Case series

Spectrum of eyelid malignancies at a tertiary care hospital in coastal India

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ABSTRACT

The eyelid has four layers: skin and the subcutis, orbicularis oculi muscle, tarsal plates (one in each eyelid) and the conjunctiva. Tumors can arise from any of these and can range from non-neoplastic masses to neoplasms that include benign tumors, premalignant conditions and malignancies. The malignant tumors are of different histologic types depending upon the region and tissue of origin. Malignant tumors, especially basal cell and squamous cell carcinomas, are common in the skin around the eyes. Early detection and treatment are crucial due to the location of the tumors and is cosmetically and functionally important. Eyelid tumors are rare and most ophthalmologists/ pathologists will see only a handful in the course of their career.

In this case series, we describe seven cases with different types of eyelid malignancies, the clinical and pathologic features of these patients who presented with various tumors of the eyelid to our tertiary care teaching hospital in coastal India.

Keywords: Eyelid tumors; canthus; meibomian carcinoma; metastasis; lymph nodes.

INTRODUCTION

Thinner than 1 mm and devoid of subcutaneous fat, the skin of the eyelid is the skinniest skin anywhere in the body (1). Other cutaneous appendages are present and normal. Epidermis cells are keratinized stratified squamous cells. Underneath the epidermis are collagen fibers, blood arteries, lymphatics, and nerves. Eccrine sweat glands, the auxiliary lacrimal gland of Krause and Wolfring, and the apocrine sweat gland, dubbed the gland of Moll, are all found in abundance on the eyelids. The striated muscles around the eyes are known as the orbicularis oculi. Tarsi provide the structural support for the eyelids; they are lengthy plates of thick fibrous connective tissue. Tarsi contain sebaceous glands; these are termed Meibomian glands. The conjunctiva covers the eye.

Tumors can arise from any of these structures, and can range from benign tumors to premalignant lesions to malignant tumors. Epithelial tumors are the most frequent tumors of the eyelid. The western world is most familiar with basal cell carcinoma, followed by squamous cell carcinoma and carcinoma of the sebaceous glands. According to a number of studies, Sebaceous gland Carcinoma is by far the most prevalent development of the eyelid in the Asian population (2).

Case 1

An 80-year old man came with complaints of left upper eyelid edema that had been going on for eight months. The tumor measured approximately 1.2 x 0.9 x 0.7 centimetres in size (Fig.1). The lesion was surgically excised with a wide margin, and the tissue was submitted for histological analysis. Meibomian gland sebaceous gland carcinoma was the final diagnosis.

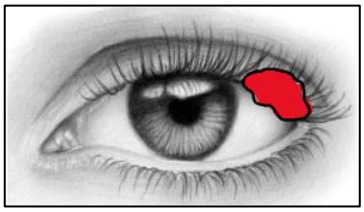

Fig.1: Upper eyelid tumor

Case 2

A 57-year-old female reported with right lower lid edema that had been present for four years without any pain or discomfort. Four years ago, doctors biopsied a tiny swelling that had formed in the centre of the right lower lid. This tumor at the right lower lid lateral canthus subsequently recurred, requiring resection and a skin graft. On examination she had firm, nontender irregular lesions in medial and lateral canthi of the right lower lid, both measuring 1x1 cm (Fig.2).

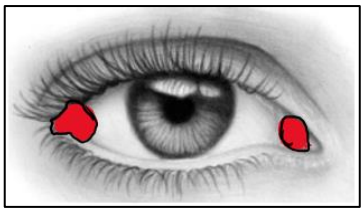

Fig.2: Tumor in the medial and lateral canthi

Biopsy and histopathological diagnosis showed sebaceous cell carcinoma. Immunohistochemistry

revealed strong EMA positivity; chromogranin was negative. She developed neck nodes after 3 months and also a nodule in the thyroid which was found to be metastatic Sebaceous carcinoma.

Case 3

The right eye of a 64-year-old man who presented with swelling made it impossible for him to fully open his eye. No history of experiencing any discomfort or noticing any unusual discharge or eye watering was given. Upper and lower eyelids were swollen from the inner canthus to the outer canthus. It was non-tender with no local rise in temperature. Biopsy was done and reported as Small Lymphocytic Lymphoma of Right eyelid. Immunohistochemistry was done and the results were as follows:
Positive markers: CD20, CD5.
Negative Markers: CD3, CD10, CD23, Cyclin-D1 Ki-67: 10%

Case 4

A 47-year-old woman presented with complaints of redness and swelling of right eye for 6 months as shown in Fig. 3. The lesion was excised. Histopathology was reported as squamous cell carcinoma

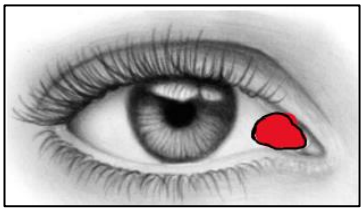

Fig.3: Tumor in the medial canthus

Case 5

A 57-year-old diabetic and hypertensive man with a history of renal transplant for chronic renal disease, presented with mass in the left lateral region of cornea for 3.5 years as shown in Fig. 4. He was diagnosed to have pterygium and was operated thrice. Surgery was done for recurrence for a 4th time. The histopathological report was squamous cell carcinoma.

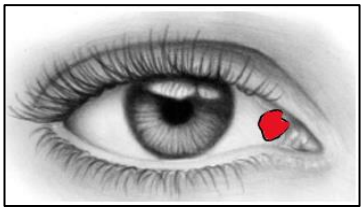

Fig.4: Mass in the medial cornea

Case 6

A 40-year-old man has complained of a mass under his right eyelid (Fig.5) since he was a child and has a history of significant growth in the past two months. Besides that, there were no other complaints. Histopathology confirmed the diagnosis of nodular Basal cell carcinoma after the mass was removed (it measured 1 x 0.5 x 0.5 cm). There were no preauricular or cervical nodes palpable.

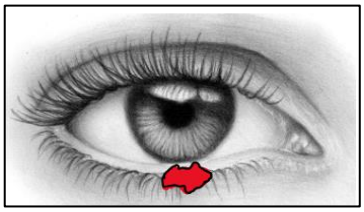

Fig.5: Mass in the right eyelid

Case 7

A 50-year-old woman presented with a mass in the left upper eyelid growing in size for many months (Fig.6). There was redness and itching for 10 days. On examination, a hyper-pigmented lesion was seen in the left upper eyelid in the mid portion measuring 2 x 1.5 cm. Both canthi were free. No palpable nodes were present. Biopsy revealed squamous intraepithelial neoplasia.

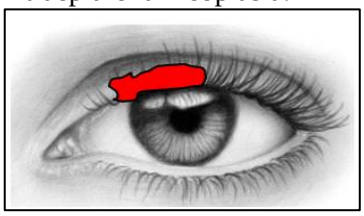

Fig.6: Mass in the left upper eyelid

DISCUSSION

Of these seven cases, two are of sebaceous gland carcinoma, two of squamous cell carcinoma and, one each of squamous intraepithelial neoplasia, basal cell carcinoma and small lymphocytic lymphoma. There was a 4:3 male-to-female disparity in the prevalence of eyelid malignant tumors. Patients had a mean age of 56.7 years.

Sebaceous cell carcinoma

About five percent of all malignant eyelid tumors are sebaceous gland carcinomas (SGC), with a higher incidence in the Asian population. Meibomian, Zeis, or caruncle sebaceous glands are potential sites of genesis for SGC. Though less prevalent in the lower eyelid, sebaceous gland cancer may also affect the upper eyelid. Clinical manifestations of pagetoid SGC might mirror those of inflammation of the eyelids or conjunctiva. Loss of eyelashes is a symptom of different types of malignant eyelid tumors, and SGC may be no exception.

Histologic features: Large, pleomorphic tumor cells with a foamy cytoplasm owing to lipid vacuoles characterize sebaceous gland cancer, which forms lobules or sheets.

Treatment and prognosis: Surgery including careful margin control is the gold standard for treating SGC (3). In the event of positive margins, nodal disease, or inoperable illness, post-operative radiation treatment

to the main site and the pre-auricular nodes may be administered. After surgery, a cumulative dosage of 60 Gray using standard fractionation would be sufficient.

Squamous intraepithelial lesion

Squamous carcinoma in situ is the medical term for squamous intraepithelial neoplasia, also known as Bowen's disease. Aged, fair-skinned people with a history of prolonged sun exposure are particularly vulnerable (4). The lower eyelid is the most common site for periocular squamous intraepithelial neoplasia to manifest. It typically manifests as a raised, nodular or plaque-like lesion that causes no discomfort but causes chronic scaling and superficial ulceration of the skin.

Histologic features: Squamous dysplasia is quite prominent, yet there is little evidence of invasion beyond the basement membrane. To tell squamous intraepithelial neoplasia apart from intraepithelial spread of sebaceous gland cancer, fat stains on frozen section or immunohistochemical stains may be required.

Treatment: Wide local excision with clear margins is the standard therapy for squamous intraepithelial neoplasia.

Squamous cell carcinoma

This is more frequent in the western countries and in patients with Xeroderma pigmentosa or Actinic keratosis.

Histologic Features: Malignant squamous cells with enhanced mitotic activity proliferate and lead to squamous cell carcinoma. Keratin might be produced by cancers that have progressed further.

Treatment: Wide local excision with reconstruction and radiation therapy if there is extensive disease (1,5).

The gold standard therapy for SCC is a wide local excision with clear margins. As SCC tends to have more ill-defined margins than BCC, it may be more challenging to determine tumor margins following surgical excision. Lymph node metastasis is a known risk factor for skin cancer, especially for Squamous cell carcinoma. Local lymph node metastases may occur in 20-30% of cases with periocular SCC (6). A sentinel lymph node biopsy may be necessary in high-risk patients, such as those who have had prior biopsies reveal perineural invasion or who have had recurrent lesions. High-risk characteristics for SCC include a propensity for the cancer to spread to other organs. Radiation therapy may be tried with electron beams or tangential photon beams as an alternative to surgery. Surface mould brachytherapy is another suitable option.

Basal cell carcinoma

In Caucasians, basal cell carcinoma (BCC) accounts for 85% of all malignant eyelid tumors. Although often found in adults, this disorder may sometimes manifest in younger people. The most significant risk factor in the development of basal cell carcinoma is skin that has been exposed to the sun. The lower eyelid is most often affected by basal cell carcinoma, followed by the canthus and the upper eyelid in 10% of cases. On a clinical level, Basal cell carcinoma may be classified as either nodular or morpheaform. In most cases, nodules will appear as a raised mass with well-defined borders. There is a risk of ulceration. However, morpheaform types tend to lack ulceration and have irregular margins.

Histologic features: Basal cell carcinoma is characterized by tightly packed strands of tumor cells that are encased in a thick network of fibrous stroma. The morpheaform kind may penetrate further into the dermis. The pigmented kind of BCC includes melanin and may be mistaken for a nevus or malignant melanoma; it is one of the differential diagnoses of BCC.

Treatment: When treating BCC, a full surgical excision of the tumor is recommended, preferably with frozen sections of the operative margins (8). Surface mould brachytherapy, or electrotherapy, with a total dosage of 60 Gy in 30# by electrons or 42 Gy in 12# delivered twice daily by High Dose Rate Brachytherapy, is another viable alternative.

Lymphomas

Orbit, lacrimal gland, eyelids, and conjunctiva are all potential targets for lymphoma of the ocular adnexa. The most typical presenting symptoms are a hard, nontender mass under the skin at the front of the orbit, a penetrating stye of the conjunctiva, or an invasion of the eyelid. Although eyelid lymphoma has been seen in patients of all ages, it appears more frequently in those who are older (9).

Histopathology: Orbital lymphoid tumors may vary from reactive lymphoid hyperplasia to malignant lymphoma on the histopathological spectrum. “The B-cell kind of non-Hodgkin lymphoma accounts for the vast majority of orbital lymphomas. There are five subtypes of orbital lymphomas, although follicular lymphoma and extranodal marginal zone (EMZL) or mucosa-associated lymphoid tissue (MALT) lymphoma are the most prevalent. Mantle cell lymphoma, diffuse large B-cell lymphoma, and lymphoplasmacytic lymphoma are the additional kinds of lymphoma that might sometimes manifest in the orbit and oculus.” (10).

Treatment: Involved Site Radiation Therapy (ISRT) with a total dosage of 24 Gy in 12# over 2 weeks is the optimal therapy for instances of stage I or II

MALT Lymphoma. The standard dosage for Mantle Cell Lymphoma treatment with ISRT is 2 Gy every fraction, for a total of 24–36 Gy. Radiation therapy as intensity-modulated radiation therapy (ISRT) to a dosage of 30-36 Gy in 15-18# over 3 weeks is the standard of care for DLBCL.

CONCLUSION

The study concludes that though eyelid malignancies are very rare, there are varied histological types of malignancies arising in the eyelid. In our research we found Squamous cell carcinoma and its precursor lesions more frequent than basal cell carcinoma and Sebaceous carcinoma. An extremely rare occurrence of Small Lymphocytic Lymphoma was also noted. The treatment varies for the different types of malignancies.

CONFLICT OF INTEREST

Authors declare no conflicts of interest.

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