




CLINICAL COURSE AND EPIDEMIOLOGY OF NON-MELANOMA SKIN CANCERS IN AMASYA: A 1.5-YEAR SINGLE PHYSICIAN EXPERIENCE

AMASYA'DA NON-MELANOM DERİ KANSERLERİNİN KLİNİK SEYRİ VE EPİDEMİYOLOJİSİ:1.5 YILLIK TEK HEKİM DENEYİMİ

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Research Article

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Abstract

Non-melanoma skin cancers (NMSC) are malignancies that are common especially in the elderly population and are closely associated with sun exposure, and they represent an important public health problem with an increasing incidence in our country. This retrospective study aimed to evaluate the demographic and clinical characteristics of NMSC cases diagnosed in the region and to compare the findings with the literature. The clinical data from 70 patients diagnosed with NMSC in the Dermatology outpatient clinic between March 2024 and November 2025 were reviewed. Age, sex, tumor type, lesion localization and number, clinical subtype, lesion development duration, history of previous skin cancer, and immunosuppression status were evaluated. Of the 70 patients, 49 (70%) were diagnosed with basal cell carcinoma, 19 (27.1%) with squamous cell carcinoma, and 2 (2.9%) with basosquamous carcinoma. The mean age of the patients was 72.8 years, and cases were most frequently observed in the 70–79 age group with male predominance. Most of the lesions were in the head and neck region, and the most frequent site was the face, particularly the nose. The most common clinical subtype was the nodulo-ulcerative form in basal cell carcinoma, whereas hyperkeratotic and eroded/ulcerative nodular subtypes were predominant in squamous cell carcinoma. The mean lesion development duration was 9 months, and the median was 6 months. Immunosuppression was detected in only 2 patients. This study is the first to present epidemiological data on NMSC in the Amasya region, and the findings are consistent with the literature.

Keywords: Basal cell carcinoma, Basosquamous carcinoma, Epidemiology, Non-melanoma skin cancers, Squamous cell carcinoma

Öz

Non-melanom deri kanserleri (NMDK), özellikle ileri yaş grubunda sık görülen ve güneş maruziyetiyle yakından ilişkili maligniteler olup ülkemizde insidansı giderek artan önemli bir halk sağlığı sorunu olarak kabul edilmektedir. Bu retrospektif çalışma ile bölgede tanı alan NMDK olgularının demografik ve klinik özelliklerinin değerlendirilmesi, elde edilen bulguların ulusal ve uluslararası literatürle karşılaştırılması ve böylece bölgeye özgü epidemiyolojik özelliklerin ortaya konması amaçlanmıştır. Hastanemiz Dermatoloji polikliniğine Mart 2024–Kasım 2025 tarihleri arasında NMDK tanısı alan 70 hastanın geriye dönük klinik verileri incelenmiştir. Hastaların yaş, cinsiyet, tümör tipi, lezyon lokalizasyonu ve sayısı, klinik alt tip ve hasta beyanına göre lezyonun gelişim süresi, önceki deri kanseri öyküsü ve immünsüpresyon durumu değerlendirilmiştir. Çalışmaya dâhil edilen 70 hastanın 49'u (%70) bazal hücreli karsinom (BCC), 19'u (%27,1) skuamöz hücreli karsinom (SCC) ve 2'si (%2,9) bazoskuamöz karsinom olarak sınıflandırılmıştır. Hastaların yaş ortalaması 72,8 olup olguların en sık 70–79 yaş aralığında yoğunlaştığı görülmüştür. Cinsiyet dağılımı incelendiğinde erkek cinsiyetin baskın olduğu saptanmıştır. Lezyonların %82,8'inin baş-boyun bölgesinde yerleşim göstermesi dikkat çekici olup, en sık tutulum alanı yüzde (%61,4) ve özellikle burun bölgesinde yoğunlaşmıştır. BCC olgularında en yaygın klinik alt tip nodulo-ülseratif form iken, SCC olgularında hiperkeratotik ve erode/ülseratif

nodüler alt tiplerin ön planda olduğu belirlenmiştir. Hasta beyanına göre lezyon gelişim süresi 1–48 ay arasında değişmekte olup ortalama 9 ay, medyan 6 ay olarak hesaplanmıştır. Ayrıca çalışma popülasyonunda sadece 2 hastada immünsüpresyon varlığı tespit edilmiştir. Bu çalışma, Amasya bölgesinde melanom dışı deri kanserlerine ilişkin epidemiyolojik verileri ortaya koyan ilk araştırmadır ve elde edilen bulgular hem ulusal hem de uluslararası literatürle genel olarak uyumludur.

Anahtar Kelimeler: Bazal hücreli karsinom, Bazoskuamöz karsinom, Epidemiyoloji, Non-melanom deri kanseri, Skuamöz hücreli karsinom

1. Introduction

Non-melanoma skin cancers are keratinocyte-derived malignant tumors that are the most common malignancies among Caucasians and whose incidence is progressively increasing worldwide (Lomas et al., 2012; Rogers et al., 2015). Non-melanoma skin cancers mainly consist of basal cell carcinoma (BCC) and squamous cell carcinoma (SCC), and the most common type of skin cancer is BCC, which accounts for approximately 80% of all non-melanoma skin cancer cases (Gandhi & Kampp, 2015). Ultraviolet radiation is the primary risk factor for non-melanoma skin cancers through mutations that cause direct DNA damage; intermittent intense sun exposure associated with sunburn is particularly related to the development of BCC, whereas cumulative exposure is associated with the development of both BCC and SCC (Mona & Kurban, 2004; Harrison & Bergfeld, 2009). In addition, age, skin type (particularly Fitzpatrick type I-II), genetic diseases (such as albinism, Gorlin syndrome, xeroderma pigmentosum, etc.), environmental factors (such as construction work, agricultural work, etc.), immunosuppression, medications, chronic inflammation and irritation, premalignant skin lesions, and ionizing radiation constitute other risk factors (Baş et al., 2020; Slavinsky et al., 2024). While BCC is generally a tumor characterized by a slow growth pattern and local invasion, SCC may exhibit more aggressive behavior and demonstrate both local invasion and metastatic potential. The cancer-specific mortality rates for BCC and SCC are 1.15% and 2.17%, respectively, and they are cancers with relatively low mortality rates (Barton et al., 2017).

Since there are no previously published data on non-melanoma skin cancers in the Amasya region in the literature, this retrospective analysis aimed to contribute the clinical and epidemiological data of non-melanoma skin cancers in the region to the literature and to increase sun protection measures.

2. Material and Methods

2.1. Ethical Approval

Prior to the initiation of the study, written approval was obtained from the Amasya University Non-Interventional Clinical Research Ethics Committee (Date: 12/12/2025, Decision No: 2025/231).

2.2. Study Design and Study Population

This study was retrospective, observational, and cross-sectional in nature. Between 21 March 2024 and 15 November 2025, data were collected from patients aged over 18 years who were clinically and pathologically diagnosed with non-melanoma skin cancer (basal cell carcinoma, squamous cell carcinoma, or basosquamous carcinoma) and who presented to the Dermatology Outpatient Clinic, in accordance with the inclusion criteria.

Recorded variables included age, sex, date of admission, lesion type and clinical characteristics, number of lesions, lesion localization, mean lesion duration, presence of immunosuppression, and history of previous non-melanoma skin cancer.

2.3. Data Collection

The patients were screened from patient records between 21.03.2024 and 15.11.2025 using the “International Classification of Diseases, 10th Revision (ICD-10)” diagnostic code ‘C44.9’.

2.4. Statistical Analysis

Statistical analysis was performed in a descriptive manner using SPSS version 26 and Microsoft Excel

3. Results

A total of 70 patients were included in the study. Of the patients, 60% were male (n = 42) and 40% were female (n = 28).

The ages of the 70 patients included in the study ranged from 43 to 93 years, and the mean age was calculated as approximately 72.8 ± 10.6 years. The most frequently recorded age among the cases was 85 years, representing 7.1% of the total sample. The vast majority of the participants consisted of individuals aged 60 years and older (88.6%).

Most of the patients were in the 70–79 age group, accounting for 34.3% of the total sample. This was followed by the 60–69 age group (27.1%) and the 80–89 age group (21.4%) (Table 1).

An evaluation of the distribution of non-melanoma skin cancer types among the 70 patients demonstrated that the majority of the cases were diagnosed with BCC (n = 49; 70.0%). The rate of SCC was 27.1% (n = 19), ranking second. A diagnosis of BSC was detected in only 2 patients (2.9%) (Figure 1).

Table 1. Age group distribution

Age group (years)	n	%
40-49	3	4.3
50-59	7	10.0
60-69	19	27.1
70-79	24	34.3
80-89	15	21.4
≥ 90	2	2.9

n: number of the patients

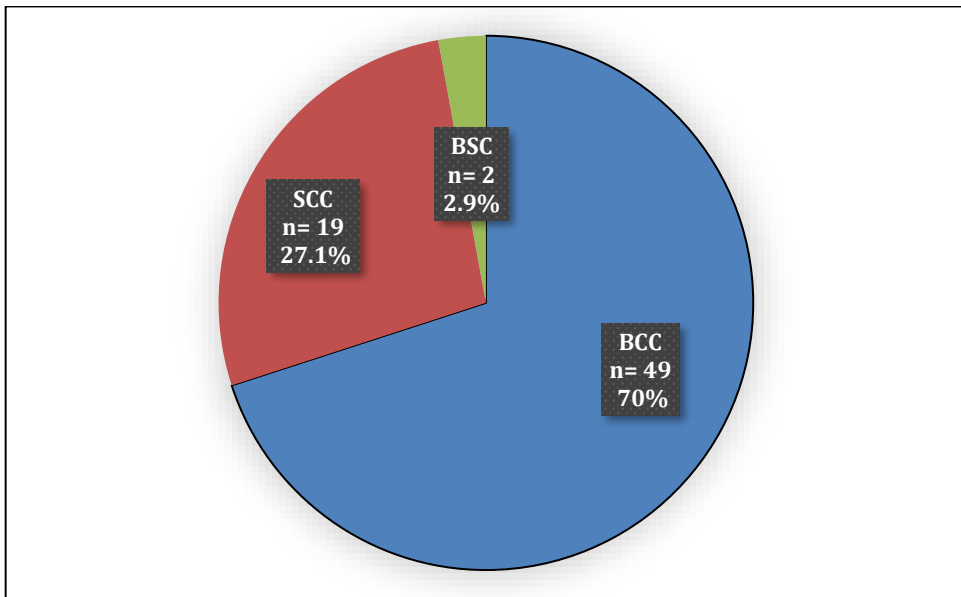


Figure 1. Tumor type distribution among the patients

*BCC: basal cell carcinoma; SCC: squamous cell carcinoma; BSC: basosquamous carcinoma; n: number of patients

Among the BCC cases, 53.1% were male (n = 26) and 46.9% were female (n = 23). Among the SCC cases, 84.2% of the patients were male (n = 16), whereas only 15.8% were female (n = 3). In addition, both BSC cases consisted of female patients (n = 2) (Table 2). The mean age of patients with BCC was 72.6 ± 12.1 years (43-93 years), whereas the mean age of patients with SCC was 69.3 ± 10.5 years (51-86 years). The ages of the two patients diagnosed with BSC were 85 and 93 years, and the mean age was calculated as 89 years.

The clinical subtypes of BCC were evaluated, and the most common form was determined to be the noduloulcerative type (n = 20; 28.6%). This was followed by the nodular type (n = 15; 21.4%) and the pigmented nodular type (n = 8; 11.4%). The pigmented noduloulcerative type (n = 3; 4.3%) and the superficial type (n = 3; 4.3%) were observed at lower rates (Table 3).

Table 2. Cancer type and gender

Cancer type	Male	Female	Total
BCC	26	23	49
SCC	16	3	19
BSC	0	2	2

*BCC: basal cell carcinoma, SCC: squamous cell carcinoma, BSC: basosquamous cell carcinoma

Table 3. BCC clinical subtypes

Subtype	n	%
Noduloulcerative	20	28.6
Nodular	15	21.4
Pigmented nodular	8	11.4
Pigmented noduloulcerative	3	4.3
Superficial	3	4.3

*n: number of the lesions, BCC: basal cell carcinoma

An evaluation of SCC cases showed that nodular types constituted the most common subtype group (n = 17; 89.5%). Plaque types were detected at lower rates (n = 2; 10.5%) (Table 4). In the subgroup analysis of nodular-type SCC cases, hyperkeratotic

and eroded/ulcerative nodular subtypes were observed with equal frequency (each n = 7; 41.2%). The classic nodular type was observed less frequently (n = 3; 17.6%).

Table 4. SCC clinical subtypes

Subtype	n	%
Nodular	17	89.5
Plaque	2	10.5

*n: number of the lesions, SCC: squamous cell carcinoma

An evaluation of plaque-type SCC cases revealed that all cases exhibited eroded/ulcerative plaque morphology (n = 2; 100%).

In the evaluation of BSC cases, both cases were found to have nodular morphology, and one of these demonstrated ulcerative features (each n = 1; 50.0%) (Table 5).

Table 5. BSC clinical subtypes

Subtype	n	%
Nodular	1	50.0
Ulcerated nodular	1	50.0

*n: number of the lesions, BSC: basosquamous cell carcinoma

With respect to the number of lesions, solitary lesions were detected in the vast majority of patients (n = 66; 94.3%), whereas multiple lesions were detected in 4 patients (n = 4; 5.7%).

Regarding the major localizations of the lesions, the most common site was the head-neck region (90.0%; n = 63). This was followed by the extremities (5.7%; n = 4) and the trunk (4.3%; n = 3) (Figure 2).

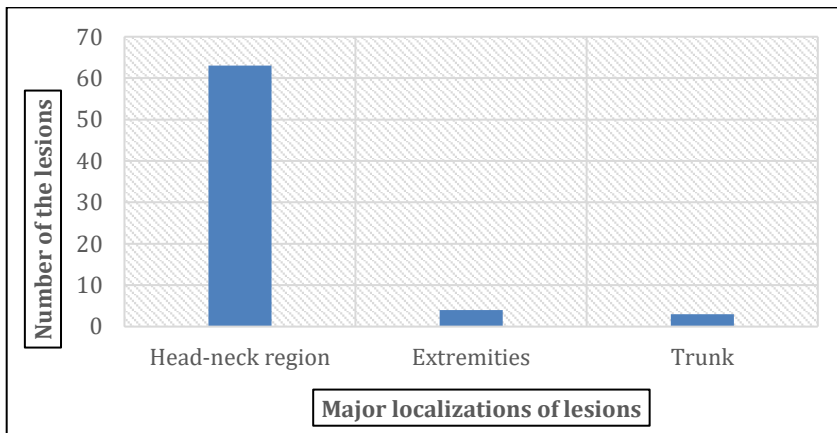


Figure 2. Major localizations of lesions

A detailed evaluation of all lesion localizations demonstrated that the most frequent involvement was in the nasal region (n = 16; 22.9%). This was followed by the cheek (n = 10; 14.3%), periorbital region (n = 9; 12.9%), zygoma (n = 7; 10.0%), lip (n = 6; 8.6%), forehead (n = 5; 7.1%), and upper

extremity (n = 5; 7.1%). Lower frequencies were observed in the temporal region (n = 4; 5.7%), neck (n = 2; 2.9%), back (n = 2; 2.9%), and scalp (n = 2; 2.9%), whereas the ear (n = 1; 1.4%) and the nasolabial region (n = 1; 1.4%) were the rarest sites of involvement (Figure 3).

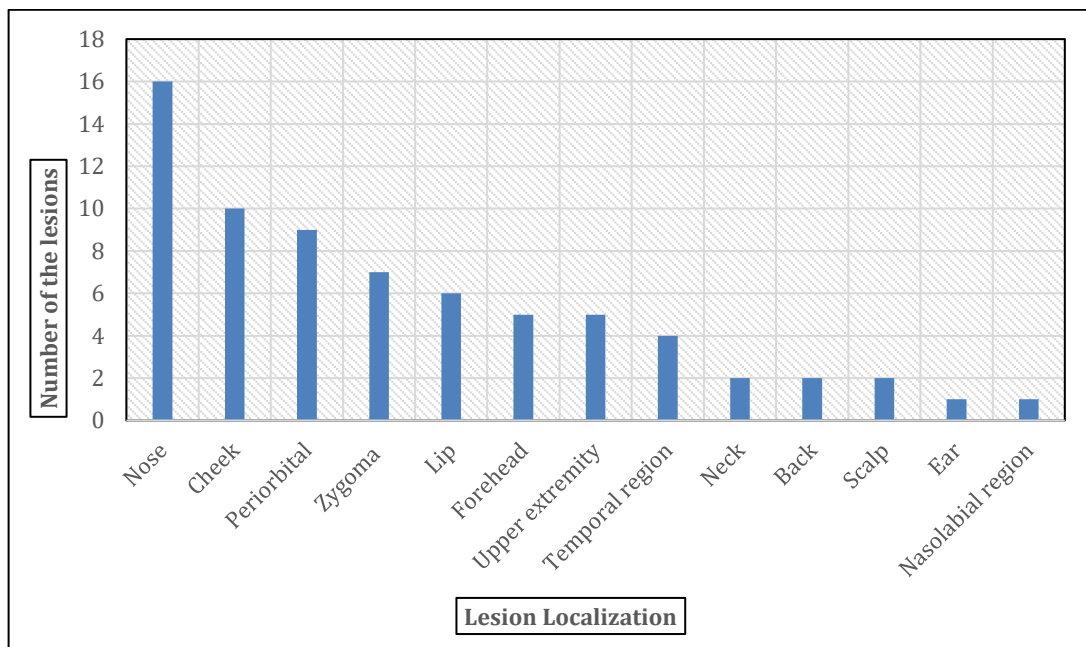


Figure 3. Distribution of detailed lesion localizations in patients

According to the medical history reported by the patients, the duration of lesion development ranged from 1 to 48 months. The mean duration was 9 months, and the median value was 6 months.

Among the 70 patients included in the study, 97.1% (n = 68) did not have immunosuppression, whereas immunosuppression was present in only 2.9% (n = 2).

Of the two patients with immunosuppression, one was receiving systemic immunosuppressive therapy due to liver transplantation, and the other due to kidney transplantation. The patient with a history of liver transplantation had one pigmented nodular-type BCC on the lip philtrum, whereas the patient with a history of kidney transplantation had a total of two pigmented nodular-type BCC lesions in the temporal and back regions. A history of previously diagnosed skin cancer was present in 7 of the 70 patients (10.0%), whereas no such history was detected in 63 patients (90.0%).

Among the patients with a history of previously diagnosed skin cancer, the majority consisted of those with a history of BCC (71.4%; n = 5), one of whom was evaluated as a recurrent case. In

addition, a history of SCC was detected in one patient (14.3%; n = 1), and a history of sebaceous carcinoma was detected in another patient (14.3%; n = 1).

4. Discussion

Non-melanoma skin cancers originating from keratinocytes constitute the most common group of malignancies among Caucasians, and their incidence continues to increase steadily on a global scale (Lomas et al., 2012; Rogers et al., 2015). The mean age of the 70 patients included in the present study was approximately 72.8 ± 10.6 years. The mean age of patients with BCC was 72.6 ± 12.1 years (43–93 years), the mean age of patients with SCC was 69.3 ± 10.5 years (51–86 years), and the mean age of the two patients diagnosed with BSC was 89 years. Non-melanoma skin cancers are more frequently observed in advanced age (Baş et al., 2020). In the study conducted by Lukowiak et al., the mean age was reported as 69.82 years; in the study by Ülgen Altay et al. conducted in our country, the mean age was 65.62 ± 12.87 years; in the study by Gürsel Ürün et al., it was 67.13 ± 12.58 years; and in the study by

Baş et al., 95% of the cases were over 50 years of age and the mean age was found to be 67 ± 11 years (Lukowiak et al., 2020; Ülgen Altay et al., 2021; Ürün et al., 2023; Baş et al., 2014). The data of the present study, in agreement with the national and international literature, support that the frequency of non-melanoma skin cancers increases with age. Cumulative UV radiation exposure is considered to be the main reason for this condition.

Of the 70 patients constituting the study population, 60% were male ($n = 42$) and 40% were female ($n = 28$). Of the BCC cases, 53.1% were male ($n = 26$) and 46.9% were female ($n = 23$). In SCC cases, the male ratio was markedly higher, with 84.2% of the patients being male ($n = 16$) and only 15.8% being female ($n = 3$). In studies conducted in our country, the male patient ratio was reported as 60% by Baş et al., 58.02% by Ülgen Altay et al., 62.3% by Hayran et al., and 56.1% by Kaya et al. (Ülgen Altay et al., 2021; Baş et al., 2014; Hayran et al., 2020; Kaya et al., 2025). In a large cohort study conducted in the United Kingdom, the male/female ratio was found to be 1.2/1 for BCC and 1.7/1 for SCC (Venables et al., 2019). In the study by Katkat Çelik et al., the male patient ratio was reported as 54.5% in BCC and 67.8% in SCC (Katkat Çelik et al., 2023). The data of the present study are consistent with national and international literature findings, and male predominance is remarkable in both BCC and SCC cases. The markedly higher male predominance observed in SCC cases in the present study was attributed to occupational factors (such as agriculture and construction) leading to prolonged outdoor working among men in our region, and to lower sun exposure among women due to clothing habits. These findings emphasize the importance of cumulative UV radiation exposure in the development of SCC.

In the present study, 49 patients (70.0%) were diagnosed with basal cell carcinoma (BCC), 19 patients (27.1%) with squamous cell carcinoma (SCC), and 2 patients (2.9%) with BSC. The BCC/SCC ratio was determined to be 2.57. In the literature, the BCC/SCC ratio was reported as 2 in the study by Muzic et al., 2 in the study by Leiter et al., 2.5 in the study by Baş et al., and 3.01 in the study by Ülgen Altay et al. (Baş et al., 2020; Ülgen Altay et al., 2021; Muzic et al., 2017; Leiter & Garbe, 2008). While Baş et al. reported 66.2% BCC and 31.3% SCC, Emiroğlu et al. reported 73.6% BCC and 26.4% SCC (Baş et al., 2014; Emiroğlu & Cengiz, 2015). The findings of the present study support that BCC constitutes the majority of non-melanoma skin cancers, in agreement with the literature. Factors such as geographical region, sun exposure, skin type, age, and sociocultural structure may lead to regional differences. The evaluation of BCC clinical subtypes demonstrated that the most frequently observed

forms were noduloulcerative, nodular, and pigmented nodular morphologies. The findings of the present study support the literature in that the most common BCC subtype is the noduloulcerative form. When all nodular morphologies with and without ulceration were evaluated together, the most frequently observed type was the nodular morphology. Noduloulcerative lesions may be described by patients as non-healing wounds or acne-like lesions, which may lead to more frequent outpatient visits. Therefore, noduloulcerative BCC should be kept in mind in elderly individuals presenting with such lesions.

The evaluation of SCC cases revealed that nodular types constituted the most common subtype group, and hyperkeratotic and eroded/ulcerative nodular subtypes were observed at equal frequencies. In the literature, SCC has been reported to present with nodular, papillomatous, exophytic masses accompanied by central ulceration. In long-term sun-exposed individuals, eroded or ulcerated elevated lesions should always raise suspicion for SCC, and biopsy should be performed. A limitation of the present study is the lack of histopathological differentiation grading of ulcerated and hyperkeratotic forms.

In the evaluation of BSC cases, nodular and noduloulcerative forms were observed in accordance with the literature. BSC generally presents with non-specific clinical features and is difficult to differentiate clinically from other keratinocyte-derived tumors.

With respect to lesion number, solitary lesions were detected in the vast majority of patients, consistent with the existing literature. The head-neck region was identified as the most common localization of lesions, followed by the extremities and the trunk. The higher frequency of non-melanoma skin cancers in the head-neck region is primarily attributed to increased ultraviolet radiation exposure.

Detailed localization analysis demonstrated that the nasal region was the most common site of involvement, followed by the cheek and the periorbital region. These findings are consistent with previous reports evaluating head-neck non-melanoma skin cancers.

The reported duration of lesion development ranged from 1 to 48 months, with a mean duration of 9 months and a median of 6 months. The prolonged interval between lesion onset and hospital admission may be related to low malignancy perception, attempts at treatment with topical agents, and negative bias against biopsy.

Immunosuppression was present in only two patients, both of whom had a history of organ transplantation. Non-melanoma skin cancer is increasingly common among immunosuppressed

individuals. Systemic immunosuppressive therapies significantly increase the risk of BCC and SCC in transplant recipients. Preventive measures such as sun protection, regular dermatological examinations, and early treatment of precancerous lesions are of critical importance in these patients. A history of previously diagnosed skin cancer was present in seven patients, most commonly BCC. Only one case was evaluated as recurrent. This rate is lower than that reported in the literature. However, the lack of long-term follow-up data constitutes an important limitation of the present study with regard to secondary tumor risk.

5. Conclusion

Non-melanoma skin cancers are malignant tumors with a steadily increasing incidence worldwide. The present study is the first to examine the epidemiological data of skin cancers in the Amasya region. The findings of the study are generally consistent with both national studies conducted in our country and the international literature. In the Amasya region, the high prevalence of agricultural activities leads to chronic ultraviolet exposure, thereby increasing the tendency toward skin cancer development. Therefore, the enhancement of sun protection measures and the improvement of skin cancer awareness are of great importance.

The results of the present study reflect the experience of a single physician and a single center over a 1.5-year period. In order to obtain more comprehensive and generalizable results, multicenter studies should be conducted, data contributions from surgical specialties should be ensured to increase patient numbers, and data obtained from relevant disciplines should be evaluated in an integrated manner. In this context, there is a need for large-scale epidemiological studies with broader sample sizes.

Author Contributions

Hüseyin Emre Korkmaz contributed to the conception and design of the study, data collection, analysis and interpretation of the data, drafting and critical revision of the manuscript, and approved the final version of the manuscript.

Conflicts of interest

The author declares no conflict of interest.

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