



ORIGINAL ARTICLE

## Clinicopathological Evaluation of Eyelid and Conjunctival Lesions in Patients of Farshchian Hospital in Hamadan

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### ABSTRACT

**Introduction:** The lesions of the eyelid and conjunctiva are benign and malignant. The ratio of benign lesions is more than the malignant, increases with age, and are easily diagnosed clinically. However, in some cases, the clinical diagnosis of malignant tumors is impossible, necessitating the final diagnosis by histopathological examination. The incidence of benign and malignant tumors differs between countries according to the genetics of the racial population or environmental factors. **Materials and methods:** This cross-sectional descriptive study was conducted on 424 patients with eyelid and conjunctival lesions from the Farshchian Hospital of Hamadan between 2010–2014. The final pathological report, clinical diagnosis, demographic variables including age and gender, site of lesions, and clinical appearance were extracted from medical records. **Results:** The lesions consisted of 159 (37.5%) eyelid and 265 (62.5%) conjunctival lesions. The predominant location was bulbar conjunctiva (35.1%), and the least was external canthus (1.7%). The most frequent lesion based on clinical diagnosis was pterygium (51.7%), and the least frequent was sebaceous glands carcinoma. The most frequent lesion based on histological diagnosis was pterygium (52.5%), and the least frequent was xanthelasma. In this study, the concordance between clinical and histological diagnosis was 90.3% that indicated the physician's accurate diagnosis. **Conclusion:** According to this study, the frequency of eyelid and conjunctival lesion was similar in males and females. The prevalence of lesions in >60-year-olds is more common than that in other age groups. The benign lesions of eyelids and conjunctiva are common than malignant lesions. Despite high clinicopathological concordance, the physician should always consider the rare cases, and the pathological diagnosis must be considered for all specimens.

### INTRODUCTION

The lesions of the eyelid and conjunctiva were benign and malignant. Benign lesions are more than malignant, and the ratio increases with age (1). A majority of the lesions are diagnosed easily in the clinic and removed surgically for cosmetic purposes; however, it is impossible to detect the clinically malignant tumors in some cases, and hence, histopathological evaluation is essential for the final diagnosis (2). Since the prevalence of benign and malignant tumors varies between countries, races, and in different areas and depends on the genetic load of the population, the socioeconomic status, the access to medical care, and awareness of the incidence rate of lesions influence the final decision of the physician.

A study in Japan found that about 30% of the eyelid lesions are malignant. Some benign tumors include nevocellular nevi, seborrheic keratosis, epidermoid cysts, and papilloma. The malignant eyelid tumors involve basal cell

carcinoma, sebaceous gland carcinoma, malignant lymphoma, and metastatic tumor (3). Another study in Switzerland with a large sample reported that 15% of the patients had malignancy (4), while a study in Iran showed that about 44% of patients had benign lesions (5). This distinct difference between the studies can be attributed to differences in genetic and environmental factors.

The present study was conducted to investigate the clinical and pathological findings of benign and malignant lesions of the eyelid and conjunctiva in Iranian population from the northwest region of the country.

### MATERIALS AND METHODS

This descriptive cross-sectional study was carried out on patients with the clinical diagnosis of eyelid and conjunctival lesions and underwent surgery for histopathological diagnosis. The patient cohort was obtained from the

Farshchian Hospital of Hamadan between 2010 to 2014 by census sampling method, and finally, 424 cases were enrolled. The final pathological report, clinical differential diagnosis, demographic variables including age and gender, site of lesions, and clinical appearance were extracted from medical records. The patients with incomplete information in the medical records, especially in the absence of pathological diagnosis and recurrent lesions, were excluded from the study. Finally, the data were analyzed using statistical package for the social sciences (SPSS) v.19 software. Data from descriptive analysis were expressed as percentage and mean, and chi-square test was applied for analytical calculations.

## RESULTS

In this study, a total of 424 patients comprised of 230 (54.2%) males and 194 (45.8%) females. The age of the cohort of the patients was 1–89 (mean age,  $43.41 \pm 20.40$ ) years, including 5.4% in the age group of 0–10 years, 19.1% in the age group of 31–40 years, 14.4% in the age group of 41–50 years, and 24.1% in the age group  $>>60$  years (Table 1).

According to Table 2, there were 159 (37.5%) lesions in the eyelid, 265 (62.5%) were conjunctival lesions, including upper eyelid (19.6%), lower eyelid (14.2%), inner canthus (2.1%), outer canthus (1.7%), bulbar conjunctiva (35.1%), and palpebral conjunctiva (25.5%), and both sites (1.8%).

The diagnosis of lesions based on clinical appearance included chalazion (23.1%), nevus (2.6%), papilloma (2.8%), dermoid cyst (2.6%), pterygium (51.7%), pinguecula (0.5%), adnexal cysts (3.3%), hemangioma (0.2%), basal cell carcinoma (1.4%), squamous cell carcinoma (3.3%), sebaceous

gland carcinoma (0.2%), malignant melanoma (0.5%), and vascular lesions (0.7%).

The diagnosis of lesions based on histopathological findings included chalazion (23.1%), nevus (4.7%), papilloma (2.1%), xanthelasma (0.2%), dermoid cyst (2.4%), pterygium (52.6%), adnexal cysts (4.2%), hemangioma (0.5%), basal cell carcinoma (1.7%), squamous cell carcinoma (2.6%), vascular lesions (0.5%), malignant melanoma (0.5%), and other lesions (5%).

Consequently, 90.3% concordance and 9.7% non-compliance were observed between clinical and histological diagnosis.

## DISCUSSION

The present study was conducted to investigate the clinical and pathological features of various types of the eyelid and conjunctival lesions in the patients undergoing surgery at the Ophthalmology Department of Farshchian Hospital of Hamadan during 2010–2014. Finally, 424 patients were enrolled in this study. The cohort consisted of 54.2% males and 45.8% females. In a study in Switzerland, 52% of the patients were women and the 48% were men with gender distribution similar to the present study (4).

Furthermore, the mean age of all subjects in this study was 43.41 years with a minimum age of 1 year and a maximum age of 89 years. The mean age of male and female patients in North Korea was 42.3 and 29.7 years, respectively (6); the mean age of male patients was approximately same as that in the current study, while that of the female patients was low. The age groups in this study were as follows 5.4% in the age group 1 (0–10 years), 8.7% in the age group 2 (11–20 years), 14.9% in the age group 3 (21–30 years), 19.1% in the age group 4 (31–40 years), 14.4% in the age group 5 (41–50 years), 13.4% in the age group 6 (51–60 years), and 24.1% in the age group 7 (>60 years). Thus, it can be concluded that the number of patients with eyelid and conjunctival lesions is higher in older age groups.

Regarding the site of lesion in this study, 159 (37.5%) were eyelid lesions and 265 (62.5%) were conjunctival lesions, including upper eyelid (19.6%), lower eyelid (14.2%), inner canthus (2.1%), outer canthus (1.7%), bulbar conjunctiva (35.1%), palpebral conjunctiva (25.5%), and both sites (1.8%). The most involved site was bulbar conjunctiva, and the less common site was the outer canthus.

In the study in North Korea, conjunctival involvement was 58.3%, and eyelid involvement was 41.7% (6). Another study in Minnesota reported the highest incidence of tumors in the lower eyelid (48.9%) and inner canthus (27.6%) (7).

**Table 1.** Distribution of benign and malignant eyelid and conjunctival tumors according to sex and age groups

Age Groups (years)	Benign lesions		Malignant lesions		Total Num (%)
	Male	Female	Male	Female	
1-10	12	11	0	0	23 (5.4)
11-20	22	15	0	0	37 (8.7)
21-30	32	30	1	0	63 (14.9)
31-40	43	36	1	1	81 (19.1)
41-50	31	26	2	2	61 (14.4)
51-60	26	26	3	2	57 (13.4)
>60	52	42	5	3	102 (24.1)
Total Num(%)	404 (95.2%)		20 (4.8%)		424 (100)

**Table 2.** Location of the eyelid and conjunctival lesions

Location	Eyelid lesions				Conjunctival lesions		
	Upper eyelid	Lower eyelid	Inner canthus	Outer canthus	Bulbar conjunctiva	Palpebral conjunctiva	Both sites
Num (%)	83 (19.6%)	60 (14.2%)	9 (2.1%)	7 (1.7%)	149 (35.1%)	108 (25.5%)	8 (1.8%)
Total Num (%)	159 (37.5%)				265 (62.5%)		

Based on the comparison of the current study with the previous studies, it can be concluded that the conjunctival lesions requiring surgery are more common than the eyelid lesions; however, no significant difference was observed between the involvement incidence of upper and lower eyelids as well as inner and outer canthus.

In this study, the frequency of eyelid and conjunctival lesions based on clinical diagnosis were as follows: chalazion (23.1%), nevus (2.6%), papilloma (2.8%), dermoid cyst (2.6%), pterygium (51.7%), pinguecula (0.5%), adnexal cysts (3.3%), hemangioma (0.2%), basal cell carcinoma (1.4%), squamous cell carcinoma (3.3%), sebaceous gland carcinoma (0.2%), malignant melanoma (0.5%), and vascular lesions (0.7%). In addition, the most common lesion was pterygium, and the uncommon was hemangioma and sebaceous gland carcinoma.

The frequency of eyelid and conjunctival lesions based on the pathological diagnosis was as follows: chalazion (23.1%), nevus (4.7%), papilloma (2.1%), xanthelasma (0.2%), dermoid cyst (2.4%), pterygium (52.6%), adnexal cysts (4.2%), hemangioma (0.5%), basal cell carcinoma (1.7%), squamous cell carcinoma (2.6%), vascular lesions (0.5%), malignant melanoma (0.5%), and other lesions (5%). In this case, the most common lesion was pterygium, and the least was xanthelasma.

In this study, the benign lesions of the eyelid and conjunctiva were more common than the malignant lesions. In a study by Obata et al., 73% of the eyelid and conjunctival tumors were benign (3). In the study in Switzerland (2007), the benign tumors were reported to be much more common than malignant lesions accounting for 84% of the patients (4). In another study at Siriraj Hospital in Thailand, 71.4% of the eyelid lesions were benign (8). These studies were in line with the current study. Thus, it can be postulated that the benign eyelid and conjunctival lesions are more common than the malignant lesions. In the present study, the most common benign eyelid and conjunctival lesion was pterygium, while the least were chalazion, nevus, and cysts. Obata et al. demonstrated that the most common benign eyelid tumors were nevocellular nevi, seborrheic keratosis, epidermoid cysts, and papilloma, and the most common benign conjunctival tumors were nevocellular nevi and papilloma (3). Furthermore, Beak et al. showed that the common eyelid tumors were intradermal nevus and seborrheic keratosis and the conjunctival tumors were compound nevus and intradermal nevus (6). Another study by Uffer and Deperz demonstrated that the most common benign eyelid tumors were squamous cell papilloma, seborrheic keratosis, melanocyte nevus, hydrocystoma, and xanthelasma (4). Thus, comparing the current study with previous studies regarding the benign tumors led to the conclusion that the prevalence of benign eyelid and conjunctival lesions in this study was different from other studies. This phenomenon might be attributed to regional genetic load, climatic conditions, and lifestyle.

Herein, the most common malignant tumors of the eyelid and conjunctiva were Squamous Cell Carcinoma (SCC), Basal Cell Carcinoma (BCC), and malignant melanoma, respectively. Obata et al. showed that the most common malignant tumors were BCC, sebaceous gland carcinoma, ma-

lignant lymphoma, and metastatic tumors. In addition, the most common malignant tumors of the conjunctiva were malignant lymphoma and SCC (3). Uffer and Deperz illustrated that the most common malignant tumors of the eyelid were BCC, SCC, and sebaceous gland carcinoma (4). Another study by Cook et al. revealed that the most common malignant tumors were BCC, SCC, and malignant melanoma (7). In the study at Siriraj et al. Hospital in Thailand, the most common malignant tumors were reported as sebaceous gland carcinoma, BCC, malignant melanoma, SCC, apocrine adenocarcinoma, and metastatic carcinoma (8). Bagheri et al. demonstrated that melanocytic nevi and BCC were the most frequent benign and malignant lesions (9). Thus, comparing the current study with these previous studies indicated that the prevalence of malignant conjunctival and eyelid lesions based on the pathological diagnosis is similar.

In the present study, the concordance between clinical and pathological diagnosis was reported to be 90.3%, which was statistically significant, indicating a high compliance. Nonetheless, the accuracy of prediction of the physician was 90.3% regarding the clinical diagnosis of eyelid and conjunctival lesions. However, Deperz et al. demonstrated a poor correlation between clinical and histological diagnosis in several tumors (4). Since our study was based on the medical records, the required information of some patients might not be fully documented, and hence, these patients were excluded from the study. Therefore, additional studies regarding the prevalence of ocular tumor regarding the survival rate, recurrence rate, and risk factors including lifestyle are essential.

## CONCLUSION

According to the present study, the frequency of the eyelid and conjunctival lesions did not show a significant difference with respect to gender. The incidence of the eyelid and conjunctival lesions over the age of 60 years was higher than that of the other age groups. In general, the number of patients with the eyelid and conjunctival lesions was high in the older age groups. The incidence pattern of the eyelid and conjunctival lesions did not indicate a significant difference in the site of the lesion as compared to the other studies worldwide; however, the benign eyelid and conjunctival lesions were much more common than malignant lesions in all studies. Furthermore, the types of benign lesions in this study were different from others, which might be attributed to the differences in the incidence pattern of individual, racial, or environmental factors and lifestyle that need to be considered by etiologic evaluation of lesions via large sample size. The incidence and type of malignant lesions of the eyelid and conjunctiva were consistent with other studies. In this study, the concordance between clinical and histological diagnoses was 90.3% that increased the confidence of patient in the diagnosis by the physician and the accuracy of prediction. Despite this high concordance, the physician should always consider the rare cases, such as the occurrence in unusual ages and clinical forms, and the pathological diagnosis must be considered for all specimens.

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**AUTHER CONTRIBUTIONS**

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**CONFLICT OF INTEREST**

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