

Ocular therapeutic case studies

Lid abnormalities

The eyelids may be affected by a plethora of benign and malignant lesions with the former predominating. Since the optometrist may be the first eyecare practitioner to encounter such lesions, it is imperative that he or she is able to identify the salient features differentiating those which are benign and those which are not, in order that each case may be managed expeditiously.

The aim of this article is to illustrate, through a series of case histories, the typical signs and symptoms of a selection of epithelial tumours. The discussion of each case will encompass the aetiological factors, differential diagnoses and treatment pertaining to the lesion in question. In addition, where appropriate, some of the basic histopathological features will be highlighted to reinforce the reader's understanding of each lesion.

Skin

A sine qua non of understanding eyelid lesions lies in the practitioner's appreciation of the basic anatomy of the skin.

The skin essentially consists of three separate compartments, which are (from superficial to deep):

- Epidermis: an outer keratinising, stratified, squamous epithelium which is

self-regenerating. Its appendages include hair follicles, sebaceous glands, apocrine and eccrine sweat glands

- Dermis: an underlying, tough, layer consisting of fibroelastic tissue. It serves two main functions – support and nourishment. The aforementioned epidermal appendages arise from this layer
- Subcutaneous tissue: a variable layer whose main constituent is adipose (fat) tissue

Since the lesions described in this article are mainly confined to the outer, epidermal layer, further anatomical descriptions will be restricted to this layer. Furthermore, it is noteworthy that the eyelid skin, which is the thinnest in the body at <1mm thickness, lacks subcutaneous tissue and rests directly on the orbicularis muscle.

Table 1
Macroscopic morphological terms used in dermatology

TERM	MACROSCOPIC MORPHOLOGY
Macule	Non-palpable small area of colour change
Papule	Small palpable lesion <1.5mm in diameter
Nodule	A papule which has enlarged in height, width and length
Plaque	A papule which has enlarged in length and width only
Pustule	Vesicle laden with neutrophils (white blood cells)
Scale	Any increase in thickness of stratum corneum secondary to either excess formation or delay in exfoliation
Erosion	Focal loss of epidermis resulting in shallow excavation
Ulcer	Focal loss of epidermis and dermis resulting in deep excavation

Table 2
Histopathological features of epidermis

ABNORMALITY	HISTOPATHOLOGICAL FEATURES
Acantholysis	Breakdown of cell-cell attachments
Acanthosis	Increase in size and number of cells in prickle cell layer
Bullae	Fluid filled cavity either within or below the epidermis
Crusting	Dried plasma proteins either replacing lost epidermis or arising from intact epidermis
Dyskeratosis	Abnormal keratinisation associated with pre- and malignant tumours that arise within the epidermis or in association with acantholytic disorders
Orthokeratosis	Increased thickness of stratum corneum (hyperkeratosis) without retention of keratinocyte nuclei
Parakeratosis	Hyperkeratosis characterised by incomplete keratinisation with retention of keratinocyte nuclei
Vesicle	Collection of fluid smaller than bullae



ABDO has awarded this article 2 CET credits (GD).



The College of Optometrists has awarded this article 2 CET credits. There are 12 MCQs with a pass mark of 60%.

Epidermis

The bulk of the epidermis is comprised of stratified squamous epithelial cells known collectively as keratinocytes. The other cell types include melanocytes (synthesis and release of melanin), Langerhans' cells (involved in inflammation by acting as antigen presenting cells) and Merkel cells (mechanosensory, i.e. mediate sense of touch and direction of hair movement).

The keratinocyte population may be subdivided into four layers. The deepest of these, the **basal cell layer**, consists of mitotically active cells which, as such, represent the progenitors of the remaining keratinocytes. The next layer is termed the **squamous cell layer** (stratum spinosum or 'prickle cell layer'). The term prickle cell layer has been coined by numerous histopathologists owing to the fact that the keratinocytes, on light microscopy, exhibit short processes resembling 'prickles'. The **granular layer** is a two to three flattened cell layer which abuts the most superficial layer, the **stratum corneum**, which is composed almost entirely of the fibrous protein, keratin.

Epidermal appendages

The appendages that are relevant to the optometrist and ophthalmologist are the apocrine and sebaceous glands and hair follicles.

The apocrine glands of the eyelid are known as the glands of Moll. They produce an oily secretion and a duct which opens onto a hair follicle rather than the skin per se.

Hair follicles associated with sebaceous glands are known as pilosebaceous units. In the eyelid, the glands of Zeis are connected with the cilia and serve to secrete lipid-laden sebum into each follicle. Meibomian glands, on the other hand, are modified sebaceous glands which are not associated with any hair-like appendages.

Tables 1 and 2 provide a useful glossary of terms used in dermatopathology and which are pertinent to the discussion of the case histories that follow.

When the diagnosis of an eyelid lesion is equivocal and/or there are signs suggestive of malignancy, patients are recommended to have their lesion biopsied. Indications for biopsy are



Figure 1 Pedunculated papilloma

illustrated in the case histories.

Practitioners should always palpate the regional lymph nodes when encountering suspicious lesions. The outer two thirds of the upper eyelid, and outer one third of the lower eyelid, drain into the ipsilateral preauricular lymph node. The medial one third of the upper eyelid, and medial two thirds of the lower eyelid, contribute lymphatic drainage to the ipsilateral submandibular lymph node.

CASE HISTORIES

CASE 1

Patient history

Patient JH, a systemically well Caucasian female of 67 years, presents with a localised skin-coloured lesion on her left lower lid margin (**Figure 1**). There is no family history of ocular or systemic disease and her own ocular history appears to be unremarkable. Although she is relatively asymptomatic, she feels as though the lesion has grown over the past 12 months and is concerned that it may be cancerous.

Diagnosis and discussion

She has acquired a pedunculated (stalk-like) squamous cell papilloma. This is the most prevalent eyelid lesion and is also known as a fibroepithelial polyp or more commonly as a skin tag. Macroscopically, they may manifest as either a pedunculated or sessile mass. The latter refers to a tumour that is attached directly by its base. The diagnosis is usually made on its clinical appearance alone. Histological examination would reveal acanthosis and hyperkeratosis in the epidermal region.

Differential diagnosis

The main lesions to consider are Verrucae Vulgaris and Seborrhic Keratoses (see Case 4).

Verrucae are benign papillomas that are indistinguishable externally from their squamous cell counterparts. By definition, verrucae are papillomae which result from local infection of the papilloma virus. Squamous cell papillomas, by contrast, have a non-viral aetiology. Notwithstanding such diagnostic nuances, it is worthy of note that verrucae are more common in young adults and in those who are immunocompromised or who suffer from diabetes¹.

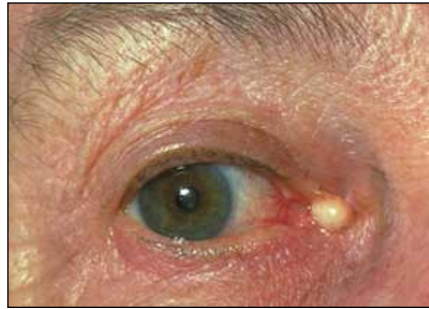


Figure 2 Sebaceous cyst

Treatment

In asymptomatic patients, reassurance is the only treatment necessary. When required, treatment consists of simple excision at its base. Alternatively, chemical cauterisation may be employed (especially in the USA). The chemical of choice, bichloroacetic acid, is extremely effective at penetrating keratin and other structures of the skin. Since its cauterising effects are not limited to the tumour itself, the practitioner must exercise a great deal of caution vis a vis its topical application. Treatment is indicated when the lesion poses a cosmetic concern to the patient or, rarely, when it is large enough to induce mechanical irritation at the bulbar conjunctiva.

CASE 2

Patient history

Patient AD, a 75-year old Caucasian female, presents for a routine eye examination. On examination, a small, yellow cystic lesion in the inner canthal region of her right eye is visible (**Figure 2**). Further questioning reveals that the lesion has been present for at least two years and has not increased in size.

Diagnosis and discussion

The lesion is a sebaceous cyst. These are benign retention cysts of sebum and arise from blockage of the sebaceous glands. They are usually firm to touch. However, their capsules and associated contents are moveable under the overlying skin. The sebaceous cyst illustrated in this case is subcutaneous. They rarely cause symptoms.

Intracutaneous sebaceous cysts, known as milia (**Figure 3**), are fairly common around the periorbital region and manifest as small white cysts.

Differential diagnosis

Although these lesions are usually identified clinically, several other cystic lesions may reside within the territory of the eyelids. These include:

- Cyst of Moll or sudoriferous cyst (**Figure 4**)
- Cyst of Zeis (**Figure 5**)

Sudoriferous cysts are translucent cysts due to blockage of the glands of Moll. They characteristically contain fluid. Although



Figure 3 Milia



Figure 4 Cyst of Moll (sudoriferous cyst) on the upper eyelid



Figure 5 Cyst of Zeis

patients are generally asymptomatic, cysts have been known to interfere with contact lens wear when large enough. Simple excision is the definitive method of choice since there is a high recurrence rate following puncture.

A cyst of Zeis is similar to sudoriferous cyst, except the contents are of a more oily consistency.

Treatment

Treatment is indicated when the lesion is bothersome from a cosmetic point of view. Milia may be removed by a small stab incision using a hypodermic needle. The sebum is expressed using cotton tip applicators. The interior of the cyst may be cauterised chemically (as previously described) and the lesion usually resolves within a two week period.

Subcutaneous sebaceous cysts, on the other hand, require total excision to prevent recurrences. An incision is made parallel to the skin folds to allow the wound to close on its own and reduce the risk of scarring.



Figure 6 Actinic keratosis



Figure 7 Seborrheic keratosis



Figure 8 Cutaneous horn

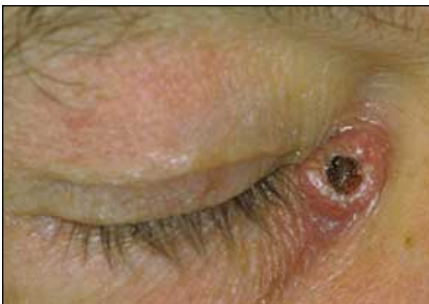


Figure 9 Keratoacanthoma

CASE 3

Patient history

Patient GT, a 70-year old Caucasian male, presents with a scaly, keratotic lesion adjacent to his right eyelid (Figure 6). On further questioning, he mentions that he first noted the lesion approximately six months previously and that he has similar appearing plaques on his right forearm. Both previous and family ocular

and medical histories are unremarkable. In addition, he informs you that he possesses a villa in Majorca, in which he resides six months of the year, and freely admits to being a 'sun worshipper'.

Diagnosis and discussion

The appearance of a flat, scaly, dry keratotic plaque in a Caucasian patient with a history of chronic sun exposure is typical of actinic keratosis.

Actinic keratoses may fluctuate both in size and number. Their acquisition correlates positively with age and the degree of UV exposure. Indeed, removing oneself from the harmful rays of the sun may lead to their remission².

The presence of these plaques is ominous since they are the most prevalent pre-cancerous lesion. The risk of malignant transformation from a single lesion has been reported to be less than 0.24% per year². Although the risks associated with a solitary lesion are somewhat modest, the risk of malignant transformation with multiple keratoses rises dramatically to 16.9% over a 10 year period³. Since this patient presented with similar lesions on his forearm, it is essential that he be referred to an ophthalmologist for either excisional or incisional biopsy.

Dyskeratosis, parakeratosis and hyperkeratosis are seen microscopically together with general epidermal atrophy. In addition, the underlying dermis may display signs of chronic inflammation.

Interestingly, the potential for squamous cell carcinoma to metastasize is greater when it arises de novo than when it emanates from a pre-existing actinic keratosis.

Treatment

Treatment involves either an incisional or excisional biopsy to confirm the diagnosis. Diagnosed keratoses are either excised completely or subjected to cryotherapy.

An incisional biopsy entails removal of part of the lesion together with a rim of normal tissue. An excisional biopsy, on the other hand, involves removal of the whole overt lesion. Incisional biopsies are usually employed when the clinician suspects malignancy in rather large lesions. Excisional incisions may be routinely performed on very small lesions in which malignancy is suspected since the resulting defect may be easily reconstructed.

CASE 4

Patient history

Patient AD, a 72-year old male, presents for a routine eye examination. On examination, a solitary, greasy, yellow lesion inferior and nasal to the patient's left lower eyelid is seen (Figure 7). Further questioning reveals that it has grown very slightly over the past 18 months.

Diagnosis and discussion

The patient harbours a seborrheic keratosis. This common epidermal tumour presents in white,

elderly and middle aged individuals. There is no sexual predilection. It usually manifests as a greasy, well demarcated plaque or papule. It may be solitary or multiple in presentation.

Microscopically, these tumours display hyperkeratosis and acanthosis. A variable degree of pigmentation may also be present.

Importantly, since the growth is predominantly outward from the epidermal layer rather than by migrating deep into the underlying dermal layer, these keratoses appear to be well circumscribed and demarcated. Indeed, it is this characteristic that gives these lesions the classic 'stuck on' appearance.

Seborrheic keratoses are not pre-malignant lesions. That said, patients who present with multiple keratoses (Leser-Trelat sign) warrant further investigation for internal malignancy.

Treatment

Treatment is seldom required. The reasons for excision are usually cosmetic and in the rare cases when the clinical diagnosis is equivocal.

CASE 5

Patient history

Patient RT, an 85-year old Caucasian male, presents with a large scaly lesion protruding from his right upper lid (Figure 8). He explains that he has not had an eye examination for five years. However, over the past 18 months he has noticed the aforementioned lesion increase in size and weight and now finds it difficult to open his right eye.

Diagnosis and discussion

This dramatic lesion is known as a cutaneous horn. It is simply an exuberant keratinised mass, and, as such, is not a pathological entity. Since this hyperkeratotic projection may masquerade as a multitude of epidermal pathologies, which include basal cell carcinoma, squamous cell carcinoma, actinic and seborrheic keratoses, it is incumbent on all practitioners to refer these patients for excisional biopsy so that the underlying causative agent may be identified. Only then can the ophthalmologist initiate the appropriate treatment for that patient.

In this case, removal would serve to alleviate the patient's symptoms, in addition to relieving his mechanically induced ptosis.

CASE 6

Patient history

Patient GH, a 67-year old female, presents with a large umbilicated lesion to her right lower eyelid (Figure 9). She appears rather apprehensive as it has grown to this size over the past month.

Further questioning reveals that she is systemically well.

Diagnosis and discussion

This patient has a keratoacanthoma. In keeping with other epidermal tumours, white individuals who have been chronically exposed to the sun are at the greatest risk. Keratoacanthomas

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typically present as solitary, rapidly growing umbilicated nodules with a crater. Such craters are filled with a keratin plug. Multiple keratoacanthomas may appear in patients suffering from the rare Muir-Torre syndrome which, in turn, harbours coexisting internal malignancies. Although patients may only be aware of their presence, it is not uncommon for keratoacanthomas to induce mechanical abnormalities such as ptosis and ectropion.

In the absence of biopsy results, a lesion which reaches its maximum size over a relatively short time period (six to eight weeks) followed by regression with minimal scarring over a period of a few months, is virtually pathognomonic of a keratoacanthoma. Notwithstanding, it may be difficult to differentiate, on observation alone, from the more sinister squamous cell carcinoma, especially when the patient's history is vague and/or the same lesion has been present for six months or more.

Differential diagnoses

These include:

- Basal cell carcinoma (see Case 7)
- Squamous cell carcinoma (see Case 7)
- Seborrheic keratosis (see Case 4)
- Molluscum contagiosum (**Figure 10**)
- Verrucae Vulgaris (see Case 1)

Molluscum contagiosum is a skin disease caused by a DNA pox virus. Individuals may become infected either by direct contact or through sexual transmission. Although the lesions may be multiple, the number is typically less than 20. That said, patients who are immunocompromised, e.g. who have AIDS, may present with up to 40 lesions around the eyelids.

Like keratoacanthomas, the molluscum lesions are umbilicated. They are typically raised, pinkish nodules which contain a material resembling cheese in its umbilicated centre. Patients may present to their optometrist complaining of conjunctivitis. Simple incision and curettage may thus be indicated in these patients to reduce their ocular morbidity. In the absence of other signs and symptoms, these nodules may be left alone since they frequently involute over a three to 12 month time period.

Treatment

An excisional biopsy is the surgical method of choice since this is both curative and diagnostic for true keratoacanthomas. If the ophthalmologist elects to employ an incisional biopsy, it is imperative that the sample encompasses normal skin tissue up to the centre of the lesion. Failure to extend the biopsy to the latter region restricts the histopathologist's ability to differentiate the lesion from a squamous cell carcinoma. The cell atypia (i.e. those cells which do not conform to the type seen in a normal epidermal layer) observed in the margins of a keratoacanthoma may be indistinguishable from squamous cell carcinoma.

Other treatment modalities include intralesional steroid therapy, intralesional 5-fluorouracil therapy and radiotherapy.

CASE 7

Patient history

Patient WT, a 68-year old Caucasian female, presents for an eye examination complaining of a 'scab' on her lower right lid that will not go away (**Figure 11**). Furthermore, she noted this lesion approximately eight months ago. She suffers from psoriasis and undergoes psoralen plus ultraviolet A therapy (PUVA) to control her skin condition. Her family history is negative for both ocular and systemic disease.

Diagnosis and discussion

The patient has a noduloulcerative basal cell carcinoma (rodent ulcer). Basal cell carcinomas (BCC) account for over 90% of all eyelid malignancies and 20% of all eyelid tumours⁴. The average age of acquiring these lesions is 60 years and they arise almost exclusively in white individuals. The location of these malignancies in order of prevalence is the lower lid (50-60% of cases), medial canthus (20% of cases), upper eyelid (15% of cases) and lateral canthus (5% of cases).

The pathogenesis appears to be actinic damage, especially in fair skinned individuals. It is thought that ultraviolet light may trigger pluripotential cells in the epidermis to amplify and proliferate before terminally differentiating. Approximately 10% of cases arise from ultraviolet therapy to the head for conditions such as acne and psoriasis². It is, therefore, likely that this patient has acquired her carcinoma iatrogenically.

It is worth noting that the risk of acquiring a basal cell carcinoma is increased in patients who have been previously exposed to the same malignancy. These tumours can be locally invasive if left untreated. Structures including the orbital cavity, paranasal cavities and cranial cavity are all at risk of infiltration by these lesions. The risk of metastases is extremely low and is of the order of 0.1%⁵. Furthermore, the mean survival rate in such cases is 1.6 years.

As mentioned previously, basal cell carcinomas have a predilection for the lower lid. Although histopathologically there are many types of basal cell carcinoma, the three major types are:

- Nodular
- Noduloulcerative
- Sclerosing

Nodular

A nodular basal cell carcinoma is characterised by an indurated (abnormally hardened), pearly, dome-shaped nodule associated with several telangiectatic vessels pervading its surface (**Figure 12**). Although hyperkeratosis may occur, this is usually not the hallmark of basal cell carcinoma. They can become pigmented when they resemble a malignant melanoma.

Noduloulcerative

As the tumour continues to grow radially, it may outgrow its blood supply leading to central ulceration. As the ulcer enlarges, its



Figure 10 Molluscum contagiosum



Figure 11 Ulcerative basal cell carcinoma



Figure 12 Nodular basal cell carcinoma

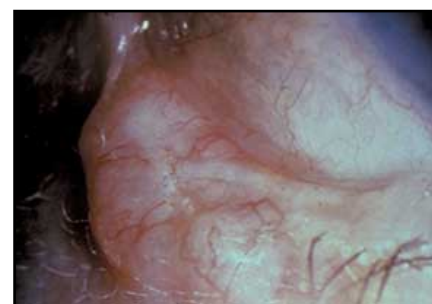


Figure 13 Sclerosing basal cell carcinoma

borders become rolled and indurated. This gives rise to the classic appearance of a rodent ulcer.

Sclerosing

Although it originates in the epidermis, the sclerosing subtype may permeate deep into the dermal layer (**Figure 13**). In contrast to the other basal cell carcinoma types, sclerosing carcinomas do not demonstrate well-delineated borders. Owing to its ill-defined borders, it is not uncommon for clinicians to mistake this lesion for dermatitis or blepharitis.

To recapitulate, basal cell carcinoma is mainly a disease of the elderly. However, multiple malignancies may arise in individuals suffering from Gorlin-Goltz syndrome (basal cell naevus syndrome) at puberty.



Figure 14 Squamous cell carcinoma



Figure 15 Sebaceous gland carcinoma

Differential diagnosis

Owing to their varying clinical appearance, the differential diagnosis includes an array of lesions. The most common are:

- Squamous cell carcinoma (**Figure 14**)
- Sebaceous gland carcinoma (see Case 8)
- Malignant melanoma
- Keratoacanthoma (see Case 6)
- Actinic and seborrheic keratoses (see Cases 3 and 4)
- Blepharitis

Squamous cell carcinoma represents a malignant tumour of the squamous layer of cells of the epidermal layer. Although much rarer than its basal cell counterpart, this carcinoma is the second most common eyelid malignancy. Unlike basal cell carcinomas, squamous cell carcinomas are potentially aggressive and may metastasize to the regional lymph nodes and distal sites, or invade the orbit directly or via perineural extension. Furthermore, squamous lesions proliferate at a faster rate.

Although squamous cell carcinomas may arise *de novo*, they frequently emerge from pre-existing lesions such as actinic keratosis. Other risk factors for their development include psoralen plus PUVA therapy for psoriasis, ionising radiation and the human papilloma virus⁶.

Squamous cell carcinomas usually present as painless, indurated plaques or nodules with variable degrees of scale, crust and ulceration. Surface crusting is frequently present owing to the propensity for these lesions to produce keratin.

Orbital invasion with these lesions can be devastating. Perineural extension via the supraorbital and trigeminal nerves is the most frequent route adopted. Once the orbit is penetrated, the malignant cells may pervade the motor nerves giving rise to ophthalmoplegia. In

conjunction with metastatic spread, orbital involvement carries a poor prognosis for patient survival. Thus, in order to preserve life, radical surgery is usually required and includes orbital exenteration (removal of globe and its contents) and resection of the regional lymph nodes combined with radiotherapy and concomitant chemotherapy.

Treatment

Fortunately, basal cell carcinomas are amenable to treatment. Although non-surgical treatments such as cryotherapy and laser ablation may be advocated by some clinicians, surgical excision carries the best prognosis and, as a consequence, is the treatment of choice. Since some tumours may extend more than they clinically appear (e.g. sclerosing type), the success of treatment lies in the ability of the surgeon and histopathologist to work in close harmony.

The surgeon's goal in treating these lesions is to eradicate the malignancy while maintaining the integrity of the normal eyelid and periorbital structures. With these goals in mind, the most successful form of therapy is Mohs' micrographic surgery. This technique involves the removal of the majority of the tumour together with a portion of normal tissue. Furthermore, the tissue is excised in layers and is processed as frozen sections on a glass slide so as to provide the clinician with a three-dimensional map of the excised tumour. This technique allows the clinician to identify residual tumour landmarks and to direct additional excision. Reconstruction surgery may only be carried out once the abnormal cells have been eradicated.

Standard frozen sections can be utilised when the tumour's margins are delineated. In short, the pathologist examines the margins of an excised lesion. If tumour cells are still present, the surgeon removes more tissue until the pathologist can no longer identify such abnormal cells. At this stage, reconstruction surgery is undertaken.

Case 8

Patient history

Patient TR, a 60-year old Caucasian female, presents with an inflamed left lower eyelid (**Figure 15**). She mentions that she was seen by an ophthalmologist six months previously who diagnosed blepharitis and, at the time, advised that she adopt a regimen of eyelid hygiene. In addition, she was prescribed 1% chloramphenicol ointment and instructed to apply it on the eyelid margins twice a day.

Unfortunately, her condition has worsened on her left side. Her right eyelids appear unremarkable.

Diagnosis and discussion

A patient who presents with a unilateral external inflammation that is recalcitrant to standard therapy should be viewed with a high level of suspicion for sebaceous gland carcinoma. The tumour-induced death rate of 28%⁷ attests to

the importance of diagnosing these malignancies promptly. The main reason for the high morbidity and mortality with these lesions is the delay in acquiring the correct diagnosis. Although the tumour is rare, it has gained notoriety in the ophthalmic literature through its ability to masquerade as common benign eyelid conditions such as blepharoconjunctivitis and recurrent chalazion.

Sebaceous gland carcinoma is typically a disease of the middle aged and elderly with the average age of onset in the seventh decade. Females are more commonly affected than males (F:M ratio is 2:1). Sebaceous gland carcinomas usually affect the meibomian glands. Since there are more meibomian glands in the upper than the lower lid, it is not surprising that the sebaceous gland carcinomas arise more frequently in the former structure. However, they may also involve the glands of Zeis and the sebaceous glands in the brow and caruncle. Owing to its ability to mimic other benign lesions, its appearance may vary quite considerably. The most typical presentation is a painless mass affecting the tarsal plate or eyelid margin. The presence of lipid in the mass, as evidenced by a yellow colour on its surface, may serve to distinguish this malignancy from either a basal cell carcinoma or squamous cell carcinoma in which lipid is invariably absent.

A lesion which grows in the tarsal plate may be differentiated from a chalazion by the fact that the former is very hard and mobile, while the latter is more rubbery in consistency and is not adherent to the overlying skin. Intraepidermal extension of the tumour leads to a pagetoid spread wherein the tumour can appear clinically indistinguishable from chronic blepharitis. The term pagetoid is used since it resembles the eczema-like inflammatory skin changes seen in the malignant condition known as Paget's disease. The lids appear indurated and there may be co-existing madarosis (loss of eyelashes). Migration of malignant cells onto the bulbar conjunctiva and even corneal epithelium may occur. The ensuing conjunctivitis and superficial keratitis may again compound the level of difficulty in distinguishing this from blepharoconjunctivitis.

Differential diagnosis

The differential diagnosis includes:

- Squamous cell carcinoma (see Case 7)
- Basal cell carcinoma (see Case 7)
- Chalazion
- Blepharitis

Treatment

The prognosis correlates positively with the speed of detection. The procedure of choice is wide surgical excision together with microscopic monitoring of the margins. Lesions which exhibit pagetoid spread may require either a subtotal or total exenteration. Moreover, if the regional lymph nodes are infiltrated, radial neck dissection may also be required. Thus the management of these

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patients involves a multidisciplinary team including ophthalmologists, head and neck surgeons and histopathologists.

Radiotherapy may also be employed in conjunction with surgery. However, radiotherapy alone is usually insufficient in eliminating the malignancy. Indeed, Nunery et al⁸ have reported that the tumour often recurs within three years of treatment when irradiation is the sole method of treatment.

Referral criteria

Patients who have benign lesions which are bothersome from a cosmetic standpoint, should be referred routinely to their general practitioner. If a malignant lesion is suspected, referral to the patient's general practitioner is still warranted. However, the optometrist should express his or her concern as to the gravity of the lesion and thus request that the patient be seen by an ophthalmologist as soon as possible. Immediate referral is indicated in patients who exhibit signs of perineural invasion, such as ophthalmoplegia.

Conclusion

This article has highlighted a range of benign and malignant lesions which may present in optometric practice. At a time when the overall rate of skin cancer is increasing in the United Kingdom⁹, it is expected that the number of cases

encountered in everyday practice will also rise. Furthermore, since optometrists may be the first eyecare practitioners to whom the patient presents, they will be well placed to reduce the morbidity and mortality rates associated with such disorders.

About the author

Greg Heath is an optometrist working part-time in private practice. He is currently reading medicine at the Royal Free and University College London Medical School.

Acknowledgements

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Multiple choice questions

Ocular therapeutic case studies

- Lid abnormalities

Please note there is only one correct answer

- 1. Which of the following statements concerning the skin and eyelids is true?**
 - a. Keratinocytes originate from the stratum corneum
 - b. The eyelid skin is the thickest in the body
 - c. The epidermis is composed of keratinocytes only
 - d. The glands of Moll are apocrine glands
- 2. Which of the following statements regarding squamous cell papillomas is false?**
 - a. They are benign
 - b. They can only be diagnosed via biopsy
 - c. The differential diagnosis includes Verrucae Vulgaris
 - d. They can be cauterised chemically
- 3. Which one of the following conditions is always malignant?**
 - a. Keratoacanthoma
 - b. Actinic keratosis
 - c. Sebaceous gland carcinoma
 - d. Seborrhic keratosis
- 4. Which of the following always requires biopsy to confirm the underlying diagnosis?**
 - a. Keratoacanthoma
 - b. Seborrhic keratosis
 - c. Cutaneous horn
 - d. Sebaceous cyst
- 5. Which of the following is not associated with chronic ultraviolet light exposure?**
 - a. Basal cell carcinoma
 - b. Actinic keratosis
 - c. Molluscum contagiosum
 - d. Keratoacanthoma
- 6. Risk factors for the development of squamous cell carcinoma include all of the following except which one?**
 - a. Seborrhic keratosis
 - b. Human papilloma virus
 - c. PUVA therapy
 - d. Ultraviolet light exposure
- 7. Which of the following statements is true regarding basal cell carcinoma?**
 - a. It is exclusively a disease of the elderly
 - b. It is more common in black patients
 - c. They never metastasize
 - d. They are more commonly found on the lower lid
- 8. An asymptomatic, 65-year old male presents with a greasy, well demarcated lesion on his lower lid. The most likely diagnosis would be:**
 - a. actinic keratosis
 - b. sudoriferous cyst
 - c. seborrhic keratosis
 - d. basal cell carcinoma
- 9. Which of the following carries the worst prognosis?**
 - a. Sebaceous gland carcinoma
 - b. Basal cell carcinoma
 - c. Cutaneous horn
 - d. Verruca Vulgaris
- 10. Which one of the following signs or symptoms is not suggestive of eyelid malignancy?**
 - a. Ophthalmoplegia
 - b. Lymph node involvement
 - c. Itchiness
 - d. Unilateral blepharoconjunctivitis
- 11. Which of the following statements is true regarding sebaceous gland carcinoma?**
 - a. It occurs more frequently in the lower eyelid
 - b. The incidence in females is higher than in males
 - c. It is common
 - d. It is easy to diagnose
- 12. Which of the following benign lesions may indicate internal malignancy?**
 - a. Multiple sudoriferous cysts
 - b. Multiple keratoacanthomas
 - c. Molluscum contagiosum
 - d. Sessile squamous cell papilloma

An answer return form is included in this issue. It should be completed and returned to: CPD Initiatives (c4082h), OT, Victoria House, 178-180 Fleet Road, Fleet, Hampshire, GU51 4DA by October 2, 2002.