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ORIGINAL ARTICLE

Pathology results and malignancy rates in eyelid mass excisions with benign clinical preliminary diagnosis

Ozgur Cakici, Omer Faruk Yilmaz, Serap Karaca

Department of Ophthalmology, Goztepe Prof. Dr. Suleyman Yalcin City Hospital, Istanbul, Türkiye

Abstract

Purpose: The purpose of the study was to evaluate the pathological outcomes and malignancy rates of eyelid masses that clinically appear benign.

Methods: In this study, the pathology results of 122 patients (49 males, 73 females) who underwent simple excisional mass excision at the district state hospital Hendek/Sakarya between 2016 and 2020 were retrospectively examined. The patients' ages, the localization and number of masses, and histopathological results were recorded. Patients with large, irregularly bordered masses requiring eyelid reconstruction and suspected to be malignant were referred to specialized units without undergoing surgery at the clinic.

Results: Mean age of 122 patients (49 males, 73 females) aged 12–88 was 52.37±18.34 years. A statistically significant relationship was found between age and pathology results (p=0.005). No statistically significant relationship was found between gender and pathology results (p=0.551). In this study, a total of 113 (92.6%) benign tumors were identified, including 21 xanthelasmas, 20 dermal nevi, 17 squamous cell papillomas, 14 seborrheic keratoses, 10 chalazions, 9 fibroepithelial polyps, 6 verrucas, 5 epidermal cysts, 2 eccrine poromas, 8 warts, and 1 capillary hemangioma. In addition, 2 (1.63%) premalignant tumors were detected: One case of dysplasia and one carcinoma in situ. A total of 7 (5.74%) malignant tumors were identified, comprising 5 basal cell carcinomas, 1 keratoacanthoma, and 1 squamous cell carcinoma.

Conclusion: Many eyelid lesions that are clinically assessed as benign and operated on may turn out to be malignant. In our study, it was seen that among the masses that were initially diagnosed as benign and underwent simple excision, premalignant ones were detected in younger age groups, and malignant ones were detected in older age groups. Therefore, any suspicious lesion should be sent for pathological examination.

Keywords: Benign tumor; eyelid; histopathology; malignant tumor.

The eyelids, which consist of various tissues such as skin, mucosa, fibrous tissue, muscle, and glands, are specialized parts of the skin designed to ensure the moistening of the corneas, maintaining their transparency, and keeping their surfaces continuously clean. While mostly benign simple lesions can develop from these different tissues, a smaller number of malignant lesions can also occur.[1] The incidence of skin tumors is increasing worldwide. While 90% of all skin tumors occur in the head and neck region, approximately 5–10% of these are located around the eyelids.[2]

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Correspondence: Serap Karaca, M.D. Department of Ophthalmology, Goztepe Prof. Dr. Suleyman Yalcin City Hospital, Istanbul, Türkiye
E-mail: dr.serap44@gmail.com

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Eyelid tumors represent the most common group of tumors in ophthalmology practice.[3] Although the eyelids represent <1% of the total body surface, periocular malignancies are more common compared to other parts of the body. Due to treatment methods that may involve the removal of the affected eyelid, they can cause significant morbidity. Even though malignant tumors can be recognized by an experienced eye based on their macroscopic appearance and clinical course, histopathological diagnosis is crucial for ensuring the early diagnosis and treatment of these tumors. In this study, the pathology results of simple excisional mass excision performed in the district state hospital with a preliminary diagnosis of benign were retrospectively analyzed.

Materials and Methods

In this study, the pathology results of 122 patients (49 males, 73 females) who underwent simple excisional mass excision at the district state hospital Hendek/Sakarya between 2016 and 2020 were retrospectively examined. The patients' ages, the localization and number of masses, and histopathological results were recorded. Patients with large, irregularly bordered masses requiring eyelid reconstruction and suspected to be malignant were referred to specialized units without undergoing surgery at the clinic.

Cases with incomplete examination records or those who did not attend follow-up appointments regularly were excluded from the study. The patient cohort consisted of individuals seeking simple excisional surgery due to esthetic concerns related to eyelid masses. Macroscopic and histopathological diagnoses were compared, and treatment and follow-up outcomes were evaluated.

Surgical Method

The surgical field was disinfected with a 10% polyvinyl pyrrolidone-iodine solution (Batticon-Adeka, Türkiye). During the surgical procedures, after marking the surgical boundaries with a sterile pen while leaving a safety margin of at least 2 mm around the excised tissue, local infiltrative anesthesia was administered using lidocaine 2 mg/mL combined with 0.125 mg/mL epinephrine (Jetokain). After the mass was excised, the wound edges were approximated and appropriate eyelid repair was performed using a 6/0 polyglactin (Vicryl, Ethicon-Johnson and Johnson, USA) suture. During the post-operative period, an antibiotic ointment (Oxytetracycline + Polymyxin B sulfate 5 mg/10,000 IU) was applied. Skin sutures were also removed between the 7th and 10th post-operative days. Patients were examined at 1 week, 1 month, 2 months, 3 months, 6 months, and 12 months postoperatively. Subsequently, based on the pathological results, patients were scheduled for follow-up examinations every 6 or 12 months. Photographs of cases requiring further evaluation during these follow-ups were taken and archived. Functional and cosmetic satisfactory outcomes were considered as part of the healing process.

Ethics Approval and Consent to Participate

The study participants provided informed consent for the publication of their data. Ethical approval for this study was obtained from the ethics committee of Istanbul Medipol University clinical research on 29.08.2024. Decision number: 813. The study was conducted within the guidelines of the Declaration of Helsinki. Informed consent was obtained from all patients.

Statistical Analysis

Statistical Package for the Social Sciences (SPSS) 20, SPSS Inc., Chicago, USA program was used for the evaluation of the findings obtained in the study and for statistical analysis. After checking the conformity of the groups to normal distribution, One-way Analysis of Variance test was used to determine the relationship between age, tumor size and pathological results. The Chi-square test was used to test categorical data such as gender. P-values lower than 0.05 were considered statistically significant.

Results

Mean age of 122 patients (49 males, 73 females) aged 12 to 88 was 52.37±18.34 years. In this study, there were eight patients under 20 years of age, 20 patients between 21 and 40 years of age, 48 patients between 41 and 60 years of age, and 46 patients over 61 years of age. A statistically significant relationship was found between age and pathology results (p=0.005). No statistically significant relationship was found between gender and pathology results (p=0.551). Premalignant lesions were detected as carcinoma in situ in a 25-year-old woman and well-differentiated squamous dysplasia in a 37-year-old man. All malignant lesions in this study were detected in the group over 61 years of age, that is, in older ages.

In this study, a total of 113 (92.6%) benign tumors were identified, including 21 xanthelasmas, 20 dermal nevi, 17 squamous cell papillomas, 14 seborrheic keratoses, 10 chalazions, 9 fibroepithelial polyps, 6 verrucas, 5 epidermal cysts, 2 eccrine poromas, 8 warts, and 1 capillary hemangioma (Table 1). In addition, 2 (1.63%) premalignant tumors were detected: 1 case of dysplasia and 1 carcinoma in situ (Table 2). A total of 7 (5.74%) malignant tumors

Table 1. Benign pathology results and rates

Pathological results	Origin	Number of patients	Age	Gender
Xanthelasma	Stromal	21	48.5 (±7.7)	4 M 17 F
Dermal nevi	Melanocytic	20	47.8 (±16)	9 M, 11 F
Squamous cell papilloma	Epidermal	17	60.6 (±18.7)	10 M, 7 F
Seborrheic keratosis	Epidermal	14	48.5 (±7.7)	6 M, 8 F
Chalazion	Inflammatory and infectious lesions	10	41.4 (±16.8)	4 M, 6 F
Fibroepithelial polyp	Epidermal	9	52.3 (±16.1)	4 M, 5 F
Warts	Epidermal	8	42.4 (±24.7)	3 M, 5 F
Verruca	Epidermal	6	69.1 (±6.1)	1 M.5 F
Cysts	Adnexal tumors	5	41.1 (±21.1)	2 M, 3 F
Eccrine poroma	Adnexal and cystic tumors	2	86	2 M
Capillary hemangioma	Vascular	1	15	1 F
Total		113/122 (92.6%)	50.3 (±17.7)	45 M, 68 F

Table 2. Premalign pathology results and rates

Pathological results	Origin	Number of patients	Age	Gender
Well differentiated squamous dysplasia	Epidermal	1	37	1 M
Carcinoma *in situ*	Epidermal	1	25	1 F
Total		2/122 (1.63%)		1 M, 1 F

were identified, comprising 5 basal cell carcinomas, 1 keratoacanthoma, and 1 squamous cell carcinoma (SCC) (Table 3 and Fig. 1).

A total of 162 simple eyelid mass excisions were performed on 122 patients, and the mean number of masses was 1.33±2.01. The sizes of the masses ranged from 0.1 to 2.5 cm, with a mean size of 0.7±0.40 cm. No statistically significant relationship was found between tumor size and pathology results (p=0.547).

One mass was removed from 87 patients, two masses from 19 patients, three masses from two patients, four masses from four patients, and five masses from three patients. Right eyelid mass excision was performed in 47 patients, left eyelid mass excision was performed in 40 patients, and bilateral eyelid mass excision was performed in 35 patients. Upper eyelid mass excision was performed in 65 patients, lower eyelid mass excision was performed in 50 patients, and both upper and lower eyelid mass excision were performed in seven patients.

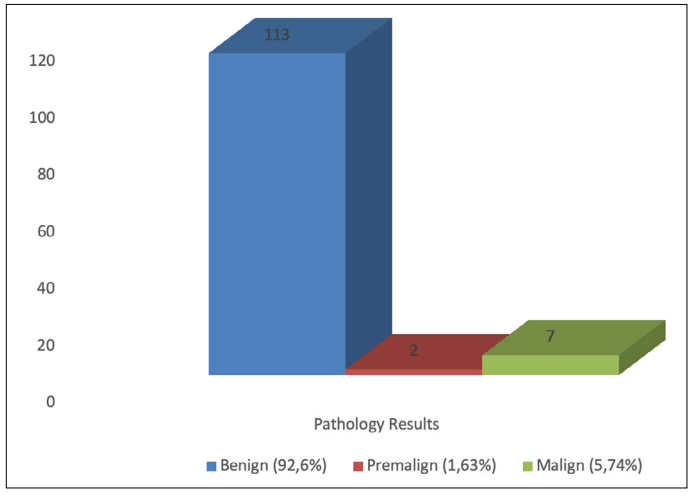

Fig. 1. Pathology results and rates.

Discussion

Eyelid tumors are the most frequently encountered tumors in ophthalmology practice.[4] These tumors can be classified based on their origins (epidermal, adnexal, stromal,

Table 3. Malign pathology results and rates

Pathological results	Origin	Number of patients	Age	Gender
Basal cell carcinoma	Epidermal	5	70.2(±14.3)	2 M, 3 F
Squamous cell carcinoma	Epidermal	1	86	1 F
Keratoacanthoma	Epidermal	1	88	1 M
Total		7/122 (5.74%)		3 M, 4 F

inflammatory, and infectious reactions) and pathological diagnosis (benign, premalignant, malignant). In most studies reported in the literature, benign lesions are found to be more common than malignant ones.[5-10] In this study, in accordance with the literature, it was observed that 113 of the simple mass excisions in 122 people were benign.

Although benign lesions are frequently reported to be more common, different outcomes have been reported for various types of lesions. Ho et al., in their study of 198 patients between 2000 and 2009, reported that benign lesions were the most common, followed by intradermal nevus, squamous papilloma, seborrheic keratosis, epidermoid cyst, and compound nevus.[7] Sendul et al. reported squamous papilloma as the most common lesion, followed by xanthelasma and epidermal cyst.[11] Stokkermans et al. also reported benign lesions such as chalazion, hordeolum, xanthelasma, cysts, nevus formation, acanthosis, seborrheic keratosis, verruca vulgaris, and molluscum contagiosum.[12]

In a retrospective study by Fazlı et al., evaluating 296 lesions in 261 patients between 1997 and 2011, it was found that 68.9% of these lesions were benign, with xanthelasma being the most common finding.[9] Similarly, in this study, xanthelasma was the most frequent lesion, followed by dermal nevus, squamous papilloma, seborrheic keratosis, chalazion, fibroepithelial polyp, wart, epidermal cyst, eccrine poroma, and capillary hemangioma. We attributed this situation to the cosmetic concerns caused by xanthelasma.

In this study, it was observed that the rate of appearance of malignant lesions increased with age. Wu et al. reported in their retrospective study of 1,302 eyelids that malignant lesions were more common in older patients.[8] Similar findings were noted by Xu et al., who examined 2,639 eyelid tumors between 1997 and 2006, and by Huang et al., who evaluated 4,521 eyelid tumors between 1995 and 2015.[5,13] Levinkron et al., in a study between 2015 and 2020 involving 1,423 eyelid lesions, along with Sendul et al. and Asproudis et al., also reported that the mean age at diagnosis was higher in malignant tumors.[11,14,15] Levinkron et al. further noted that the likelihood of malignancy increased in patients aged 76 years and older.[14]

We did not observe any correlation between gender and pathology results in this study. Similarly, Asproudis et al., in their retrospective study of 851 eyelid tumors between 1983 and 2012, found that both genders were equally affected.[15] However, Deprez et al. reported that benign lesions were more common in women, while malignant lesions were more frequent in men.[6] Xu et al. did not find a correlation between gender and basal cell carcinoma (BCC) but reported that SCC was more common in men.[13] We considered that this situation might be related to geographical or racial differences.

Most eyelid tumors originate from epidermal cells. In a retrospective analysis of 911 lesions in 874 patients by Eren et al. between 1997 and 2016, 57.8% of the tumors were epidermal in origin, followed by adnexal, inflammatory, infectious, and stromal origins.[4] Gundogan et al. also reported that epidermal lesions were the most common in a retrospective study involving 1,502 patients.[16] Wu et al. demonstrated that benign lesions predominated, with most of them being epithelial and melanocytic in origin.[8] Similarly, in this study, 63 epidermal, 21 stromal, 20 melanocytic, 10 inflammatory lesions, 7 adnexal, and 1 vascular tumor were detected.

Most benign eyelid masses are excised for diagnostic purposes to differentiate them from potential malignant/premalignant lesions.[17] Premalignant/malignant lesions are important due to their potential to cause cosmetic and functional impairments, as well as significant morbidity. Banerjee et al., in their study of 994 eyelid masses between 1996 and 2016, reported that 11 malignant cases were incorrectly diagnosed as benign.[10] Ozdal et al. also found that 6.4% of 1,060 patients clinically diagnosed with chalazion were misdiagnosed, with sebaceous cell carcinoma being the most frequently confused with chalazion.[18] In this study, 2 of the simple-appearing eyelid masses in 122 individuals were found to be premalignant and 7 were malignant. Therefore, incisional or excisional biopsy should be performed in patients with suspicious eyelid tumors (Fig. 2).

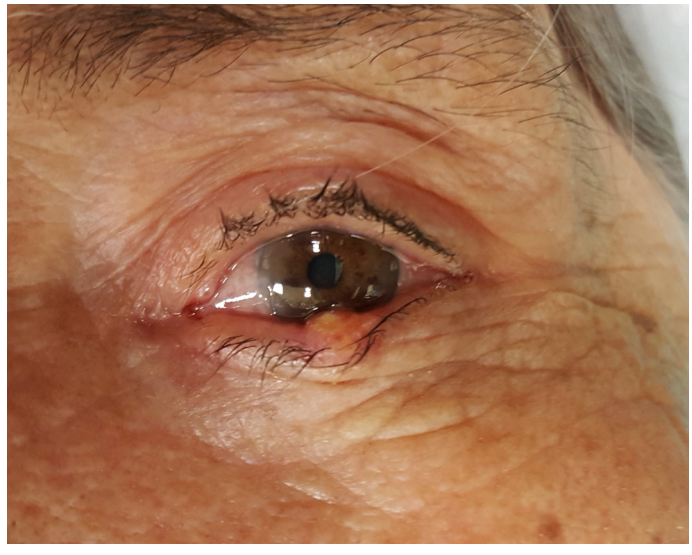

Fig. 2. Squamous cell carcinoma that can be confused with chalazion.

The incidence of malignant lesions was reported as 5% by Huang et al. and 31.1% by Fazıl et al. BCC was found to be the most common malignant lesion, followed by SCC and sebaceous gland carcinoma.[5,9] Gundoğan et al. reported that 1.5% of 1,502 lesions were malignant and 6% were premalignant.[16] Huang et al. reported a malignancy rate of 5%, while Levinkron et al. reported a 15% rate of premalignant and malignant lesions.[5,14] Asproudis et al. reported that 41.2% of 851 eyelid tumors were malignant, with BCC being the most common (86%), followed by SCC (7%) and basosquamous cell carcinoma (7%).[15] In this study, consistent with the literature, the most common malignant lesion was BCC.

However, studies indicating a higher incidence of malignant cases also exist. Bagheri et al. reported that 100 of 182 patients between 2000 and 2010 had malignant lesions, which were more common than benign cases. BCC was the most common malignant lesion, followed by SCC and sebaceous gland carcinoma.[19] We attribute our low rate to referring patients with suspicion of malignancy to advanced, specialized centers.

This study has several limitations. Some patients did not consent to surgery. However, due to the cosmetic concerns associated with xanthelasma, patients were more willing to undergo surgery, which may explain the high rate of xanthelasma. In addition, the small number of patients in this study indicates that our findings may not be representative of the broader population, highlighting the need for further research.

Conclusion

In this study, xanthelasma was the most commonly observed benign lesion, while BCC was the most common malignant lesion. In our study, it was seen that among the masses that were initially diagnosed as benign and underwent simple excision, premalignant ones were detected in younger age groups, and malignant ones were detected in older age groups. Many eyelid lesions that are clinically assessed as benign and operated on may turn out to be malignant. Therefore, any suspicious lesion should be sent for pathological examination.

Ethics Committee Approval: This study was approved by Medipol University Ethics Committee (date: 29.08.2024, number: E-10840098-202.3.02-5331).

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