CLINICAL STUDY

CORRELATION OF PRELIMINARY AND HISTOPATHOLOGIC DIAGNOSIS OF HEAD AND NECK LESIONS

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SUMMARY

Objective: This study aimed at investigating the correlation between preliminary diagnosis and pathological diagnosis of head and neck lesions after dermoscopic examination and excisional biopsy.

Methods: We included 89 patients with head and neck lesions admitted to dermatology outpatient clinic. The correlation between preliminary diagnoses and pathology results of head and neck lesions were evaluated.

Results: Lesions in 22 of 89 patients (24.7%) were melanocytic and 67 of 89 patients (75.3%) were nonmelanocytic. The number of preliminary diagnosis of all patients was no more than three. The clinicopathological correlation rate was 78.65% (70 patients) for the first preliminary diagnosis, 34.83% (31 patients) for the second preliminary diagnosis and 7.86% (7 patients) for the third preliminary diagnosis. Initial preliminary diagnosis and pathological diagnosis were found different in 13 cases. In 3 cases, nodular lesions were excised considering skin malignancy clinically and dermoscopically, but the histopathological results were reported as benign lesions.

Conclusion: We think that the cooperation of clinicians and pathologists can increase the exact pathological diagnosis rate and clinicopathological correlation.

Keywords: Dermatopathology, Clinicopathological correlation, Head and neck lesions

BAŞ VE BOYUN LEZYONLARININ ÖN VE HİSTOPATOLOJİK TANILARININ KORELASYONU

ÖZET

Amaç: Bu çalışma dermoskopik inceleme sonrasında eksizyonel biyopsisi yapılan baş- boyun lezyonlarında ön tanıların ve patolojik tanıların ilişkisini değerlendirmeyi amaçladı.

Yöntem ve Gereçler: Çalışmamıza, dermatoloji kliniğine başvuran baş boyun lezyonu olan 89 hasta dahil edildi. Baş boyun lezyonlarındaki ön tanılar ile patoloji sonucu arasındaki korelasyon değerlendirildi.

Bulgular: Lezyonlar, 89 hastanın 22' sinde (%24,7) melanositik, 67' sinde (%75,3) nonmelanositik idi. Üçten fazla ön tanı yoktu. Klinikopatolojik korelasyon birinci ön tanıda %78,65 (70 hasta), ikinci ön tanıda %34,83 (31 hasta) ve üçüncü ön tanıda %7,86 (7 hasta) olarak saptandı. Klinikopatolojik korelasyonu olmayan tüm lezyonların yeniden değerlendirilmesinden sonra 13 olguda başlangıç ön tanı ve patolojik tanı farklı bulundu. Üç olguda nodüler lezyonlar klinik ve dermoskopik cilt malignitesi düşünülerek eksize edildi fakat histopatolojik sonuçlar benign lezyonlar olarak bildirildi.

Sonuç: Klinisyen ve patologların iş birliğinin kesin patolojik tanı oranını ve klinikopatolojik korelasyonu artırabileceğini düşünmekteyiz.

Anahtar Sözcükler: Dermatopatoloji, Klinikopatolojik Korelasyon, Baş-boyun lezyonları

INTRODUCTION

Appearance of the skin diseases of the head and neck may have variations mimicking many other lesions resulting in difficulties of clinical diagnose. In this respect, examining the clinical findings dermoscopically, and histopathologic confirmation is important for an accurate and rapid diagnosis[1,2]. Dermoscopy is a non-invasive technique designed to assess the structures and color of the epidermis, dermo-epidermal junction and the papillary dermis that cannot be seen with the naked eye[3]. On the other hand, dermatopathology; is used for certain diagnosis, staging follow-up, determination of etiology and pathogenesis of skin diseases[4]. In addition, providing a satisfactory clinical information to the pathologist is quite important for a complete and correct diagnosis[5]. However, even for experienced pathologists, interpretation

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of a difficult melanocytic lesion is highly subjective, and the distinction between nevus and melanoma can be challenging[6]. Histopathological examination of head and neck lesions is essential for an accurate diagnosis, but results might be predicted by physicians in the guidance of dermoscopic examination findings. The previous English- language literature includes a few studies about the clinicopathological correlation of skin lesions[1,2], however, in this paper, we are presenting an investigation of head and neck lesions to reveal the consistency rate between the dermoscopic preliminary diagnoses and histopathologic certain diagnosis.

The goal of this study was to determine the age, sex, clinical preliminary diagnosis and dermoscopic findings of the head and neck lesions after the dermoscopic examination and to evaluate the histopathological correlation with these clinical preliminary diagnoses.

MATERIAL and METHODS

This retrospective study was planned and performed in accordance with the Helsinki Declaration of the World Medical Association by two dermatologist and three otolaryngologists. Approval was obtained from the Human Research Ethics Committee of Aksaray University. We included 89 patients admitted to Dermatology outpatient clinic. We noted age, sex, Fitzpatrick skin type, lesion localization, preliminary diagnosis, dermoscopic findings and pathological diagnosis of the patients from the medical records. The patients with any head and neck lesion were referred to dermatology physicians and the first 3 preliminary diagnosis estimations were noted after dermoscopy. Thus, patients were preliminarily diagnosed based both on clinical and dermoscopic findings. Excluded from the study were the patients under the age of 18 years and the patients with a missing medical information. The correlation between the pathologic result and each preliminary diagnosis (first preliminary diagnosis, second preliminary diagnosis, third preliminary diagnosis) was evaluated. It was recorded as "incompatible" if there was no correlation between the pathologic result and preliminary diagnoses. According to pathologic diagnosis, diseases were classified as Basal cell carcinoma (BCC), Dermal Nevus, Squamous cell carcinoma (SCC), seborrheic keratosis, blue nevus, inverted follicular keratosis, Angiokeratoma, molluscum, Hemangioma, benign vascular proliferation and malignant melanoma.

Statistical Analysis

Results are presented as percentage. In the comparison of incompatibility of first preliminary diagnosis and pathologic diagnosis, we used Chi- square test. We performed the statistical analyses using SPSS 16.0 software for Windows (SPSS Inc., Chicago, USA). A P value less than 0.05 was considered statistically significant.

RESULTS

This study involved 89 patients. Lesions in 22 (24.7%) out of 89 patients were melanocytic and 67 (75.3%) of 89 patients were nonmelanocytic. The distribution of pathologic diagnoses was shown in Table 1. In the Table 2, the distribution of nonmelanocytic lesions according to the clinical and dermoscopic features was presented. Moreover, Table 3 presents the distribution of melanocytic lesions according to the clinical and dermoscopic features.

The number of preliminary diagnoses was no more than three. The compatibility rate of first preliminary diagnosis was 78.65% (70 out of 89 patients), second preliminary diagnosis was 34.83% (31 out of 89 patients) and third preliminary diagnosis was 7.86% (7 out of 89 patients).

In the reassessment of all lesions with no clinicopathological correlation, initial preliminary diagnosis and pathological diagnosis were found different in 13 cases. Preliminary diagnosis and pathological diagnosis, age, sex, lesion location, and dermoscopic findings of the patients with mismatch were shown in Table 4.

In the comparison of incompatibility of first preliminary diagnosis and pathologic diagnosis, we found that 5 out of 23 (21.7%) patients with benign pathologic diagnosis and 8 out of 66 (12.1%) patients with malignant pathologic diagnosis had an incompatible first preliminary diagnosis. Thus, the first preliminary

diagnosis incompatibility rate was not significantly different between malignant and benign head and neck lesions (p=0.26, X^2= 1.26).

Table 1. Distribution of pathological diagnoses

Pathological Diagnoses	n	%
Basal Cell Carcinoma (BCC)	51	57,30
Dermal Nevus	12	13,48
Squamous Cell Carcinoma (SCC)	6	6,74
Seborrheic Keratosis	5	5,61
Blue Nevi	1	1,12
Invert Follicular Keratosis	1	1,12
Angiokeratoma	1	1,12
Molluscum	1	1,12
Hemangioma	1	1,12
Benign Vascular Proliferation	1	1,12
Malignant Melanoma	9	10,11
	89	**100**

Table 2. Distribution of Nonmelanocytic Lesions according to the clinical and dermoscopic features

Nonmelanocytic n; %	**Fitzpatrick Skin Type n; %**	**Clinical-Histopathological Subtype n; %**	**Dermoscopic Features n; %**
BCC (n=51; 57.3%)	Type I (n=17; 33.3%) Type II (n=20; 39.2%) Type III (n=14; 27.4%)	-Nodular (n=30; 58.8%) -Superficial (n=10; 19.6%) -Morphea-form (n=6; 11.7%) -Mixed (n=3; 5.8%) -Pigmented (n=2; 3.9%)	-Blue-gray ovoid globules (n=27; 52.9%) - Pink white unstructured area (n=26; 50.9%) - Thin linear vessels (n=25; 49%) - Ulceration- hemorrhage (n=24; 47%) - Arborizing vessels (n=21; 41.1%) - Translucency (n=15; 29.4%) - Maple leaf-like areas (n=5; 9.8%) - Spoke wheel-like areas (n=5; 9.8%)
SCC (n= 6; 6.74%)	Type II (n=5; 83.3%) Type III (n=1; 16.6%)	- Well differentiated SCC (n=4; 66.6%)	- Hyperkeratosis and central scale (n=5; 83.3%) - Polymorphic vascular structure (n=4; 66.6%) -White unstructured area (n=4; 66.6%) -Radial linear vessels (n=4; 66.6%) -White circles and structureless area (n=3; 50%) - Ulceration- hemorrhage (n=2; 33.3%)
Seborrheic Keratosis (n=5; 5.61%)	Type III (n=5; 100%)	-	-Exophytic papillary structure (n=4; 80%) -Gyri of a cerebriform surface (n=4; 80%) -Comedone like openings (n=1; 20%) -Blue-gray ovoid globules (n=1; 20%) -White structureless area (n=1; 20%) -Heterogenous pigmented area (n=1; 20%) -Central vascular structure (n=1; 20%) -Milia-like cysts (n=1; 20%)

Hemangioma (n=1; 1.12%)	Type III (n=1; 100%)	-	-Red lacunes (n=1; 100%) -Whitish reticular lines, thin linear vessels (n=1; 100%)
Angiokeratoma (n=1; 1.12%)	Type III (n=1; 100%)	-	-Blue lacunes (n=1; 100%)
Molluscum Contagiosum (n=1; 1.12%)	Type III (n=1; 100%)	-	-Ulceration- hemorrhage (n=1; 100%) -Pink white unstructured area (n=1; 100%) -Polymorphic vascular structure (n=1; 100%) -Radial linear vessels (n=1; 100%)

Table 3. Distribution of Melanocytic Lesions according to the clinical and dermoscopic features

Melanocytic n; %	**Fitzpatrick Skin Type n; %**	**Dermoscopic Features n; %**
Dermal Nevus (n=12; 13.48%)	Type III (n=12; 100%)	-Bristle structure (n=10; 83.3%) -Homogenous pigmented ground (n=9; 75%) -Brown globules (n=8; 66.6%) -Monomorphic vascular structure (n=6; 50%) -Polymorphic vascular structure (n=6; 50%)
Malignant Melanoma (n=9; 10.11%)	Type I (n=6; 66.6%) Type II (n=3; 33.3%)	-Asymmetry (n=7; 77.7%) -Multiple colors (n=6; 66.6%) -Irregular dots and globules (n=5; 55.5%) - Irregular blotches (n=5; 55.5%) -Blue white structures (n=5; 55.5%) -Pink structures (n=5; 55.5%) -Atypical pigment network (n=4; 44.4%) -Multicomponent construction (n=3; 33.3%) - Irregular streaks (n=3; 33.3%) -Vascular structures (n=2; 22.2%)
Blue Nevus (n=1; 1.12%)	Type IV (n=1; 100%)	-Homogenous blue pigmentation (n=1; 100%) -Starburst pattern (n=1; 100%)

Table 4. Patients with incompatibility of first preliminary diagnosis and pathologic diagnosis

Case	Age	Gender	Localization	First preliminary diagnosis	Second preliminary diagnosis	Pathological diagnosis	Dermoscopy Findings
1	63	M	Lip	SCC	Dermal Nevus	BCC	Thin linear vessel Ulcer, hemorrhage
2	70	F	Nose wing, left	SCC	Seborrheic Keratosis	BCC	Thin linear vessel Ulcer, hemorrhage Pink white unstructured area
3	69	F	Nose wing, right	SCC	BCC	BCC	Thin linear vessel Ulcer, hemorrhage Pink white unstructured field
4	48	M	Forehead	Seborrheic Keratosis	Dermal Nevus	BCC	Brown globules
5	52	F	Eyebrow	BCC	Malignant Melanoma	Dermal Nevus	Thin vein Arborizing vessels Ulceration, hemorrhage Pink white unstructured area Blue gray ovoid globules
6	70	F	Nose right lateral	BCC	Actinic Cheilitis	SCC	Ulceration, hemorrhage Multiple core White unstructured areas
7	48	F	Upper Lip	BCC	Malignant Melanoma	Invert Follicular Keratosis	Blue gray ovoid structures White unstructured areas Heterogeneous pigment-like areas Central vessel structure
8	73	F	Malar, right	Keratoacanthoma	BCC	Invert Follicular Keratosis	Thin linear vessel Pink white unstructured field Keratinized tissue
9	63	M	Malar, left	SCC	BCC	Molluscum	Ulceration, hemorrhage Pink white unstructured area Multiple core
10	64	M	Lower Lip	BCC	Angiokeratoma	Benign Vascular Proliferation	Ulceration, hemorrhage Single core Blue lacquers
11	80	F	Neck, left	Clark Nevi	Malignant Melanoma	Malignant Melanoma	Asymmetry Atypical pigment Irregular extensions Irregular point Irregular spots
12	48	F	Neck, right	Clark Nevi	Malignant Melanoma	Malignant Melanoma	Asymmetry Atypical pigment network Irregular spots Blue- White- Pink Buildings Vascular Structure Multicomponent construction
13	83	M	Neck, right	Malignant Melanoma	Clark Nevi	Pigmented BCC	Blue gray brown globular structures, leaf-like irregular pigmented areas

DISCUSSION

Although clinicopathological approach plays an important role in the diagnosis of skin diseases, only a limited number of studies in the prior literature focused on the consistency between clinical and histopathological diagnoses[1,2,7,8]. Histopathological examination guides clinicians to determine the stages of lesions, follow the lesions and determine the etiological factors[8]. In the prior literature, studies focusing on the clinicopathologic correlation of skin lesions are available[7,8]. In addition, Lodha et al[6] reported the discordance in the histopathologic diagnosis of difficult melanocytic neoplasms and Rajaratnam et al[9] published a report on the value of skin biopsy in inflammatory dermatoses. Unlike previous publications, our investigation provides the clinicopathological correlation rates of the skin lesions of head and neck particularly, as well as clinical and pathological features.

The certain diagnosis of skin diseases is not easy because of the atypical pattern of diseases and the uncertainty of clinical findings. Skin lesions go through different stages in the progression of diseases, and histopathological features may vary. Because of these characteristics of dermatological diseases, multidisciplinary approach by physicians and pathologists is crucial for certain diagnosis of inflammatory and neoplastic diseases[7]. Rajaratnam et al[9] reported that the rate of correct diagnosis was 55% with the lack of clinical knowledge in pathology reports while was 78% with a complete clinical knowledge. The clinicopathological correlation rate in the report by Aslan et al was 76.8%[1], similar to the rate reported Metin et al. (79.1%)[10]. Gupta et al reported that pathologic diagnosis were correlated with clinical diagnosis in 85.8% of the patients and the rate of discordance between clinical and histopathological diagnosis was 9.1%[11]. In our study, the clinicopathological correlation rate was 78.65% for the first preliminary diagnosis, 34.83% for the second preliminary diagnosis and 7.86% for the third preliminary diagnosis, in consistent with the prior literature. Our results suggest that the correlation between the first and third preliminary diagnoses and pathological diagnoses was highest in seborrheic keratosis (100%), dermal nevus (88.9%), malignant melanoma (87.5%) and BCC (87.23%), and the correlation between the second preliminary diagnoses and pathological diagnoses was highest in dermal nevus (50%), SCC (44.4%), BCC (42.85%) and malignant melanoma (33.3%).

In our study, 3 patients were clinically and dermoscopically diagnosed as SCC, but histopathologically diagnosed as BCC. One patient was clinically and dermoscopically diagnosed as BCC, but histopathologically diagnosed as SCC. Distinguishing BCC and SCC may be difficult dermoscopically if BCC lesions are nonpigmented and clinically presented only with ulceration[12]. One of our patients was clinically and dermoscopically diagnosed as Seborrheic Keratosis but histopathologically diagnosed as pigmented BCC. Another patient clinically and dermoscopically diagnosed as BCC was histopathologically diagnosed as Seborrheic Keratosis. Pigmented BCC and seborrheic keratosis were both seen in elderly population and the lesions may clinically be similar in these entities. Distinguishing pigmented BCC and seborrheic keratosis may be difficult dermoscopically if the lesion presents only with brown globular structures[13,14]. In one of our patients, a nodular lesion which clinically and dermoscopically diagnosed as BCC was dermal nevus. The dermoscopic presentation of the lesion as only vascular structures like thin linear telangiectatic vessels may cause difficulty in distinguishing dermal nevus from BCC. Vascular structures may be similar in these entities and comma vessels are mostly seen in dermal nevus[15-17].

In 3 of our patients, nodular lesions were excised considering skin malignancy, but the histopathologic results were reported as benign lesions. One patient considered keratoacanthoma was follicular keratosis histopathologically, one other considered SCC was molluscum histopathologically, and another one considered BCC was benign vascular proliferation histopathologically. Polymorphic vascular

structures in dermoscopy may cause confusion in diagnosing malignancy and unnecessary excisions might be performed. Additionally, dermoscopy is more sensitive in melanocytic lesions than in nonmelanocytic lesions[18,19]. Two of our patients considering Clark nevus were diagnosed as malignant melanoma histopathologically. Melanocytic nevus may be a precursor of malignant melanoma and Clark nevus is an atypical form of the melanocytic nevus. Clark nevus and malignant melanoma may not be distinguished from each other clinically, dermoscopically and histopathologically[15,20]. One of our patients considered malignant melanoma was diagnosed as pigmented BCC histopathologically. Distinguishing pigmented BCC from malignant melanoma may also be difficult if the lesion has asymmetry and irregularity in dermoscopy[21].

The major limitation of our study was the retrospective nature of the study, since we had to include only a limited number of details compiled from the medical records of the patients. In addition, the effects of lesion duration, lesion localization and different biopsy techniques on clinicopathological correlation were not investigated. In the report by Aslan et al[1], lesion localization and biopsy technique were reported to have no effect on clinicopathological correlation. These results suggest that clinicopathological correlation was higher in patients with shorter lesion duration.

CONCLUSION

In conclusion, dermoscopy is frequently helpful for clinical prediagnosis of skin lesion and provides opportunity to predict the histopathologic examination results of head and neck lesions. Based on our results, we can assume that the cooperation of clinicians and pathologists can increase the exact pathological diagnosis rate and clinicopathological correlation.

Compliance with Ethical Standards:

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Disclosures:

The authors state that they have no funding, financial relationships, or conflicts of interest.

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