

A STUDY ON LID TUMOURS

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ABSTRACT

BACKGROUND

Eyelid lesions are categorised into inflammatory, infectious and neoplastic. Among tumours encountered by ophthalmologist, most common neoplasms are those of eyelids. This study is to evaluate the incidence, mode of onset, various clinical presentations of lid tumours. The various treatment modalities and the final outcome of treatment were also assessed.

MATERIALS AND METHODS

This is a retrospective study of 40 patients with various lid tumours who presented to the Oculoplasty Department of Regional Institute of Ophthalmology and Govt. Ophthalmic Hospital Chennai, between Jan 2006 to Dec 2008. 40 patients presenting with lid tumours were evaluated with detailed history taking, complete general examination, ocular examination, slitlamp biomicroscopy, refraction, ophthalmoscopy, intraocular pressure, laboratory investigations, radiological investigations and histopathological evaluation.

RESULTS

Among the 40 patients with lid tumours, 23 patients had benign tumours and 17 patients had malignant lid lesions. Haemangiomas rank first among benign tumours with 6 cases (26%) and sebaceous gland carcinoma is more common in the malignant group. Correlation with HPE diagnosis was obtained in 82% of malignant tumours. In the malignant group, tumor excision with primary closure was done in 2 cases (11.7%) of cases, cantholysis was combined with excision in 3 cases (16.5%). Various types of rotation flaps / lid sharing techniques were used in 7 cases (41.2%). 26.6% of cases were referred for radiotherapy. Recurrence was reported in sebaceous carcinoma. The mortality rate is 11.7%.

CONCLUSION

Haemangiomas are the most commonly occurring benign tumours and sebaceous gland carcinomas are the most common among the malignant tumours. Upper lid was the most common site. Sebaceous gland carcinoma can be considered as the first diagnosis in cases presenting with nodulo-ulcerative form and BCC or squamous cell carcinoma in cases presenting as ulcers. Malignant tumours when detected early, respond well to primary excision of tumor with appropriate lid repair procedures. Adequate surgical clearance prevents recurrence. The key to successful reconstruction is surgical planning.

KEYWORDS

Lid tumours, Primary closure, lid reconstruction, recurrence.

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BACKGROUND

Duke Elder has classified tumours of the eyelid into eight categories.¹

Benign Tumours

The common benign tumours who presented to our oculoplasty clinic were-



Figure 1. Papilloma

Figure 2. Plexiform Neurofibroma



Figure 3. Capillary Haemangioma

Figure 4. Molluscum Contagiosum

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Figure 5. Trichoepithelioma

Malignant Tumours of the Eyelid

Lid malignancies are quite common. Approximately 9-15% of cutaneous malignancies involve the lid. In the periorbital region basal cell carcinoma is the most common cutaneous malignancy.

1. Basal Cell Carcinoma

Basal cell carcinoma is the most common malignancy of the lid.² Over 60% involve the lower eye lid and medial canthus. Least commonly involved is the lateral canthus. The average age at diagnosis is 60-80 years and males are more commonly affected. The most common is the nodular pattern which can have an ulcerative pattern or multicentric pattern. The morpheaform or sclerosing pattern is a flat indurated plaque with indistinct borders. It is the most aggressive form with extensive subcutaneous involvement. The third rare variant is the clear cell BCC.



Figure 6. Basal Cell Carcinoma- Lateral Canthus



Figure 7. Basal Cell Carcinoma – Medial Canthus

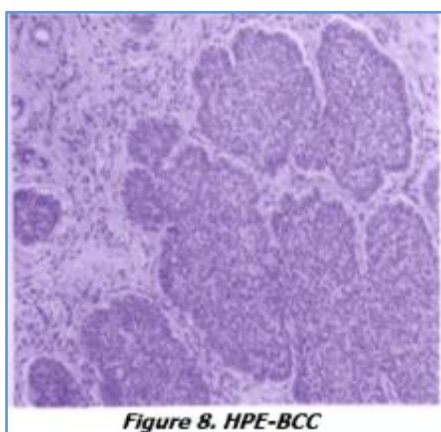


Figure 8. HPE-BCC

2. Squamous Cell Carcinoma

Squamous cell carcinoma of the lid³ accounts for 5% of all lid malignancies. It presents with varying degree of malignancy.

- Intraepidermal SCC
- Bowens disease

- Squamous cell carcinoma- Raised tumor with eroded centre or can present as a flat indurated lesion.



Figure 9. Squamous Cell Carcinoma- Ulcerated Tumour

Figure 10. HPE-SCC

3. Sebaceous Gland Carcinoma

It accounts for 1.5-5% of all lid malignancies. Although the tumor is referred to as Meibomian gland carcinoma the general term is preferable since this tumor may arise from glands of Zeis, sebaceous glands of caruncle and eye brow. The upper lid is more commonly involved.⁴ In over 60% of cases, the tumor presents as a pseudochalazion,⁵ chronic blepharitis, meibomitis, superior limbic keratoconjunctivitis. The tumor can present as a focal mass, multicentric tumor involving both the lids or a diffuse lesion with pagetoid spread to tarsal and bulbar conjunctiva.

Poor prognostic factors⁶ include multicentric origin, lymphatic or orbital spread, size more than 10mm, poorly differentiated tumours.



Figure 11. Sebaceous Cell Carcinoma- Nodular Growth



Figure 12. Sebaceous Carcinoma – Entire Lower Lid and Medial Canthus

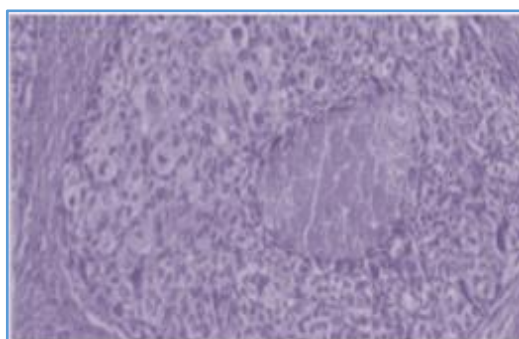


Figure 13. HPE- Sebaceous Cell Carcinoma

4. Malignant Melanoma-

It accounts for 1% of eyelid tumor.



Figure 14. Malignant Melanoma

5. Lymphoma

Polymorphic B cell lymphoma⁷ occurring in immune deficient patient presents with ulceration of lid skin. Radiotherapy is the treatment of choice and can be combined with chemotherapy.



Figure 15. Large B Cell Lymphoma

6. Kaposi Sarcoma

It is a manifestation of AIDS. The tumor may be nodular or florid with locally destructive skin lesion.

7. Metastatic Eyelid Carcinoma

Metastatic tumours to the lids are very rare. Breast and lung carcinomas account for 80% of lesions. These lesions present as nodular or ulcerative lesions.⁸

8. Rare LID Malignancies

Merkel cell tumor, Mucinous sweat gland adenocarcinoma and malignant syringoma

Management of LID Tumours

The management of all lid tumours depends on histological diagnosis, assessment of tumor margins and the extent of systemic spread. Non-surgical treatment options are Cryotherapy, Radiotherapy, Chemotherapy, Laser and intralesional interferon therapy.⁹

Surgical Treatment of LID Tumours

Two techniques are currently accepted for tumor free surgical excision of lid tumours.

1. MOHS Micrographic Technique

In this technique the tumor is excised in layers and examined microscopically to see the extent of the tumor. Tumor can be followed to its depth and extensions beyond the clinically

apparent tumor can be removed. Surgeons trained in Mohs chemosurgery¹⁰ removes the tumor and either allows the area to heal by granulation or refers the patient to oculoplastic surgeon.

2. Frozen Section Control

In contrast to Mohs techniques attempt is made to remove entire tumor at once and allow faster reconstruction.¹¹ Incision is made to include tumor and 2-3mm of normal appearing tissue around tumor. This approach requires the pathologist to work closely with the surgeon and if there is tumor extension to any of the tumor margin, additional tissue removal is done only in that area.

General Principles of LID Reconstruction-

1. Anterior Lamellar Defects

- Direct Skin Closure in the pretarsal area, defects are sutured vertically
- Laisser-faire for medial canthal defects. The defect is allowed to heal by granulation in 1-3 weeks' time
- Skin flaps-in oculoplastic surgery¹² flaps are Classified as -
 - Sliding flap -is one in which skin relaxation is obtained by undermining
 - Advancement flap-Tenzel, U, H, O-T, O-Z - in these relaxing incisions are used to obtain greater mobilization
 - Rotation flap- rhombic flap, involves rotation of the flap around an axis.
 - Transposition flaps- skin muscle flap from upper eyelid to lower eyelid, forehead to lower eyelid, the nasolabial flap.

A flap has its own blood supply and causes minimal contracture compared to a skin graft.

- Skin Grafts- Full thickness grafts are preferably taken from preseptal upper lid skin, post auricular, supraclavicular regions.

2. Posterior Lamellar Defects

Posterior lamellar flap - from upper lid tarsal plate for lower lid defect.

Posterior lamellar graft - mucosa from upper lip, lower lip, cheek, hard palate.

3. Full Thickness Defects

Combination of flap and graft are used to reconstruct both anterior and posterior lamella.

Reconstruction of the Upper Eyelid Defects

- Small defects- direct closure ± cantholysis.
- Medium defects- Tenzel lateral Semicircular advancement flap.
- Medium defects with residual tarsus after tumor excision-Modified tarso conjunctival flap.
- Large defects- Cutler- beard bridge flap¹³
- In massive tissue loss of the upper eyelid
 - a. Median forehead flap
 - b. Temporal forehead flap- Fricke flap

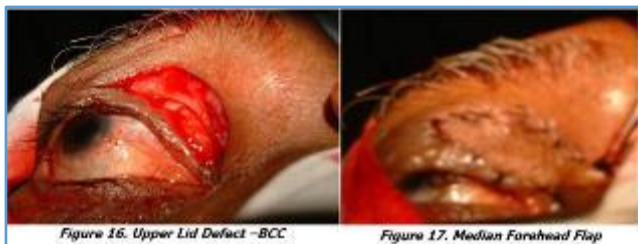


Figure 16. Upper Lid Defect -BCC

Figure 17. Median Forehead Flap



Figure 18. Cutler Beard Flap

Figure 19. Cutler Beard Closure



Figure 20. Recurrent SCC Upper Lid

Figure 21. Septal Cartilage Graft



Figure 22. Forehead Flap

Reconstruction of the Lower Eyelid

1. Small defects- Primary closure ± canthotomy.
2. Medium defects- Tenzel lateral Semicircular advancement flap, Reverse Cutler- beard, modified Hughes procedure.¹⁴
3. Large defects- Mustardes rotational cheek flap.¹⁵
4. Defects in medial canthal region- V-Y or glabellar flap,¹² Myocutaneous island flap.²



Figure 23. Tenzel Semi-Circular Flap

Figure 24. Glabellar Flap



Figure 25. Closure of Defect

Figure 26. Combined Mustarde's and Glabellar flap

Exenteration

This procedure involves removal of the globe and all the contents of the orbit along with the periosteum¹⁶ when there is extensive tumor involvement of the ocular adnexae or orbit. A prosthesis is used to overcome the cosmetic defect.



Figure 27. Metastasis to lid- Mucoepidermoid carcinoma

Figure 28. Total Exenteration

MATERIALS AND METHODS

This retrospective study was conducted at Orbit and Oculoplasty Services, RIOGOH, Egmore, Chennai for a period of 2 yrs. from Jan 2006 to Dec 2008. 40 Patients presenting to Orbit and Oculoplasty Services with lid tumours were registered, evaluated and followed up during the study period. A detailed history of the patient, complete general examination and ocular examination, slit lamp biomicroscopy, ophthalmoscopy, fields, colour vision, refraction, intra ocular pressure and examination of the lid tumor, regional lymph node examination, laboratory investigations, radiological investigations and tissue biopsy. If there was clinical evidence or suspicion of metastasis, CT scan, renal and liver function tests were performed. All cases were studied histopathologically after excision/ incision biopsy. All operable tumours were treated and the lid defect was reconstructed using appropriate procedures. Patients were discharged after wound healing and were followed up on outpatient basis at 1 month, 3 months and 6 months interval. During follow up patients were examined in detail to monitor wound healing and to detect recurrence.

Aim of the Study

The aim of this study is to analyse the incidence, pattern of presentation, clinical correlation with histopathological report, in all lid tumours presenting to a tertiary care hospital. To assess the various treatment modalities and the final outcome of treatment of lid tumours.

Inclusion Criteria-

Patients with various benign and malignant lid tumours who presented to the Orbit and oculoplasty department were included

Exclusion Criteria

Patients with chalazion, Xanthelasma, benign naevus, benign epithelial cyst, inflammatory dermatosis were not included.

RESULTS

Total number of lid tumor cases reported to RIOGOH during the study period from Jan 2006 to Dec 2008 were 40 cases, including both benign and malignant lid tumours.

1. Age Distribution

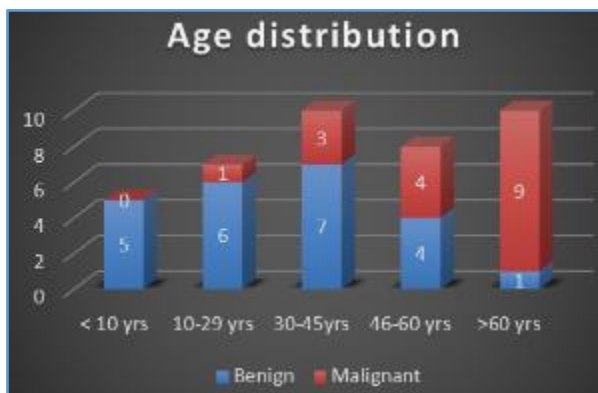


Chart 1. Histogram Showing Age Distribution

In this study, malignant tumours were common in the 60-85 years age group, 9 cases (53%). Benign tumours were common in the age group of 30-45 years, 7 cases (30%).

2. Sex Distribution

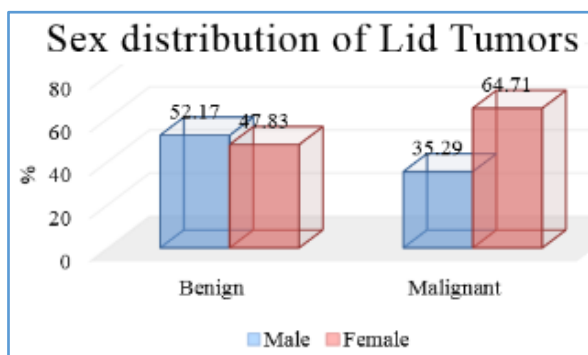


Chart 2. Histogram Showing Sex Distribution among Lid Tumours

In this study, malignant tumours were seen more in females 11 cases (65%) than among males 6 cases (35%) and benign tumours were almost equal, males 12 cases (52%) and females 11 cases (48%)

3. Sex distribution in malignant tumours

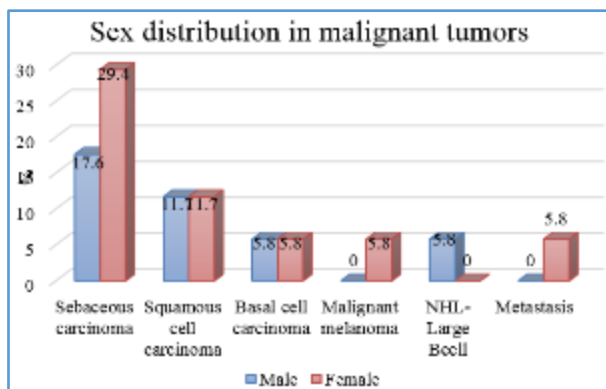


Chart 3. Histogram Showing Sex Distribution in Malignant Tumours

In this study, Sebaceous gland carcinomas were seen more in females 5 cases (29.4%).

4. Lid involvement among all tumours

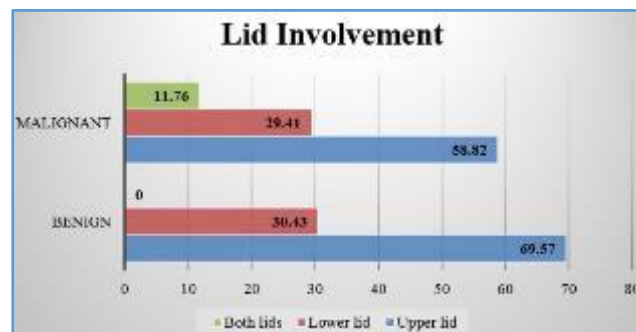


Chart 4. Lid Involvement in Tumours

In this study upper lid is often involved in malignant tumours 10 cases (59%) and lower lid is involved in 5 cases (29.4%).

5. Specific Sites of Lid Involved in Malignant Tumours

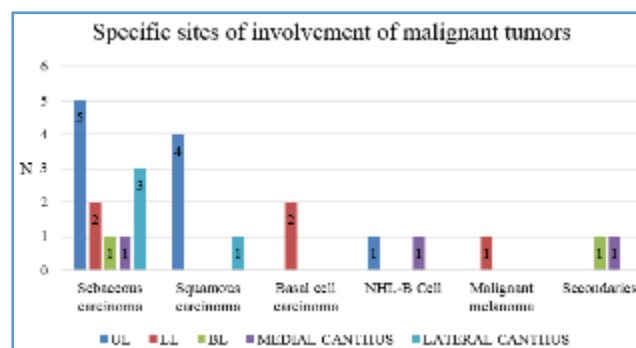


Chart 5. Showing Specific Sites of Lid Involved

In this study, Basal cell carcinoma 2 cases (11.8%) involved the lower lid. Lateral canthus was involved in 4 cases (23.5%). Medial canthus was involved in 3 cases (17.6%). Both the lids were involved in 2 cases (11.76%).

6. Size of the Tumor

Size of the tumor at presentation ranged from 5-25 mm.

7. Predisposing Factors

Trauma has been described most often as a predisposing factor for squamous and basal cell carcinoma. In this study, 4 cases (23.5%) of malignant tumours and 5 cases (22%) among benign tumours had history of trauma.

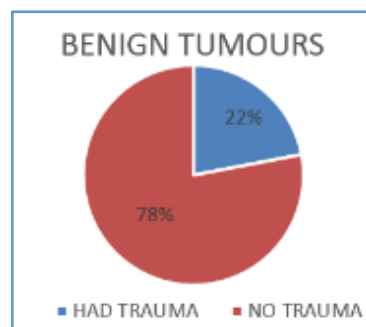


Chart 6. Showing Trauma as a Predisposing Factor for Benign Tumours

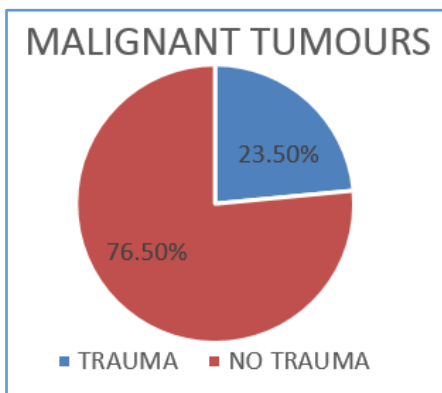


Chart 7. Showing Trauma as a Predisposing Factor for Malignant Tumours

One patient with NHL- B cell lymphoma was HIV positive.⁷ Majority of the patients were from the rural areas with history of exposure to sun for long periods. There was an association with Diabetes mellitus in 4 patients (17.4%) with benign tumours and 5 cases (29.4%) with malignant tumours.

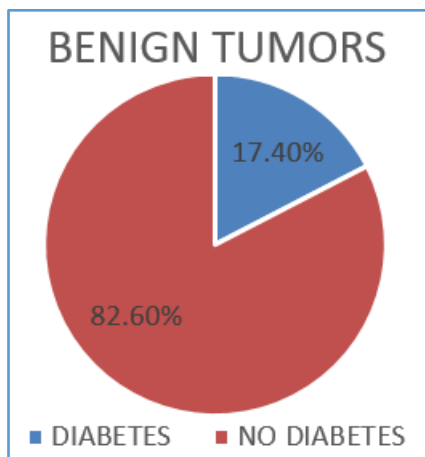


Chart 8. Diabetes as a Predisposing Factor for Benign Tumours

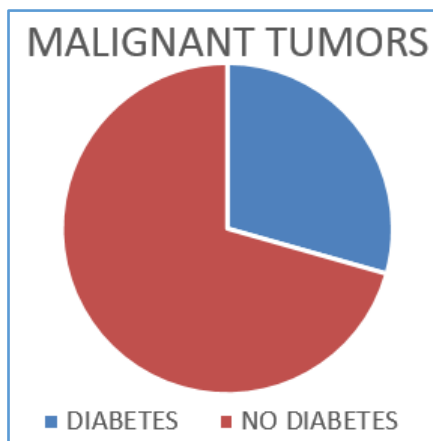


Chart 9. Diabetes as a Predisposing Factor for Malignant Tumours

8. Incidence of Benign Tumours

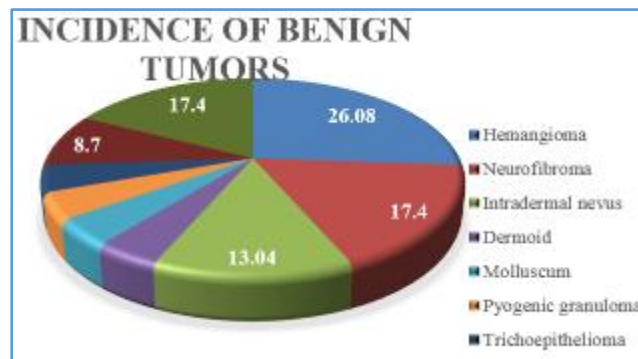


Chart 10. Pie Chart Showing Incidence of Benign Tumours

Haemangiomas were the most common of the benign tumours 6 cases (26.1%), followed by sebaceous cyst 4 cases (17.4%) and neurofibromas 4 cases (17.4%).

9. Incidence of Malignant Tumours

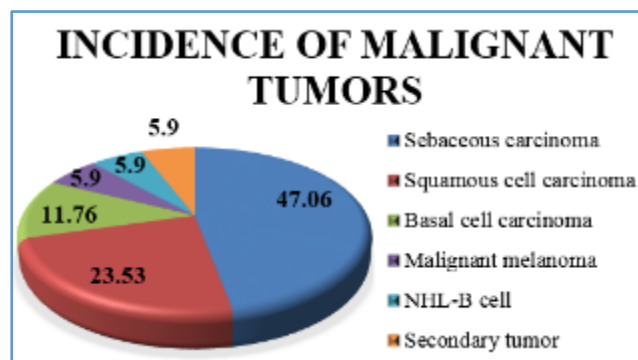


Chart 11. Incidence of Malignant Tumours

In this study sebaceous carcinoma is the commonest malignancy 8 cases (47%), followed by squamous carcinoma Rare cases of malignant melanoma, NHL-B cell lymphoma, metastatic tumor (1 case each) has been reported.

10. Clinical Presentation of Malignant Tumours

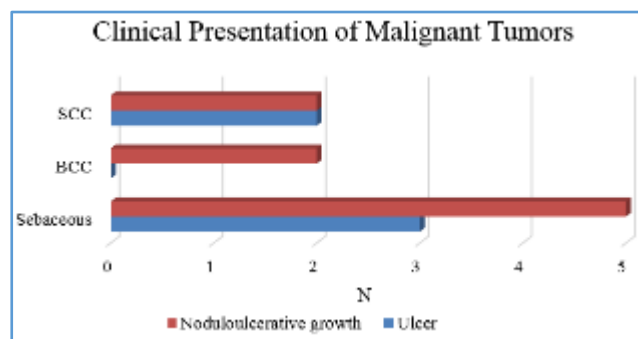


Chart 12. Showing Clinical Presentation of Malignant Tumours

Noduloulcerative growth is the most common presentation of malignant lid tumours in this study, 9 cases (64.2%).

11. Tumor Infiltration

Tumor infiltration of the globe and orbit is noted with sebaceous carcinoma 2 cases (11.7%).

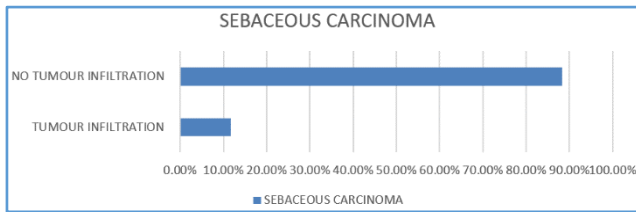


Chart 13. Association of Tumor Infiltration & Sebaceous Carcinoma

12. Metastasis to Regional Lymph Nodes

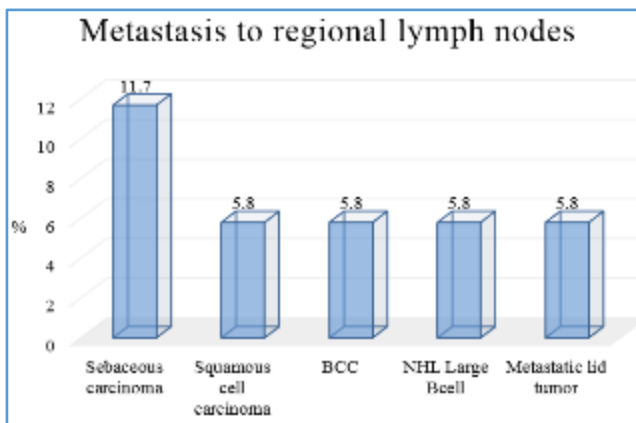


Chart 14. Histogram Showing Lymph Node Metastasis

Metastasis to regional lymph nodes is more among sebaceous carcinoma 2 cases (11.7%). One patient with malignant melanoma of right lower lid had systemic metastasis to liver and spine during initial presentation and underwent tumor excision with chemotherapy.

13. Correlation with Histopathological Diagnosis

HPE correlation with clinical diagnosis was obtained in 20 cases (87%) of benign tumours and 14 cases (82%) of malignant tumours.

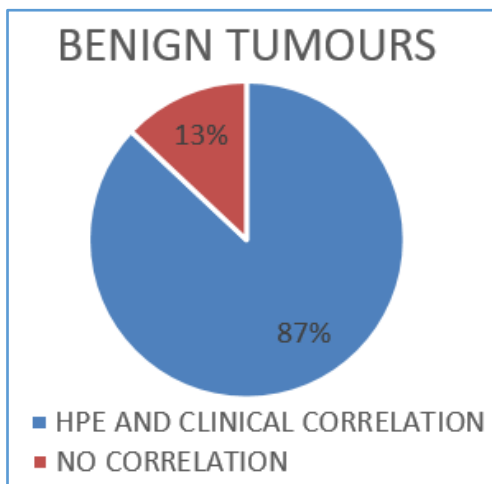


Chart 15. Correlation of HPE and Clinical Diagnosis among Benign Tumours

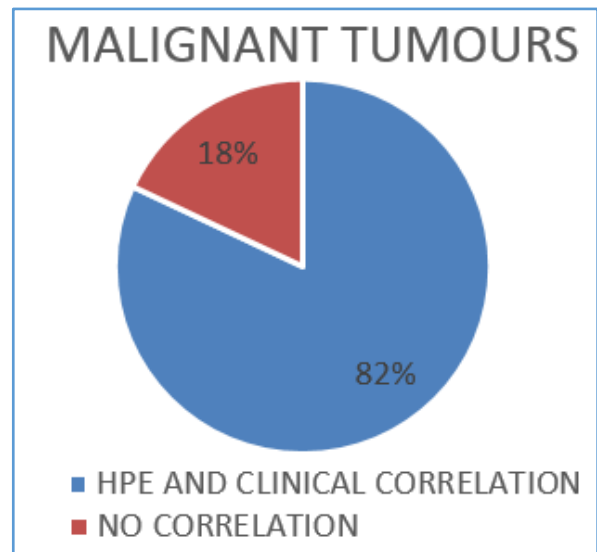


Chart 16. Correlation of HPE and Clinical Diagnosis among Malignant Tumours

14. Management of Benign Tumours

- In most of the tumours up to 7mm in size, excision of the tumor with primary closure was done and the specimen was sent for HPE. There was no structural and functional abnormality of lids postoperatively.
- In patients with pyogenic granuloma, papilloma, molluscum up to 5mm in size marginal shave excision was done.
- In cases with neurofibromas surgical debulking of the tumor was done.
- In three cases of haemangioma excision was done and two cases were treated with systemic steroids. The cases treated with oral corticosteroids, showed regression on follow up.
- In a patient with junctional nevus, excision with primary closure of the defect in layers was done.

15. Management of Malignant Tumours

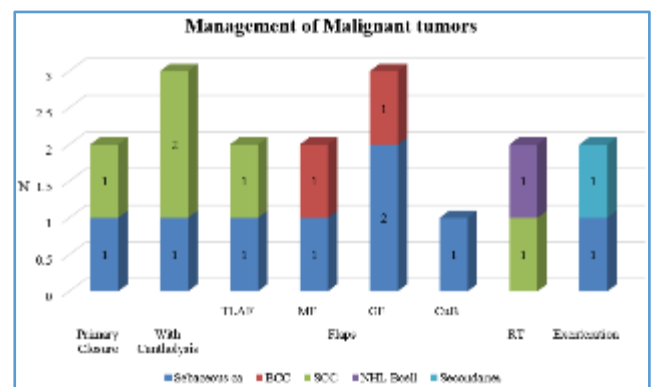


Chart 17. Histogram Showing Various Management of Malignant Tumours

- TLAF- Tenzel lateral Semicircular advancement flap
- MF- Mustarde's cheek rotation flap
- GF- Glabellar flap
- CuB- Cutler-Beard
- RT- Radiotherapy

16. *Surgical Complications*

- Mild ptosis - one case of neurofibroma after debulking
- Lid notching - a case of sebaceous carcinoma after primary closure
- Large scar line- a case which underwent Mustarde’s cheek rotation flap
- Poor lid closure in a case who underwent Tenzel advancement flap following excision.

17. *Recurrence*

Recurrence was reported in one patient (5.8%) with sebaceous carcinoma.¹⁷

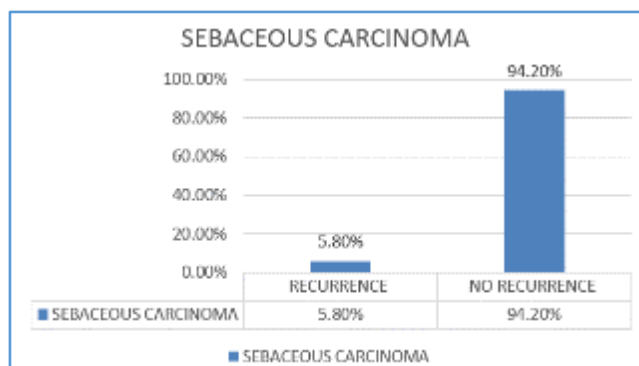


Chart 18. Recurrence among Sebaceous Carcinoma

18. *Mortality*

One patient with sebaceous carcinoma¹⁸ and one patient with secondary mucinous adenocarcinoma expired, 2 cases (11.7%).

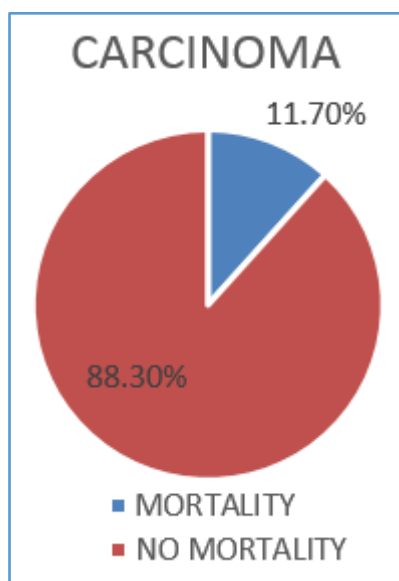


Chart 19. Mortality among Carcinoma

DISCUSSION

A total of 40 patients (23 benign and 17 malignant) with lid tumours were studied. Benign tumours were common between 2nd - 4th decade and malignant tumours were common in 6th decade and above.

In a study by Shields JA, Shields CL¹⁹ Sebaceous gland carcinomas are common between 50-90 yrs., in our study 2 patients were younger between 40-45 yrs. Two younger age group patients also presented with BCC.

In contrast to a study by Rao NA et al²⁰ we found increased incidence of lid malignancies among females especially sebaceous carcinoma in our study.

One patient with NHL- B cell lymphoma was HIV positive.⁷ Majority of the patients were from the rural areas with history of exposure to sun for long periods

Haemangiomas are the most commonly occurring benign tumours²¹ and sebaceous gland carcinomas are the most common in the malignant group. Cook BE Jr, Bartley GB et al²² have reported basal cell carcinoma to be the commonest periocular tumor. Basal cell carcinoma is the most frequent malignant tumor as reported by Deprez M et al.²³ In this study we have reported sebaceous carcinoma as the commonest malignancy 8 cases (47%). This correlates with other studies in India Gupta et al.²⁴ This could be attributed to the high humidity and sweat factor in India. In this study upper lid is often involved in malignant tumours 10 cases (59%) and is similar to other studies Sukla IM et al.²⁵

Majority of meibomian gland carcinomas presented in the form of noduloulcerative growths whereas BCC and squamous cell carcinomas predominantly showed ulceration. Tumor infiltration of the globe and orbit is noted in patients with sebaceous carcinoma in 11.7% cases as comparable to study by Shields JA et al²⁶

Metastasis to regional lymph nodes is more among sebaceous carcinoma of the lid similar to other studies.¹⁷

Correlation with HPE diagnosis was obtained in 80% of malignant tumours. As reported by Rao NA et al²⁰ sebaceous carcinoma of the lid is often diagnosed clinically as squamous carcinoma and basal cell carcinoma.

Excision of the tumor was the common modality used for management of benign tumours. In the malignant group, tumor excision with primary closure was done in 11.7% of cases, cantholysis was combined in another 16.5% of cases. Various types of rotation flaps / lid sharing techniques were used in 47% of cases. 11.7% of cases were referred for radiotherapy. The incidence of recurrence was 5.8% in malignant tumours. Recurrence was reported in sebaceous carcinoma as comparable to study by Chao AN et al.¹⁷ Both patients who expired during follow up had systemic metastasis at presentation and this is similar to a study by Narsing A. Rao et al.¹⁸ The mortality rate is 11.7%.

CONCLUSION

Eyelid tumours differ from other cutaneous lesions because of the unique characteristics of eyelid skin. Ophthalmic diseases rarely threaten life, however there are certain eyelid tumours that have propensity for aggressive growth and life-threatening metastasis.

Malignant tumours were more common in older age group and were more common in females. In contrast to western studies, sebaceous gland carcinoma is the most common type in this study and upper lid was the most common site of involvement. Sebaceous gland carcinoma can be considered as the first diagnosis in cases presenting with nodulo-ulcerative form and BCC or squamous cell carcinoma in cases presenting as ulcers.

Histopathological diagnosis differed from the clinical diagnosis in 18% of malignant tumours and in 15% of benign tumours. So, all excised eyelid lesions should be sent for histopathological examination.

Lid malignancies showed a predilection for lid margin where excision necessitates plastic repair. Malignant tumours when detected early, were found to respond well to primary excision of tumor with appropriate lid repair procedures. Malignant tumours when presenting late had extensive local growth or lymphatic or systemic spread and needed adjuvant therapy or exenteration.

Adequate surgical clearance (5 mm of normal tissue around the tumor) should be obtained to prevent recurrence. The key to successful reconstruction is to assess the size of the defect and to separate the complex defect into component subunits. In surgical planning one must assess the size, location of the defect and utilize various techniques to bring about a good functional and cosmetic outcome.

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