Original Article

A Descriptive Study of Patterns of Conjunctival Lesions in Jos, Nigeria: A 10-year Retrospective Study

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Abstract

Background: Conjunctival lesions form the bulk of orbito-ocular pathologies and account for significant morbidity and mortality globally. The spectrum ranges from degenerative and inflammatory lesions to neoplasms which can be either benign or malignant. Malignant neoplasms have been shown to be the predominant class of conjunctival lesions in third world nations. **Methods:** this study reviewed all histologically diagnosed conjunctival lesions at the Jos University Teaching Hospital from January 2004 to December 2013. **Results:** Neoplasms were the dominant pathology observed, accounting for 76% of all lesions. Of the neoplasms, 77% were malignant, with squamous cell carcinoma the most frequent malignancy seen. Inflammatory lesions accounted for only 5.2% of all cases seen, while non-neoplastic, non-inflammatory lesions constituted 18.4%. A male predominance was observed for all lesions, while the peak age group for conjunctival pathologies was 30-39years [32.5%]. **Conclusion:** Malignant neoplasms are the commonest type of conjunctival lesions in Jos, North Central Nigeria. This is a reflection of the pattern of late presentation by affected persons at health facilities, as well as the combined effects of prolonged Ultraviolet irradiation and probably, chronic viral infections.

Keywords: Conjunctival lesions, conjunctival neoplasms, pterygium, squamous cell carcinoma

Introduction

The conjunctiva is a thin mucous membrane which covers the anterior aspect of the eyeball and the posterior surface of the eyelids.[1] It serves to protect the cornea and the interior of the eyeball. This is effected via secretion of mucus, antibacterial proteins, electrolytes, and water.[2] It is divided into three portions: (a) tarsal or palpebral, (b) forniceal, and (c) bulbar.[3] Microscopically, it is seen to have a nonkeratinizing squamous epithelium, containing mucin-secreting goblet cells.

Its superficial location exposes it to frequent injurious stimuli and as such is prone to develop various (inflammatory, neoplastic, and degenerative) pathologies much more commonly than other orbito-ocular components. Degenerative lesions such as pterygium and pinguecula could be managed on an outpatient basis, while neoplasms usually require surgical intervention. It is noteworthy that all these lesions require histopathologic confirmation of diagnoses.

Most studies done on orbito-ocular lesions show that conjunctival lesions contribute to the largest proportion. However, there is limited literature on conjunctival lesions as a separate group, especially in Africa.[1] In Egypt, Elshazly stated that there was a relative paucity of publications documenting conjunctiva lesions.[2]

Nonetheless, they contribute significantly to morbidity and in some instances mortality as a 2003 survey in Jos by Mandong *et al*. showed that the eye accounted for 2.0% of malignancies seen at the Jos University Teaching Hospital (JUTH) between 1985 and 2002,[3] while a study done in Benin showed that conjunctival squamous cell carcinoma (SCC) accounted for 18.9% of orbito-ocular tumors.[4] A study by Bekibele in Southwestern Nigeria observed that 73.8% of orbito-ocular tumors were malignant, with SCC being the most common type of malignancy.[5] A study in Kano by Umar *et al*. stated that

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only 20.3% of ophthalmic tumors were benign, with 79.7% being malignant.[6] However, a study in Benin by Akpe *et al*. showed that pterygium was the most common histologic finding in conjunctival biopsies, which were taken to rule out SCC, and a diagnosis of SCC was returned in >50% of these cases.[7] A review of over 2000 cases in Germany observed that the most common conjunctiva lesions were pterygia and nevi.[8] The relatively less prevalence of malignancies in Western nations most likely is a reflection of better patient coverage, as against late presentation of cases in this environment.

SCC accounted for 88% of all conjunctiva malignancies, according to a study carried out in Lagos by Anunobi.[9] Equally, a study by Chinda in Zaria concluded that the most orbito-ocular tumors were malignant and the late presentation was a common feature amid patients.[10] In that study, retinoblastoma and SCC of the conjunctiva were the two most common orbito-ocular tumors observed,[10] while a study in Ibadan stated that conjunctival SCC was the most common orbito-ocular malignancy in adults.[5] Conversely, of 314 conjunctival tumors seen in Valladolid, Spain, 48% were melanocytic, with epithelial tumors being less common. This study equally concluded that pigmented conjunctival tumors mainly affected European patients, while epithelial tumors are more prevalent in countries with larger actinic exposure.[11] In Enugu, Nigeria, Chuka-Okosa *et al*. found that retinoblastoma was the most commonly occurring malignant neoplasm accounting for 25.6%, followed by conjunctival SCC (11%).[12] Rarely, a malignancy may underlie a pterygium-like conjunctival lesion, justifying the need for histological examination of all such lesions.[13]

The purpose of this study was to examine and describe the pattern of surgical pathology specimens from the conjunctiva seen at the histopathology department of JUTH over a span of 10 years (2004–2013) and make recommendations as appropriate. The objectives were to highlight the proportion and distribution of neoplastic and nonneoplastic lesions and highlight the proportion of benign and malignant neoplasms. Other objectives were to ascertain the frequency of SCCs of the conjunctiva and describe the age and sex distribution of the various classes of all the lesions.

Materials and Methods

This was a retrospective descriptive study involving the review of the surgical pathology records at the histopathology department of the JUTH. The JUTH is a tertiary health institution located in Plateau state, North-Central Nigeria. It offers histopathology services to Plateau state, as well as portions of Bauchi, Nasarawa, Benue, Kaduna, and the Federal Capital Territory.

Bio-data comprising age and sex as well as histologic diagnoses for all conjunctival biopsies was obtained from the departmental records. Frequency tables, pie charts, and graphs was used to organize the obtained data.

Results

Over 10 years, 40 conjunctival biopsies were received and processed, constituting approximately 0.1% of all biopsies accessioned at the department during that interval. Fifty-five percent of these biopsies were taken from males and 45% from females. Five percent were from 10 to 19 years, 30% from 20 to 29 years, 32.5% from 30 to 39 years, 10% from 40 to 49 years, and 20% from 50 years and above. This is represented in Figure 1.

Neoplasms were the dominant lesion type and most were malignant in behavior. This is consistent with other studies on orbito-ocular lesions in other parts of the country. They accounted for 76% of all conjunctiva lesions, while inflammatory lesions made up 5.2%. Nonneoplastic, noninflammatory lesions (pterygium, pyogenic granuloma, and cysts) accounted for 18.4% [Figure 2], with degenerative lesions such as pterygium making up 44% of these. Of the neoplasms, 77% were malignant while 23% were benign [Figure 3].

SCC accounted 88% of these malignancies, while Kaposi sarcoma, mucoepidermoid carcinoma, and melanoma accounted for 4% each [Figure 4]. All cases of squamous papilloma were from females and accounted 8.1% of all cases.

For SCC, the male-female ratio of patients was 2:1; the peak prevalence was in the third decade of life, with 81% of cases seen between the ages of 21 and 50 years. The dominant mode of presentation in these patients was a conjunctiva growth, ranging in duration between 2 months and 3 years.

Discussion

The male predominance of cases in this study as well as a paucity of cases before the age of 20 mirrors what was observed in a study in Uganda which postulated that risk of conjunctiva cancer rises with increasing time spent in cultivation and therefore in direct sunlight,[14] males spend more time outdoors and are such exposed to the harmful effects of ultraviolet radiation. In the same vein, the cases of SCC seen in this study were all above the ages of 20 years, with most being between the ages of 21 and 50 years. This bracket is

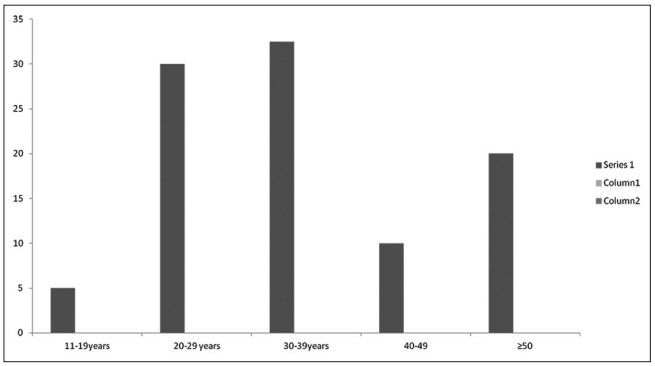

Figure 1: Age distribution of the patients from whom the conjunctival biopsies were taken

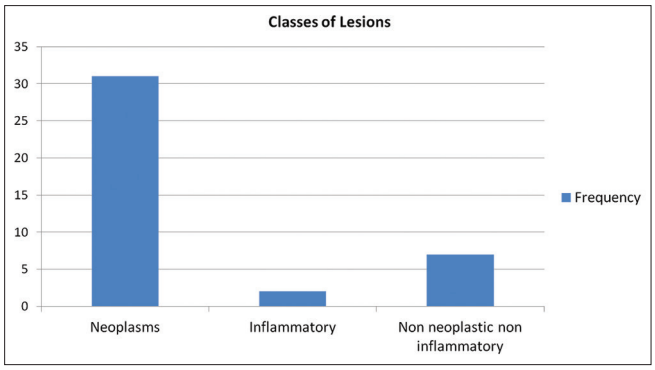

Figure 2: The contributions of neoplastic, inflammatory and nonneoplastic, noninflammatory conjunctival lesions

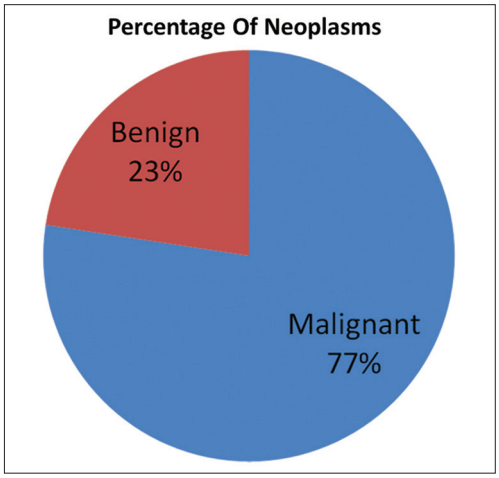

Figure 3: The contribution of benign and malignant lesions in conjunctival neoplasm

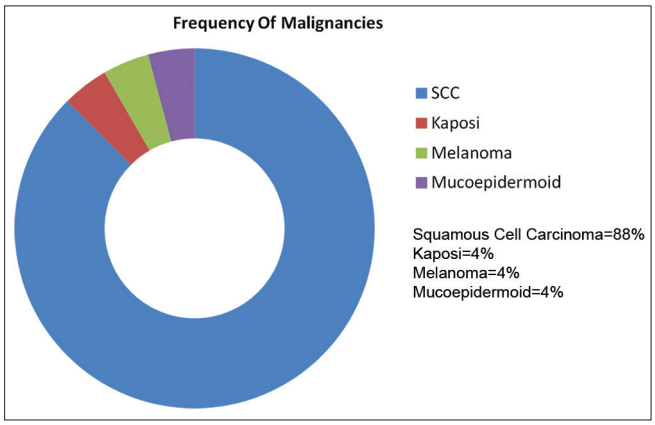

Figure 4: The relative frequencies of different types of conjunctival malignancies

the most commercially viable and sexually active group and includes persons likely to be exposed to biological, sexually transmitted carcinogenic agents (human papilloma and human immunodeficiency viruses) as well as those present in the environment (ultraviolet irradiation). In the United States, an analysis of 101 cases of squamous conjunctival malignancies showed the highest prevalence in older males, with a median age of 71 years.[15] The high percentage (77%) of malignant conjunctival lesions seen in this study parallels similar findings noted in the literature review, especially in Africa. One reason for this might be that benign lesions may cause more tolerable symptoms and Africans with poor health-seeking behavior may not even present at all. It is prudent to send all excised conjunctival tissues for histology as even an innocuous-looking lesion may be concealing a malignancy, as seen from this study.[13]

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Nil.

Conflicts of interest

There are no conflicts of interest.

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