Histopathological spectrum of external ocular lesions

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Abstract

Aim: The aim of this study was to examine the materials of the patients who received biopsy for mass in the anatomical regions (medial, lateral, inferior, superior, eyebrow, and canthus) next to the eyelid and conjunctiva. Material and Methods: The frequency, clinical and histopathologic characteristics of these materials were determined. The data on 258 lesions in and around the eyes of 233 patients were screened. Results: A total of 107 (46%) of the patients were male and 126 (54%) were female. The age range of the patients was 11-89 and the average age was 49. A total of 227 of 258 lesions (88%) were benign, 23 (8.9%) were malignant, 8 were (3,1%) premalignant (6 actinic keratoses, 1 keratoacanthoma, 1 conjunctival IN). A total of 19 of the malign lesions were basal cell carcinoma (BCC), 3 were squamous cell carcinoma (SCC), and 1 was Basosquamous carcinoma (BSC). Among the benign lesions, the most commonly-made histopathologic diagnoses were intradermal nevus (n:46, 20.2%), epidermal cyst (n:31, 13.7%), fibroepithelial polyp (n:28, 12.3%), squamous papilloma (n:25, 11.0%), seborrheic keratosis (n:21, 9.3%), xanthelasma (n:20, 8.8%), and verruca vulgaris (n:20, 8.8%). Intradermal nevus and xanthelasma were significantly more in women ($p<0.05$). In men, on the other hand, epidermal cyst and fibroepithelial polyp were significantly higher. Discussion: Although external masses in and around the eye mostly appear before us as large benign lesions, they must be confirmed with clinical imaging and histopathologic examination. Due to esthetic concerns and small size of the lesions, they may lead to difficulties in terms of surgical management, and may also affect visual function negatively.

Keywords

Ocular; Lesion; Eyelid; Histopathology; Eye

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Introduction

Although the eye and its surroundings consist of skin, mucosa and stromal support tissue, and the lesions in this area stem from these tissues, most of the lesions detected here originate from the epidermis which is similar to the lesions seen in the skin-covered areas of the body [1]. Benign or malign tumors are seen in this area due to its exposure to external factors like ultraviolet rays. In anatomical terms, the eyelids are bordered by the eyebrow on the upper side and the cheek on the lower side. When the literature is reviewed it is seen that only the patient series consisting of the lid and conjunctival masses whose clinical diagnoses are considered as bases were selected in previous studies. In the present study, the purpose was to examine the materials of the patients who received biopsy for mass in the anatomical regions (medial, lateral, inferior, superior, eyebrow, and canthus) next to the eyelid and conjunctiva and to determine the frequency, clinical and histopathologic characteristics of these materials.

Material and Method

The diagnoses of the 258 lesions of 233 patients who underwent histopathologic examination between December 2014 and May 2018 for masses in/around the eyes were reviewed from pathology reports retrospectively. The cases were evaluated in terms of histopathologic diagnoses, ages, gender distributions, localizations of the lesions and recurrence. The SPSS Program was employed for statistical analyses. The Chi-Square test was employed to compare the categorical data that were examined. The significant p-value was determined as <0.05. An approval was received from the local ethics committee (2018-17/144).

Results

The data on 258 lesions in and around the eyes of 233 patients were screened in the study. A total of 107 (46%) of the patients were male and 126 (54%) were female. The age range of the patients was 11-89 and the average age was 49. A total of 227 of 258 lesions (88%) were benign, 23 (8.9%) were malignant, 8 were (3,1%) premalignant (6 actinic keratoses, 1 keratoacanthoma, 1 conjunctival IN) (Table 1). A total of 19 of the malign lesions were basal cell carcinoma (BCC), 3 were squamous cell carcinoma (SCC), and 1 was Basosquamous carcinoma (BSC) (Table 2). Three of the 23 malignant tumors were re-excision materials. In 1 of the patients with BCC diagnosis, the surgical margin (SM) was determined as positive; 2 tumors of 1 patient were also SM positive, and 1 patient had recurrence after 1 year. BSC developed 8 months later in the case that was diagnosed with actinic keratosis who had SM positivity. Aside from these, there were no cases which had malignant transformation or recurrence with re-excision. The mean age of the patients with malignant lesions (68.25) was higher than the patients with benign lesions (48) at a significant level (p<0.05). Among the benign lesions, the most commonly-made histopathologic diagnoses were intradermal nevus (n:46, 20.2%), epidermal cyst (n:31,13.7%), fibroepithelial polyp (n:28,12.3%), squamous papilloma (n:25, 11.0%), seborrheic keratosis (n:21, 9.3%), xanthelasma (n:20, 8.8%), and verruca vulgaris (n:20, 8.8%). A total of 30 of the intradermal nevi (67.4%) were located at the lid. According to the localization- frequency of the masses, a total of 188 of the masses were excised from eyelids (72.9%), 49 lesions (19%) from the surrounding area of the eye, 14 were excised from the canthus (5.4%), 6 were excised from the conjunctiva (2.3%), and 1 (0.4%) from the eyebrows, respectively. In the conjunctival area, 6 lesions (2 compound nevus, 2 pterygium, 1 conjunctival hypermelanosis, 1 conjunctival IN) were detected, and malignity was not detected in any of them. In women, the most common lesion was the intradermal nevus (n:34); however, in men, the most common diagnosis was an epidermal cyst (n:22). Intradermal nevus and xanthelasma were significantly more in women (p<0.05). In men, on the other hand, epidermal cyst and fibroepithelial polyp were significantly higher (p<0.05). No significant differences were detected be-

Table 1.

Pathological Diagnosis	n: lesions	%: lesions	Age, mean	Age, range	Male	Female	p
BENIGN LESIONS							
Intradermal nevus	46	20,2	39	19-75	11	34	<0,05
Epidermal cyst	31	13,7	47,2	15-72	22	7	<0,05
Fibroepithelial polyp	28	12,3	49,6	20-69	15	7	<0,05
Squamous papilloma	25	11,0	49,9	16-83	11	11	0,822
Seborrheic keratosis	21	9,3	54	15-80	11	10	0,646
Verruca vulgaris	20	8,8	49,1	11-79	7	13	0,353
Xanthelesma	20	8,8	47	36-60	1	17	<0,05
Basic ductal cyst	3	1,3	55	48-68	1	2	
Calsinosis cutis	3	1,3	15	13-16	3	0	
Pilomatrixoma	3	1,3	27	15-46	2	1	
Trichoepithelioma	3	1,3	42	39-45	0	2	
Inflammation	3	1,3	46,3	25-80	1	2	
Inflammation with foreign body giant cell formation	3	1,3	58	28-86	3	0	
Compound nevus	2	0,9	45	38-52	0	2	
Pterygium	2	0,9	45	38-52	2	0	
Pyogenic granuloma	2	0,9	51	36-66	1	1	
AVM	1	0,4	32	32	0	1	
Dermoid cyst	1	0,4	12	12	1	0	
Fibrous papule	1	0,4	59	59	0	1	
Hyperkeratotic papilloma	1	0,4	70	70	0	1	
Chondroid syringoma	1	0,4	28	28	1	0	
Conjunktival hypermelanosis	1	0,4	48	48	1	0	
Cornu cutaneum	1	0,4	63	63	1	0	
Melanocytic nevus	1	0,4	67	67	0	1	
Nevus comedonicus	1	0,4	67	67	1	0	
Postinflammatory hyperpigmentation	1	0,4	43	43	0	1	
Syringoma	1	0,4	64	64	0	1	
Trichilemmal cyst	1	0,4	58	58	1	0	
Total	227	100,0	48	11-86	97	115	
PREMALIGNANT LESIONS							
Actinic keratosis	6	75,0	70,1	53-85	2	4	
Keratoacanthoma	1	12,5	39	39	0	1	
Conjunctival intraepithelial neoplasia	1	12,5	76	76	1	0	
Total	8	100,0	67	39-85	3	5	

Table 2.

Pathological Diagnosis	n: lesions	%: lesions	Age, mean	Age, range	Male	Female	p
Basal cell carcinoma	19	82,6	68,7	42-86	9	7	0,453
Squamous cell carcinoma	3	13	62,6	38-89	1	2	
Basosquamous cell carcinoma	1	4,4	77	77	0	1	
Total	23	100	68,25	38-89	10	10	

tween males and females in terms of the diagnosis of verruca vulgaris, squamous papilloma, and seborrheic keratosis.

A total of 8 malignant tumors were observed in/around the left eye, 7 were observed in/around the right eye, and no directions were specified in 5 cases. Eight of them were localized in the lid, 6 were in the canthus, and 6 were around the eye.

Discussion

The tumors in this area may cause inconsistencies between the lid and ocular surface and disrupt the visual function. In histopathological terms, the differentiation between benign and malign is important in terms of surgical management like the determination of excisional boundaries [2]. However, they may cause difficulties in microscopic diagnosis because of the small size of the biopsy samples and their specific structural contents. We were able to compare our series with studies in the literature that included a lid and/or conjunctiva masses because most of the masses around the eye consisted of lid masses. In our study, 72% of the masses consisted of lid lesions.

The rate of the benign lesions that were determined was 88% among all lesions and 54% of the patients were women. In various studies, the rates of benign lesions were reported as 86.2%, 73%, and 69.1% [1,3,4]. The results of our study were slightly higher than the values reported in the literature for the frequency of benign lesions. This may be due to the series studied here consisting of patients who referred to the hospitals directly and the patient population which is relatively easily treated. The most common causes of the benign masses were intradermal nevus, epidermal cyst, fibroepithelial polyp, squamous papilloma, seborrheic keratosis, verruca vulgaris, and xanthelasma, respectively. These accounted for 84% (n: 191) of the benign lesions, and 56% of the patients were women. In most studies investigating benign lid lesions, the most frequently observed lesions were squamous papilloma, seborrheic keratoses, nevi, cysts, fibroepithelial polyps, and xanthelasma [5-8]. The distribution of the histopathologic diagnoses of our cases is similar to those reported in the literature.

Benign lesions were below 60 years of age in average except for 1 case of hyperkeratotic papilloma, cornu cutaneum, melanocytic nevus, nevus comedonicus, and syringoma. The xanthelasma, verruca vulgaris, and intradermal nevus were the lesions detected frequently in women at a rate of 94%, 75%, and 65%, respectively.

There were 12 patients (mean age: 14.7, age range: 11-17) in the childhood group. The frequency distribution was as follows: calcinosis cutis (3), epidermal cyst (3), verruca vulgaris (2), dermoid cyst (1), seborrheic keratosis (1), pilomatrixoma (1), squamous papilloma (1).

Intradermal nevus is the lesion that occurs as a result of the proliferation of the melanocytes in the dermis. It appears as small, well-bordered, pigmented, macules, papules, and nodules in and around the eye. It is observed in all age groups after 18 years of age and is detected most commonly in the age range of 20-50 (n:35). The average age was 39 (19-75). It was more frequent approximately in 3 of 4 patients and in women. The 20.2% detection rate was in line with the literature [2,9].

Epidermoid and dermoid cysts are the most common cystic lesions in and around the orbita in pediatric age group. The most frequently observed area is the upper lid and the upper-external edge of the orbita. In our study, there were 32 lesions and 30 patients with 31 epidermal and 1 dermoid cysts. It was the most frequent lesion in males rate of 77%. The most frequently detected localization was determined to be the upper lid which is similar to the literature [2].

The ages of the patients who had fibroepithelial polyps ranged between 20 and 69 years (the mean age was 49.6 years); and 28 lesions were detected in a total of 22 patients as 15 males (68.2%) and 7 females (31.8%). It was the 2nd most frequent lesion in men.

In adults, squamous papilloma is the most commonly detected benign tumor in the eyelids. In the present study of ours, there were 25 squamous papilloma diagnoses belonging to 22 cases, and it was the 4th most frequent mass, which is similar to the study conducted by Chi et al [4]. Except for two of the lesions, all were localized in the lid.

Seborrheic keratosis is a slow-growing benign lesion in the face with superficial localization and is seen more in advanced age group. There were 21 patients who had seborrheic keratosis in our study and it was the 5th in terms of frequency. A total of 81% of them were localized in the lids, and the upper and lower lid localizations were seen equally, which is similar to the study of Karabulut et al. [8]. In the literature, the frequency of prevalence was distributed between 7.8% and 21%, which was 9.3 in our study [2,9-11].

Xanthelasma is a lesion consisting of foamy histiocytes that have lipid-loaded cytoplasm and especially clusters around the veins in the dermis. The cases diagnosed with xanthelasma were detected between 40-50 years of age with the most frequency, and 17 cases (94.4%) were women and only 1 of them was male. A total of 70% of the 20 lesions were detected in the upper lid, 15% were detected in the lower lid, and in 15% of them no directions were specified. The frequency in females being detected as high was in line with the literature, but the rates were determined to be higher compared to the literature [8,11].

Although verruca vulgaris appears in any of the periocular areas, it appears typically in the edges of the eyelid. In its microscopy, acanthosis because of HPV infection and marked papillomatosis, apical parakeratosis, koilocytosis, and keratohyalin granules are observed. Twenty patients in whom viral cytopathic effects were seen histopathologically were diagnosed with this and those in whom these were not seen were named as squamous papilloma. Aside from 2 (superior and inferior), all others had lid localizations.

BCC and SCC prevalence are increasing in areas that are affected by sunlight excessively. BCC is among the most frequently seen malignant lesions. In the present study of ours, a total of

23 malignant masses belonging to 20 patients were detected (19 were BCC, 3 were SCC, and 1 was BSC). BCC was seen in 80% of the patients who had malignant masses. When all the lesions were considered, the rate of the malignant masses that were examined to all masses was 8.9%; and the rate of the patients was 8.5%. The re-excision was carried out because of the 2 times SM positivity in1 patient, and because of SM positivity in 1 patient. A prior biopsy of 1 patient diagnosed with medial canthus BSC taken from the same localization, was reported as being actinic keratosis. Although the number of biopsies on conjunctiva was low in our study, we did not have any malignant cases. BCC was detected at the age of 68.7 in average in 16 patients, SCC was detected at the age of 62.6 in average in 3 patients, and BSC was detected at the age of 77 in 1 patient. The BCC, which is the most common malignant eyelid tumor in studies conducted so far, was reported at a rate of 61.4-91.3% [2,10,12,13]. SCC constituted 2-48.1% of the malignant lid tumors and less than 1-2% of all lid lesions [2,14]. SCC was detected in 3 cases that were aged 89, 61, and 38; and tumor was located in the right eye inferior, medial canthus and left eyelid. A total of 15% (3/20) of the patients who had malignancy had SCC.

When the premalignant lesions were evaluated, it was determined that actinic keratosis was detected in 6 patients, keratoacanthomas were detected in 1 patient, and conjunctival IN was detected in 1 patient. The risk of actinic keratosis transforming into malignancy was over 20% [2]. A prior biopsy of 1 patient who was diagnosed with BSC taken from the same localization was reported as being actinic keratosis.

Conclusion

Although external masses in and around the eye mostly appear before us as large benign lesions, they must be confirmed with clinical imaging and histopathologic examination. Due to esthetic concerns and the small size of the lesions, not carrying out biopsy may cause that malign diagnoses are neglected; and therefore, they may lead to difficulties in terms of surgical management, and may also affect visual function negatively.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study 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. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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