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SQUAMOUS CELL CARCINOMA OF THE CONJUNCTIVA IN BENIN CITY, NIGERIA

C. U. Ukponmwan*, U. O. Igbokwe, J. U. Aligbe
*Department of * Ophthalmology and Pathology, University of Benin Teaching Hospital, Benin City, Nigeria.*

ABSTRACT

Aims: To find out the incidence and mode of presentation of squamous cell carcinoma of the conjunctiva at the University of Benin Teaching Hospital, Benin City, Nigeria and to note any associated or predisposing factors.

Materials and Methods: The case records of all patients diagnosed as squamous cell carcinoma and carcinoma in situ of the conjunctiva by the Pathology Department of the University of Benin Teaching Hospital over an eight year period from January 1990 to December 1997 were reviewed.

Results: Nine patients (seven males and two females) with squamous cell carcinoma of the conjunctiva were seen during this period . These constituted 20.5% of all cases of orbito-ocular tumours seen during the period. There were two cases of carcinoma in situ and seven cases of invasive squamous cell carcinoma with intraocular extension.

The age range was 20-70 years with a mean age of 42 years. Late presentation of the patients was noted. Excision of the tumour was the treatment of choice in the patients with carcinoma in situ while patients with intraocular extension of the tumour had enucleation and adjunct radiotherapy.

Conclusion: Squamous cell carcinoma of the conjunctiva is a very aggressive disease in Benin City, Nigeria. Most of the patients presented late with marked intraocular extension so that enucleation of the eye is usually the treatment of choice. Possible associated factors include exposure to ultra violet radiation and human immune deficiency virus (HIV) seropositivity.

KEY WORDS: **Squamous cell carcinoma, invasive, conjunctiva, orbito-ocular. tumours, intraorbital, intraocular, extension.**

INTRODUCTION:

Squamous cell carcinoma of the conjunctiva is more common in the tropics than in temperate climates[1]. It is a slowly growing tumour[1], but there have been various reports of intraocular and intraorbital extensions[2,3]. It is more common in areas with high ultraviolet radiation[1,4,5]. Ultraviolet radiation and Human papillomavirus (HPV type 16) have been implicated in its aetiology[5,6].

The incidence of Squamous cell carcinoma of the conjunctiva worldwide is reported to vary from 0.02 to 3.5 per 100,000[7]. It is the most frequent malignant tumour of the conjunctiva[1].The reported incidence in Africa varies from 6.2% of all orbito ocular tumours in Southern Nigeria[8] to 21. 86% of all orbito ocular tumours in Kenya[9] Ajaiyeoba[10] reported that squamous cell carcinoma of the conjunctiva was the commonest histological variant of malignant epithelial neoplasms of orbito ocular tumours in Ibadan (Southern Nigeria) accounting for 72% of epithelial malignancies. Abiose and Adido[2] reported that conjunctival squamous cell carcinoma constituted 13.5% of all orbito-ocular tumours at the Guinness eye Hospital, Kaduna in Northern Nigeria.

*Correspondence: Dr. C. U. Ukponmwan

There have been reports of an increase in the incidence of squamous cell carcinoma of the conjunctiva in recent years especially in association with HIV (Human Immune Deficiency Virus)[11,12].

There has been a previous report on squamous cell carcinoma of the conjunctiva from Northern Nigeria[2] but no such study has been conducted at the University of Benin Teaching Hospital, Benin City, Southern Nigeria and the aim of this study is to find out its incidence in the Hospital and to note any associated factors.

MATERIALS AND METHODS

The case records of all the patients diagnosed as squamous cell carcinoma and carcinoma in situ of the conjunctiva by the pathology Department of the University of Benin Teaching Hospital over an eight year period between January 1990 and December 1997 were retrieved. This is a retrospective study. These cases were reviewed for age, sex, occupation, tumour location, histological type, duration of symptoms, visual acuity and treatment modality given were noted and analysed. The two patients who were seen in 1997 were tested for HIV seropositivity using Enzyme linked Immunosorbent Assay (ELISA). The other patients were not tested for HIV seropositivity because the test

was not available in the Hospital at the time of presentation of the patients.

There was excision biopsy in three patients while seven (7) eyes had enucleation. The enucleated eyes and biopsies were sent to the pathology Department for histopathology and for confirmation of diagnosis. Patients were treated post operatively and referred for radiotherapy in centres where this was available. Results were collected and recorded for studies and publication.

RESULTS

A total of nine (9) patients with squamous cell carcinoma of the conjunctiva were seen during the study period. There were forty-four (44) cases of orbito-ocular tumours seen during this period. Conjunctival squamous cell carcinoma therefore constituted 20.5% of all orbito-ocular tumours. There were 7 males and 2 females. The age range was twenty years to seventy years (20-70 years) with a mean age of 42 years + 17.5 years (Table 1). Seven (7) of the patients were farmers, 1 was an engineer while the last 1 was a student. The farmers were from the rural areas while the student and engineer were from Benin City (urban).

Table I: **Squamous Cell Carcinoma Of The Conjunctiva**

	Sex	Age	Visual Acuity	Duration of Symptoms	Type of Carcinoma
1	M	65years	NLP	5 years	Invasive
2	M	50years	NLP	5 months	Invasive
3	M	32years	NLP	1 years	Invasive
4	F	42years	6/9	2 months	Ca in situ
5	M	26years	NLP	2 months	Invasive
6	M	43years	NLP	2 months	Invasive
7	M	20years	6/9	8 months	Invasive
8	F	27years	NLP	6 months	Invasive
9	M	70years	6/9	6 months	Ca in situ

Six (6) of the patients had lost vision in the involved eye and presented with no light perception while the other 3 had visual acuity of 6/9 in the affected eye (Table 1).

There were 2 cases of carcinoma in situ and 7 cases of invasive squamous cell carcinoma.(Fig 1& 2). Six (6) of the cases of invasive squamous cell carcinoma were well differentiated (Fig 1) while 1 case was poorly differentiated. There was 1 case of adenoid squamous carcinoma among the well-differentiated cases. The right eye was involved in 5 cases and the left eye in 4 cases.

One of the 2 cases of carcinoma in situ was a forty two year old female and the other was a seventy year-old male. The tumour was located in the palpebral fissure on the lateral aspect of the bulbar conjunctiva in the male patient and the medial aspect in the female.

Only 1 of the other 7 patients presented with a localised conjunctival tumour involving the temporal aspect of the conjunctiva and invading the cornea. The other 6 patients presented with proptosis and marked intraocular invasion of the ocular tissues by the tumour

Fig. 1: **shows a young man with invasive squamous cell carcinoma of the conjunctiva. Note the intraocular extension. He was HIV seropositive.**

Fig 2: **shows invasive squamous cell carcinoma of the conjunctiva in a young woman. Note the disorganized ocular structures.**

Seven (7) of the cases were presenting for the first time while there were 2 recurrent cases. One (1) of the recurrent cases, a fifty year old male farmer who had enucleation done, developed a repeat recurrence five months after surgery with extensive invasion of the tumour into the orbit, frontal and maxillary sinuses. The tumour in this patient was adenoid squamous cell carcinoma. He was referred to another centre for radiotherapy and was

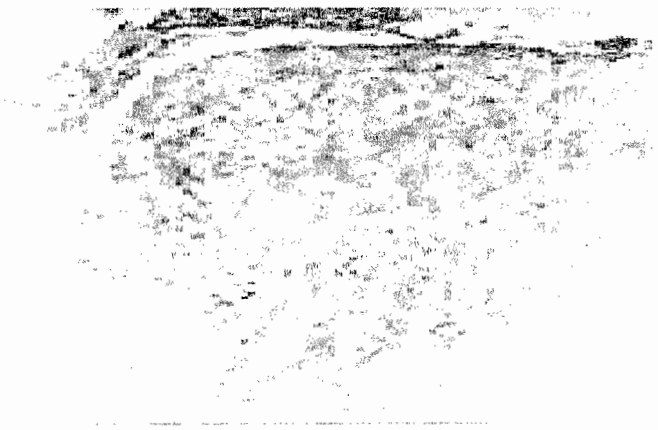

Fig 3. **shows the photomicrograph of invasive well differentiated keratinising large squamous cell carcinoma of the conjunctiva. Haematoxylin and eosin. Original magnification x 160.**

subsequently lost to follow up.

The duration of symptoms varied from 2 months to 5 years with a mean of 11.4 months (Table I).

Treatment given was localised excision of the tumour in the two patients with carcinoma in situ and one male patient with invasive tumour. Enucleation was performed in all the other patients. These patients were referred for radiotherapy and subsequently lost to follow up.

One of the patients, a twenty six year old male had a recurrence six months after enucleation and was referred to another centre for radiotherapy. He was lost to follow-up. The 25 year old male farmer patient was HIV seropositive.

DISCUSSION

Squamous cell carcinoma of the conjunctiva is the most frequently encountered malignant tumour of the conjunctiva[1]. Squamous cell carcinoma of conjunctiva accounted for 13.5% of all orbito-ocular tumours in Kaduna, Northem Nigeria[2]. The incidence of squamous cell carcinoma of the conjunctiva of 20.5% of all orbito-ocular tumours seen in this study is quite high compared to that reported from Kaduna[2].

The age range of patients seen in this study of between 20-70 years is not surprising as the reported age range is between 4 - 96 years with an average age of 56 years[1,2]. Olurin[8] reported an average age incidence of 45 years, which is similar to that of 42 years seen in this study. It is known to be more common in the fourth, fifth and sixth decade[1,2]. Squamous cell carcinoma of the conjunctiva occurs more in males than females[1,2]. The male to female ratio of 3:1 seen in this study is similar to the reported incidence in Nigeria and the tropics[2,8,13].

The total number of patients with squamous cell carcinoma of the conjunctiva seen in this hospital over the eight-year study period is quite low compared with the number of thirty- five cases seen over a seven- year period in Kaduna, Northem Nigeria[2]. This could be due to the higher turn over of ophthalmic patients seen at the Guinness Eye Hospital, Kaduna compared with the University of Benin Teaching Hospital. This may explain the low incidence of squamous cell carcinoma at the Guinness Eye Hospital, Kaduna, as there were more patients with other types of orbito-ocular tumours seen in Kaduna than at University of Benin Teaching Hospital. The thick equatorial forest found in the south is expected to protect the eye from the direct effect of ultraviolet radiation which is an aetiological factor implicated in squamous cell carcinoma of the conjunctiva[1,5], but the rather high incidence found in Benin City, which is in the South could be due to the fact that the south is quite urbanized, thus reducing the density of the forest in such areas. Other environmental factors, which may affect the prevalence of squamous cell carcinoma in the south, are the presence of clouds, rain and shaded valleys, which reduce the effect of ultraviolet radiation. The dusty environment in the north and the high prevalence of conjunctiva diseases such as trachoma which constitute a source of chronic irritation to the conjunctiva have been implicated in the aetiology of squamous cell carcinoma of the conjunctiva in the north[1].

Squamous cell carcinoma of the conjunctiva appears to behave more aggressively in the tropics than in temperate regions[13]. The more aggressive nature of the tumour is reflected by the greater number of advanced squamous cell carcinoma of the conjunctiva and by a higher incidence of metastasis and tumour related deaths[2,8,13]. There have been various reports of intraocular and intraorbital extension and it is not surprising that all the seven patients with invasive squamous cell carcinoma in this study presented with marked intraocular extension. Two out of the thirty five patients in the series by Abiose and Adido had intraocular extension. Intraocular extension was noted in seven out of the ten patients described by Tabbara et al[13] and there was orbital extension of the tumour in eight of the patients. The delay in seeking medical advise by the patients in this study may have contributed to the poor outcome as the average duration of symptoms in these patients before presentation in hospital was 11.4 months. Delay in seeking medical attention is an important prognostic factor in squamous cell carcinoma to the conjunctiva[14]. The delay in presentation of patients with conjunctival squamous cell carcinoma to hospital in Nigeria and Africa has previously been noted[2,13]. Scleral involvement is a risk factor for both tumour recurrence and intraocular invasion[15,15]. Incomplete excision of the tumour is also thought to be a contributory factor to it's intraocular extension[3,16]. Only two of the patients in this study had previous excision and one of them had two previous excisions of the tumour before presenting with intraorbital and sinus extension. Histology of the tumour in this patient showed adenoid squamous cell carcinoma of the conjunctiva. This variant of squamous cell carcinoma seems to be more aggressive and has a tendency to recur frequently even after wide excision[17]. The mucoepidermoid type of tumour is also said to be very aggressive and invasive[1] but this type was absent in this study.

Sixty-six percent of the patients in this study were farmers and this emphasizes the role of exposure to ultraviolet light radiation as a cause of conjunctival squamous cell carcinoma [1,4,5] as the eyes of farmers have a higher exposure to ultra violet radiation than indoor workers.

Seventy-five percent of patients who presented with conjunctival squamous cell carcinoma in Uganda were HIV seropositive[11] but the number of patients tested for HIV in the

present study is too small for any conclusion to be drawn about the association between HIV and squamous cell carcinoma in this group. It is important that all patients presenting with squamous cell carcinoma of the conjunctiva should be tested for HIV seropositivity to fully evaluate the association.

Primary total surgical resection of conjunctival squamous cell carcinoma of the conjunctiva should be done. This is the most commonly used therapeutic method. Recurrence rate after excision varies from 15% to 52%[1]. In this present study, surgical excision of the tumour with about 2mm of clinically free border was done by the ophthalmologist in three patients. Cryotherapy was applied to the margins in the two patients with carcinoma in situ. Microscopically controlled excision of the tumour in which the tumour is resected with a clinically free border of 2mm is advocated[15]. This resection is usually done in close cooperation with the pathologist and frozen sections may also be undertaken. Careful assessment of the histological margins is mandatory. Cryotherapy to the sclera is recommended if it is involved[18]. Inadequacy of excision margins has been identified as a major risk factor for recurrence[19].

Radiation therapy using strontium 90 or gamma radiation after excision of the tumour has also produced good results[20]. There have been reports on the successful use of cytotoxic drugs such as topical 5flourouracil or mitomycin C in the treatment of squamous cell carcinoma of the conjunctiva, but there has been no long term follow up[21,22].

Surgical resection of the tumour if the patient presents early has good prognosis[1], but in Nigeria the delay in presentation to the hospital by the patients results in marked intraocular extension that the only option left to the ophthalmologist is to enucleate the eye and even in cases of intraorbital extension. modified exenteration may be done. Radiotherapy is also recommended for the cases with orbital invasion or local invasion of surrounding tissues.

Careful follow-up of patients after resection of the tumour is recommended, but the failure of the patients in this study to come for follow-up reflects the unique problem of management of patients in Nigeria. This problem was also noted by Abiose and Adido in their study[2]. It may be due to poverty and the poor medical facilities in most of our hospitals.

CONCLUSION

Squamous cell carcinoma of the conjunctiva is quite an aggressive conjunctival disease in Benin City, Nigeria as most of the patients present with marked intraocular extension, so that enucleation of the eye is usually the treatment of choice. Health education of the people about the importance of early presentation to hospital is important. These patients should also be tested for HIV seropositivity. The use of ultra violet radiation blocking lenses outdoors is also recommended for farmers and other outdoor workers. The use of these blocking lenses will also help in reducing the incidence of other eye diseases such as cataract, solar keratosis, pterygium and pingueculum which are associated with exposure to ultraviolet radiation. The government has to make plans for patients suffering from cancer to reduce hospital charges. Most centres need to be equipped enough to prevent long journey to other centres for radiotherapy.

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