Benign and Malignant Tumors of the Eyelids and Adnexa

RICHARD E. CASTILLO, OD, DO
OPHTHALMOLOGY & PROCEDURAL OPTOMETRY
Skin Anatomy Review

Epidermis

Dermis
QUICK REVIEW: Cell types in the skin

- Basal Cell Carcinoma develops here
- Melanoma develops here
- Squamous cell carcinoma develops here
- Merkel cell carcinoma develops here
- Mycosis Fungoides Develops here
superior tarsal muscle
accessory lacrimal glands
palpebral conjunctiva
tarsal glands
tarsal plate
orbicularis oculi m.
skin
eyelashes w/ sebaceous glands (of Zeis)

levator palpebrae m. (and tendon)
Definition of a Benign Tumor

A benign tumor is a mass of cells (tumor) that lacks the ability to invade neighboring tissue or metastasize.
Benign Tumors: Actinic (Solar) keratosis

Description
• Slow growing hyperkeratinization of the epidermis
• Results from sun exposure
• Pre-malignant: may evolve into squamous cell carcinoma

Clinical Features
• Rough, dry, and scaly plaque that is flat or slightly raised on erythematous base
• Up to 2.5 cm diameter individually
• Often multiple lesions that coalesce
• Distinct boarders
• May be skin colored to dark brown
Benign Tumors: Actinic keratosis

Risk Factors
• Elderly individuals with lightly pigmented skin
• Rarely develops on the eyelid
• Common on the scalp, ears, forehead, and backs of hands
• The patient may notice itching or burning of the lesion
Benign Tumors: Actinic keratosis

Management

- **Biopsy** for definitive diagnosis (and to r/o SCC), then:
  - Excision
  - Radiosurgical ablation
  - Cryotherapy
Benign Tumors: Squamous Cell Papilloma

Description
• Outgrowth of fibrovascular connective tissue
• Covered by irregular keratinized stratified squamous epithelium

Clinical Features
• Variable presentations
  • Pedunculated, skin colored
  • Broad base: with “raspberry like” appearance
• May be difficult to differentiate from viral wart (human papillomavirus)
Benign Tumors: Squamous Cell Papilloma

Risk Factors
• Viral etiology (HPV)
• No predilection to race or gender

Management
• Excision if functional issues or symptomatic
Benign Tumors: Squamous Cell Papilloma
Benign Tumors: Seborrheic keratosis

Description
• Expansion of the squamous epithelium stemming from basal cell proliferation
• Slow growing lesion
• No malignant potential

Clinical Features
• Round “coin-like” lesion with “stuck-on” appearance
• Up to 2.5 cm diameter
• Slightly raised and crusty: often keratinized similar to actinic keratosis
• Tan to dark brown in color
• Variety of textures: granular to velvety
Benign Tumors: Seborrheic keratosis

Risk Factors
• Common in the elderly
• Most people develop at least one during their lifetime
• Common on the head, neck, or trunk

Management
• No treatment required except for cosmetic reasons or if they become irritated
• Removed by excision, laser, cryo radiosurgery, or curettage
Radiofrequency Ablation of Periocular Seborrheic Keratoses

Richard E. Castillo, O.D., D.O.
Benign Tumors: Inverted Follicular Keratosis

Description
• Rare and often rapid growing lesion arising from a hair follicle
• Histologically similar to basal cell papilloma, but with deeper extension into the dermis

Clinical Features
• Non-pigmented papilloma at the lid margin
• Usually < 1 cm diameter, projects no more than 0.5 cm

Risk Factors
• Typically older males

Management (can be difficult to ID clinically)
• Requires deep excision
• Recurrence is common if not completely removed
Benign Tumors: Inverted Follicular Keratosis
Benign Tumors: Keratoacanthoma

Description
- Rare and **rapidly growing**
- **Pre-malignant**: potentially transforming into squamous cell carcinoma

Clinical Features
- Initially appears as a pink hyperkeratotic lesion usually on the lower lid
- After a period of rapid growth, remains stable for several months
- Then begins to involute and a keratin filled crater often forms
- Complete involution can occur after a year leaving a residual scar
Benign Tumors: Keratoacanthoma

Risk Factors
- Same demographic as actinic keratosis
- Higher occurrence in patients on immunosuppressive therapy following kidney transplants

Management
- Biopsy to r/o SCC
- May involute on their own leaving a scar
Benign Tumors: Keratoacanthoma
Benign Tumors: Melanocytic Nevus

Description
• Tumor composed of cells derived from either epidermal or dermal melanocytes
• Acquired and congenital forms
• Generally low to no malignant potential

Clinical Features
• **Junctional**: Uniform brown macule or plaque
• **Compound**: Uniform, light to dark brown, raised papule
• **Intradermal**: Papillomatous with little to no pigment. Associated with dilated vessels and protruding lashes
Benign Tumors: Melanocytic Nevus

Risk Factors
- Junctional nevus: young
- Compound nevus: middle age
- Intradermal nevus: most common overall and occurs in the elderly

Management
- Acquired nevi in adults should be biopsied
- Excision may need to be followed by reconstruction depending on location and size
Radiofrequency Ablation of Intradermal Nevus
Richard E. Castillo, OD, DO
Benign Tumors: Xanthelasma palpebrarum

Description
• Lipid-filled macrophages at the level of the dermis
• Common and usually bilateral

Clinical Features
• Yellowish subcutaneous plaque
• Usually on the medial portion of the eyelids
• Often multiple

Risk Factors
• Age
• Associated with elevated cholesterol especially when occurring in younger individuals w/ or w/o corneal arcus

Management
• Cosmetic procedure
• Best treated with laser (CO$_2$, erbium:YAG, diode) ablation
• May be excised
• Recurrence suggestive of uncontrolled hyperlipidemia
Benign Tumors: Xanthelasma palpebrarum
Benign Tumors: Pilomatricoma

Description
• Abnormal proliferation of the germinal matrix cells in a hair follicle within the dermis
• Frequently becomes calcified

Clinical Features
• Deep nodule
• Becomes hard (indurated) if calcified

Risk Factors
• Common in young females

Management
• Excisional biopsy (refer to plastics)
• Do not attempt to shave
Benign Tumors: Pilomatricoma
Benign Tumors: Neurofibroma

Description
• Abnormal proliferation of non-myelinating Schwann cells & other cellular components. Not synonymous with Schwannoma.

Clinical Features
• Characteristic S-shaped lid presentation
  • Typically located on the upper lid

Risk Factors
• Solitary lesions occur in adults
  • 25% associated with neurofibromatosis-1
• Children with neurofibromatosis-1 are affected by diffuse lesions

Management
• Solitary lesions may be removed by excision for functional or cosmetic reasons
• Diffuse lesions are more difficult to remove
Benign Tumors: Neurofibroma
Benign Cysts: Chalazion

Description
- Retained meibomian gland secretions
- Patients with rosacea or meibomian gland dysfunction are more prone to developing multiple and recurrent chalazion

Clinical Features
- Initial inflammatory phase evolving into chronic (painless) granulomatous phase
- Non-tender nodule enlarges gradually
- May enlarge up to nearly 1 cm
- If large enough, may induce astigmatism by pressing on the cornea
Benign Cysts: Chalazion

Management

- Up to 1/3rd drain and resolve spontaneously
- Conservative therapy using warm compress and massage
- Steroid injection through the palpebral conjunctiva
  - 0.1-0.2 ml triamcinolone
  - 80% success rate reduction or resolution
  - May cause local depigmentation of the skin
- Oral tetra/doxycycline in patients with chronic lid inflammation (?)
  - Do not use in children or pregnant/nursing women!
  - 250mg PO qid tetracycline
  - 100mg PO bid doxycycline
  - 1-2 week course followed by low-dose maintenance therapy
- Incision & drainage through the palpebral conjunctiva and tarsal plate
- Biopsy a recurrent chalazion - it may be sebaceous cell carcinoma
Benign Cysts: Cyst of Zeis

Description
• Non-translucent retention cyst involving lash and the anterior lid margin
• Glands of Zeis are unilobar sebaceous glands that produce oil for the lashes

Management
• Excision/drainage if symptomatic
Benign Cysts: Cyst of Moll

Description
- AKA: Sudoriferous cyst or Hidrocystoma of eyelid
- Translucent retention cyst involving the anterior lid margin
- Glands of Moll are (apocrine) sweat glands anterior to the Meibomian glands

Management
- Excision/drainage if symptomatic or functional issue
- Must remove/destroy epithelial lining of cyst or may recur
Benign Cysts: Epidermal Inclusion Cyst

Description
• AKA: Sebaceous, Epidermoid or Keratinacious cyst of eyelid
• Most common cyst of the skin
• Cyst lined by stratified squamous epithelium containing keratin and sebaceous material
• Result from ingrowth of surface epidermis after trauma or surgery

Clinical Features
• Round, well defined, non-tender mass
• Non-translucent/opaque
• Ruptured cysts cause an acute inflammatory response and possible secondary infection

Management
• Excision with removal of contents and fibrous capsule
Excision of Epidermal Inclusion Cyst
Benign Cysts: Apocrine Hidrocystoma

Description
- Rare cyst that forms from retained sweat in a blocked and dilated sweat duct
- More common in females
- Appear fluid filled

Clinical Features
- Similar to Cyst of Moll with the exception that it does not involve the lid margin
- Painless and usually asymptomatic
- May grow up to 6mm

Management
- Not indicated, or excise if symptomatic or cosmetic issue
Benign Cysts: Syringoma

Description
• Benign and asymptomatic proliferation of sweat gland duct epithelium
• Relatively common
• Most common in adult females
• Do not appear fluid filled

Clinical Features
• Multiple small (3mm or less) papule’s
• May be skin color or yellowish

Management
• Removed for cosmetic reasons only
• No set recommended removal technique
• Options include excision, cryotherapy, dermabrasion, radiofrequency, electrocautery and more
Benign Cysts: Milia

Description
• Small epidermoid cysts that tend to occur in clusters
• Result from blocked *vellus* hair follicles that retain keratin
• Very common – occurs in half of all infants
• May also occur following dermabrasion or damage to the follicle

Clinical Features
• Small pearly white to yellowish papule’s

Management
• No treatment necessary
• Needle expression or radiosurgical ablation if cosmetic issue
Benign Tumors: Acrochordon (Skin Tag)

Description
• May be caused by rubbing
• Increased incidence with age
• Appearance: pedunculated, fleshy, skin-colored mass, +/- hyperkeratosis (cutaneous horn)
• Benign, slow growing, usually asymptomatic, may cause irritation
• **Definitive diagnosis by biopsy (r/o SCC)**

Risk Factors
• Obesity
• Diabetes

Management
• Observe if no risk features present
• Surgical excision (**biopsy the base**)
• Radiosurgical excision
• Cryo
Malignant Tumors of the Eyelids and Adnexa
QUICK REVIEW: Cell types in the skin

- **Basal Cell Carcinoma** develops here
- **Melanoma** develops here
- **Squamous cell carcinoma** develops here
- **Merkel cell carcinoma** develops here
- **Mycosis Fungoides** develops here
Benign vs. Cancer

Periorbital Skin
Malignant Tumors: Basal Cell Carcinoma

Description
- Locally invasive proliferation of epidermal basal cells
- Most common skin (eyelid) malignancy
- Slow growing with little metastatic potential (<0.1%)

Clinical Features
- Usually on the lower eyelid
- Non-tender ulceration
- Irregular boarders
- Possible keratinization (resembling squamous cell carcinoma)
- Destruction of eyelid architecture (loss of lashes & MG orifices)
- Nodular subtype: pearl like appearance with dilated blood vessels on surface
- Ulcerative subtype: central ulcer with raised pearly edges & telangiectasias
- Sclerosing (morphea) subtype: indurated, infiltration beneath the epidermis. May be confused with chronic blepharitis
Malignant Tumors: Basal Cell Carcinoma

Risk Factors
• Age, fair skin and cumulative sun exposure

Management
• Excisional Biopsy with margin control
• Mohs micrographic surgery
  • Highest cure rate at 98%.
• Recurring tumors tend to be more invasive and difficult to treat
Malignant Tumors: Basal Cell Carcinoma

- Nodular BCC
- Ulcerative BCC
- Morpheaform BCC
Malignant Tumors: Squamous Cell Carcinoma

Description
• Proliferation of invasive cells arising from the squamous cell layer (stratum spinosum) of the epidermis
• Can arise de novo or from existing actinic keratosis or keratoacanthoma
• Less common, but more aggressive than basal cell carcinoma
• Rate of metastasis related to size and depth of primary tumor (metastasis rare when depth is < 2mm)

Clinical Features
• Variety of appearances and may be difficult to distinguish from BCC
• Scaly with irregular boarders
• Absence of surface vasculature
• Extensive keratinization usually present
• Lesions may bleed
• **Nodular subtype**: keratinized nodule that develops erosions and fissures
• **Ulcerative subtype**: everted boarders with a red, well defined base
• **Hyperkeratotic subtype**: invasive SCC underlies hyperkeratosis
Malignant Tumors: Squamous Cell Carcinoma

Risk Factors
- Age
- Fair skin, sun exposure, and immune suppression

Management
- Size and depth dictates degree of systemic workup
- Can be fatal if left untreated (2,500 annual deaths in USA)
- Excisional biopsy with clear margins
- Mohs micrographic surgery: highest cure rate 94-99%
- Other options include cryotherapy, radiosurgery, and local radiation
Malignant Tumors: Squamous Cell Carcinoma
Malignant Tumors: Sebaceous Gland Carcinoma

Description
• Slow growing tumor
• Arises from the meibomian glands, glands of Zeis, or sebaceous glands in the caruncle
• More common on the upper lid (more glands)

Clinical Features
• No pathognomonic presentation
• Can mimic chalazion or chronic blepharitis
• Yellowish material may be seen within the tumor
• Nodular subtype: painless, indurated nodule similar to chalazion
• Spreading subtype: thickened lid margin, loss of lashes & MG orifices, similar to chronic blepharitis
Malignant Tumors: Sebaceous Gland Carcinoma

Risk Factors
• Females age >60 yrs most common
• Youngest reported case was in a 3 year old

Management
• Diagnosis is often delayed (mimics other lesions)
• Mortality rate is 5-10%
• Recurring chalazion should be suspected
• Wide-margin surgical excision with lymph node evaluation for metastasis
• Recurrence is as high as 33%
• Little documentation for Mohs, but possibly lower recurrence rate
Malignant Tumors: Melanoma

Description
• Epidermal and dermal proliferation of transformed and invasive melanocytes
• Arises from existing nevus or de novo
• *Lentigo maligna* subtype is most common around the eye
• High potential for metastasis
• Potentially fatal (represents greater than 2/3 of all skin cancer deaths)

Clinical Features
• Rare on the eyelid (1% of all eyelid lesions)
• Half of those that do are non-pigmented (*Lentigo maligna melanoma*)
• Asymmetric plaque or nodule with irregular and indistinct boarders
• Variable colors in the lesion (non-pigmented to blue and black)
• Associated with destruction of local anatomy and loss of lashes
Malignant Tumors: Melanoma

Risk Factors
• Most common in elderly individuals with light skin
• History of sun damaged skin
• Diameter > 5 mm

Management
• Question & refer any new, changing, or irregular appearing lesions
• Melanoma confirmed with excisional biopsy
• Wide surgical (up to a 1 cm) margin for confirmed malignancy
• Local lymph node dissection if malignancy is more than 1.5 mm deep (Clarks’s level & Breslow depth scale)
• Prognosis and recurrence is tied to size and any metastasis of original lesion
• Patients should be followed closely following surgery
Malignant Tumors: Melanoma
Malignant Tumors: Merkel Cell Carcinoma

Description
- Very rare and fast growing form of skin cancer
- Highly malignant and potentially fatal
- Arises from Merkel cells located in the basal layer of the epidermis
- Normal cells thought to play a regulatory role in epidermal growth

Clinical Features
- Frequently involves the upper eyelid (can occur anywhere on face & neck)
- Red, purple, or violet colored, well defined nodule
- Wide variation in size, from less that 2cm to larger than 15cm
- Overlying skin is intact
Malignant Tumors: Merkel Cell Carcinoma

Risk Factors
• Average age of diagnosis is 75
• 20x more likely to occur in whites than blacks
• No gender predilection
• Sun exposure and immune suppression

Management
• Many have metastasized by the time they are diagnosed
• CT and/or MRI imaging used to evaluate systemic spread
• Primary tumor removed with a wide excision (margins up to 3cm if possible)
• Chemotherapy and/or radiotherapy depending on spread
• 2 year mortality rate of 30-50%
Malignant Tumors: Merkel Cell Carcinoma
Basic Biopsy of a Low Risk Nodular Lid Lesion

Biopsy of a nodular lesion
Thank you!