most common ABSL was the cystic sebaceous tumour (CST) (26.1%).

Other epidemiological studies on the skin diseases have reported that the most common BSL types are VV at a rate of 3.6-9.7% in childhood, VV again at a rate of 1.9-4.5% in adulthood, and SK at a rate of 2.3-7.8% in the geriatric age groups.[15,16]In the present study, the most common BSL types were KBSLs at a rate of 41.1% in childhood (VV 32.3%); ABSLs at a rate of 35.2% in adult ages (CST 27.7%); and ABSLs at a rate of 36.6% in the old age group (CST 21%).

BSLs can accompany some systemic diseases.[1]An underlying systemic disease should be investigated especially in the presence of multiple lesions; for example, in the presence of multiple SK, tricholemmoma, or CSTs; mostly malignancies of the internal

organs should be suspected of, including the stomach, colon, or the pancreas.[17-19]The incidences of CSTs, keratoacanthoma, and sebaceoma increase in Muir-Torre syndrome; the incidences of haemangioma, lipoma, and tricholemmoma increase in Cowden's disease; the incidence of CST increases in Gardner syndrome.[17-19]However, we did not observe any of these conditions in our study.

Several studies have demonstrated that some BSLs may undergo a malignant transformation.[20]It has been reported that basal cell carcinoma may develop from SK; squamous cell carcinoma may develop from VV or keratoacanthoma lesions; melanoma may develop from MN.[19-21]None of these conditions was found out in our study. Malignant lesions can be misdiagnosed as benign.[22]In our study, although the physical examination findings of nine patients were suggestive of BSL, the pathological examination confirmed MSL. These patients accounted for 1.6% of MSL patients. For this reason, biopsy should be taken to confirm the diagnosis.[21,22]

Several studies recommend fine needle aspiration biopsy, core biopsy, or excisional biopsy to be performed, allowing for making a definite diagnosis so that the tumor structure and the histological type can be identified and its grade can be determined.[22,23] Studies report that the core biopsy is superior to the fine needle aspiration biopsy and the excisional biopsy is superior to the core biopsy in terms of sensitivity, specificity, predictive value and accuracy.[23,24]It has been reported that the overall diagnostic accuracy of the excisional biopsy may be as high as 98%.[24]

In the present study, an excisional biopsy was performed which preserved the healthy margins (>1 mm) for all lesions pre-diagnosed as BSN. The diagnostic accuracy was found to be 100%. Several studies have reported that the lesions could recur after the excisional biopsies at varying rates ranging from 2 to 5%.[24,25] The recurrence rate after the excisional biopsy was 2.3% in our study and the surgical excision was repeated in these patients. The excisional biopsy was successful in the diagnosis and treatment of the patients.

The limitations of the study were difficulties in accessing patient files and pathology results.

CONCLUSION

Family physicians most frequently encounter skin lesions. Skin lesions are mostly benign but may be confused with malignant ones. Some BSLs may be associated with systemic diseases or malignanciesThey may also undergo a malignant transformation. Family physicians should pay attention to these issues and follow a systematic approach to BSLs. In case of doubt, biopsy, surgical excision and further investigation and treatment should be provided.

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