ORIGINAL ARTICLE

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Histopatological Analysis of Nevi Excisions in Our Clinic

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Abstract

Objective: Nevi are the most common benign lesions on the skin. Nevus excisions are performed to exclude the malignancies and for cosmetic reasons. The most reliable approach is excision and pathological examination to exclude malignant transformation for the nevi that have irregular borders, changing color, and a recent growing. The preliminary diagnoses, localizations and pathologic results after the excisional biopsies were presented in this study.

Methods: The study is a retrospective case series including 1.576 excised nevi in 1.382 patients between 2016 and 2019. The patients were evaluated retrospectively in terms of the pathologic results and demographic data such as age, gender and nevus localization. The clinical preliminary diagnoses of all excised lesions were listed as nevi. Malignant and benign results were compared statistically.

Results: The patients included in the study were between the ages of 5-85. Twenty different types of pigmented skin lesions were identified. The mean age of patients with malignant results was 51.1, while the mean age of patients with benign results was 34.4 (p=0.054). The most common nevus locations were head and neck (76.98%), followed by trunk (16.04%), upper extremity (4.39%), and lower extremity (2.57%). When the pathological diagnoses and frequencies of the excised nevi were examined; intradermal compound or blue nevi were observed in 45.4% of all patients.

Conclusion: Melanocytic nevi are mostly benign and excision is mostly performed for cosmetic purposes. However, since there is a possibility of malignant transformation in atypical nevi; these should be excised to rule out malignancy.

Keywords: Biopsy, excision, nevi

INTRODUCTION

Skin consists of the epidermis, dermis and subcutaneous tissue. Cell lines settled in the skin include keratinocytes, hair follicles and sebaceous glands, sweat glands, and smooth muscle cells (1). The term "nevus" does not have a specific definition, as many nevi are either congenital or acquired. Others are localized in different layers of the skin. Moreover, proliferating cell types are different among nevi. Happle (2) defined nevi as "Lesions that have genetic mosaicism, well-defined borders and which are located on the skin or mucosa for a long time", except that melanocytic nevi do not have neoplastic potency.

The principal risk with a nevus is the possibility for malignant transformation and the risk is higher in the congenital nevi. This risk increases in relation to the size with the highest for nevi dimensions exceeding 20 cm (3,4). In acquired nevi, the malignant transformation possibility depends on the number of nevi or atypical structure of the nevus (5). In an acquired nevus, suspicious clinical properties for a possible malignant transformation include asymmetry, border irregularity, color differences, a diameter exceeding 6 millimeters, and evolving appearance which are universally abbreviated as ABCDE (6).

For nevi, the aim of excisional biopsies does not only include exclusion of possible melanomas, but also include cosmetic

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reasons. Many nevi are removed for cosmetic reasons (7), and this trend increases over time (8). Clinical approach to a nevus mainly depends on total excision, however other available methods include punch or shave excisions and abrasive techniques (9-11).

In this study, a large series of patients were presented in whom total excisional biopsies were performed in a plastic surgery department of a tertiary health center.

METHODS

Patients

This is a retrospective clinical study including patients with nevi. Between 2016 and 2019, 1382 patients were operated and 1576 nevi were excised. Patient age ranged from 5 to 85 (mean age, 34.59). All nevi were located on the skin and removed by total excision under local anesthesia in plastic surgery outpatient operating room. The preliminary diagnosis included nevus in all the patients, compared to malignant melanoma in 45 of the patients. The resultant defects were repaired by primary closure. All of the removed nevi were sent for pathologic examination. No major complications were encountered in the follow-up period. Minor complications included local infection in 27 surgical sites (1.7%) and wound dehiscence in 37 surgical sites (2.3%). All minor complications were managed with conservative methods. Patients were evaluated for demographic data, as well as localization and pathologic results of the nevi.

For the study, University of Health Sciences Turkey, Prof. Dr. Cemil Tascıoglu City Hospital, Ethics Committee approval was obtained (date: 21.03.2022, no: 76).

Statistical Analysis

The results with the basal cell carcinoma (BCC) and the malignant melanoma were accepted as malignant and remaining results were accepted as benign. The relationship between the malignancy and age was studied. The software SPSS (Statistical Package for Social Sciences for Windows 22.0) was used to evaluate data statistically. Values were compared using the Student t-test. Outcomes were assessed at 95% confidence interval and 5% significance level. The p values below 0.05 were accepted as significant.

RESULTS

Out of 1.576 masses, 27 were malignant (1.71%) including BCC and malignant melanoma. The mean age for malignant and benign results were 51.1 and 34.4 respectively. The malignant results were more common in older population as expected, however this result was not statistically significant (p=0.054).

Patient age ranged from 5 to 85, where predominance of the patients was enrolled between 20 and 50 years of age (71.07%) (Figure 1). In the included patients, the head and neck were the most common anatomic site where 76.96% of the nevi were localized in this region after trunk (16.04%), upper extremity (4.39%) and lower extremity (2.57%). The pathologic examination results showed that the vast majority of the masses were intradermal and compound nevi with 50.44% and 38.44% of all cases, respectively. There were 20 different types of pathologic diagnoses. The diagnoses and mean age distribution are outlined in Table 1 and Figure 2.

DISCUSSION

Our hospital is a very busy tertiary healthcare center located in Istanbul. Patients coming from different socio-cultural and socio-economic groups are admitted to our center. As a

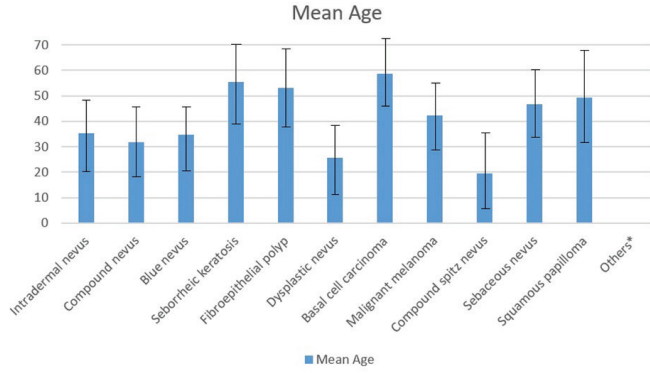

Figure 1. Mean ages of the included patients among pathologic results

Tablo 1. The pathologic diagnoses and age distribution

Pathologic diagnoses	Total number of samples (percentage)	Mean age of the group
Intradermal nevus	795 (50.44%)	35.2
Compound nevus	607 (38.44%)	31.8
Blue nevus	26 (1.64%)	34.8
Seborrheic keratosis	20 (1.26%)	55.6
Fibroepithelial polyp	19 (1.20%)	53.2
Dysplastic nevus	16 (1.01%)	25.6
Basal cell carcinoma	15 (0.94%)	58.6
Malignant melanoma	12 (0.75%)	42.2
Compound spitz nevus	12 (0.75%)	19.5
Sebaceous nevus	12 (0.75%)	46.6
Squamous papilloma	11 (0.75%)	49.4
Others*	31 (1.96%)	-

*Others include dermatofibroma (0.50%), trichilemmal cyst (0.44%), verruca vulgaris (0.37%), capillary hemangioma (0.25%), keratoacanthoma (0.12%), syringoma (0.06%), fibrolipoma (0.06%), inflammatory linear verrucous epidermal nevus (0.06%), solar lentigo (0.06%)

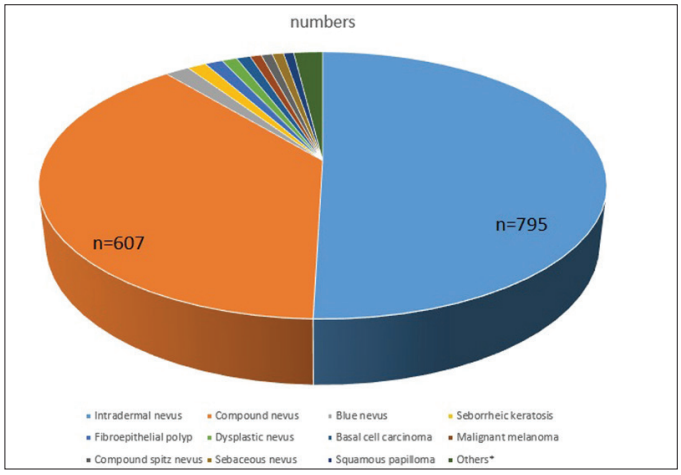

Figure 2. Distribution of the pathologic results

result, the plastic surgery department has a high patient flow from outpatient admissions and from other departments such as dermatology. All the suspected skin lesions were sent for consultation to the plastic surgery department for excisional biopsy. When the demographic data and number of the included patients were checked, a homogenous distribution was revealed among all age groups including the pediatric and the elderly group. Size and content of the sample increase the safety of the study and lead to reliable results.

In the presented study 1.71% of the included nevi were non-benign lesions. The mean age with non-benign lesions is higher than the mean age with benign lesions, although this was not significant statistically (p=0.054). This may be connected to the fact that malignant melanoma can be seen in young adults, or middle aged people as well. Of the included lesions, 0.75% of the nevi were malignant melanoma. This is, in number, 8.6 per thousand patients and 286 per 100.000 person-years. In studies conducted on a population-based health database, incidence of malignant melanoma per 100.000 person-years changed between 42 and 256 in the population (12-15). Our results are similar to these results. As one of the common malignancies of both genders (14,16), the incidence of malignant melanomas in 2004 was 7.7 and 13.7 per 100.000 people in males and females, respectively (17). This frequency explains the importance of the excisional biopsy for the suspected lesions. In the presented study, 45 of 1.576 patients had preliminary diagnoses of malignant melanoma. Of those, 12 had malignant melanomas and 16 had dysplastic nevi. All the lesions, which were resulted as malignant melanomas, had had macroscopic changes as summarized with before-mentioned ABCDE. Twenty of the lesions, preliminary diagnoses of which had been malignant melanoma, had dimensions exceeding 6 millimeters. This situation proves the fact that clinical suspicion for malignant melanoma is crucial.

BCC and squamous cell carcinomas (SCC) comprise the vast majority of skin malignancies. When combined, they are so common in number that their incidence exceeds 3 million in the United States and is more than all other cancers together (18,19). As a general rule, ratios of incidences of BCC, SCC, and malignant melanoma are 40, 10 and 1 respectively (20). In our study, more than half of the malignancies were melanoma, and no SCCs were encountered. However, SCCs are usually clinically well recognized lesions and as all included biopsies had preliminary diagnoses of nevi, no SCCs were encountered. Although BCCs usually have various clinical appearances, all superficially and non-superficially localized subtypes may have pigmented components (21-23). Fifteen of the lesions, preliminary diagnoses of which had been nevi, resulted in BCCs after pathologic examinations. Nine out of these 15 BCCs had had some macroscopic differences compared to regular nevi, including border irregularities, increased lengths and ulcerations.

The trunk is the most common localization for the malignant melanomas (24), however, nearly 77% of the lesions included in this study were localized in the head and neck region. This situation depends on the facts that many lesions were removed with cosmetic reasons and aesthetic concerns usually foreshadowed medical concerns in the head and neck. As Skaggs and Coldiron (8) stated, biopsy over cancer treatment ratio increased from 1.1 to 2.1 between 1993 and 2016. They stressed that biopsy numbers increased by 153%, whereas cancer treatments for skin tumors increased by only 39%. These ratios show that biopsies for cosmetic reasons have significantly increased in the last three decades. As BCCs are usually located in the head and neck region (25,26), their ratios cannot be used to reveal the distribution without bias. There are 12 malignant melanomas and 16 dysplastic nevi patients in our study, and only 29.16% of these were localized in the head and neck region (16.66% malignant melanoma and 12.5% dysplastic nevi, respectively). This shows that the main purpose for head and neck nevi removals are cosmetic reasons.

Study Limitations

The presented study included a large patient sample. The results from 1.576 nevi can be accepted as reliable. One possible limitation of the study was its retrospective design. As distribution of the pathologic results would not change according to retrospectivity, prospective studies should be conducted to reveal the exact relationship between the preliminary and novel diagnoses.

CONCLUSION

The nevi can be removed under local anesthesia with low complication rates. Complications can be managed by conservative techniques. The malignant and dysplastic lesions comprise a minor group among excision patients and there is no connection between aging and malignant results for skin nevi biopsies, however clinical features including asymmetry, border irregularities, color and diameter changes, evolving lesions and ulcerations should be considered carefully to reveal possibility of the malignant results. The skin biopsies are usually performed for cosmetic reasons in the head and neck region.

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Ethics

Ethics Committee Approval: For the study, University of Health Sciences Turkey, Prof. Dr. Cemil Tascıoğlu City Hospital, Ethics Committee approval was obtained (date: 21.03.2022, no: 76).

Informed Consent: Participants provided informed consent if they agreed to participate in the further studies.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: S.T., Z.Ö.G., T.Y.P., Concept: B.K.A., Ö.Ç., T.Y.P., İ.Ü., Design: B.K.A., S.T., İ.Ü., Data Collection or Processing: Z.Ö.G., T.Y.P., Analysis or Interpretation: B.K.A., Ö.Ç., İ.Ü., Literature Search: B.K.A., Z.Ö.G., Writing: B.K.A., Ö.Ç., S.T.

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