

# Peri-ocular Dermatology

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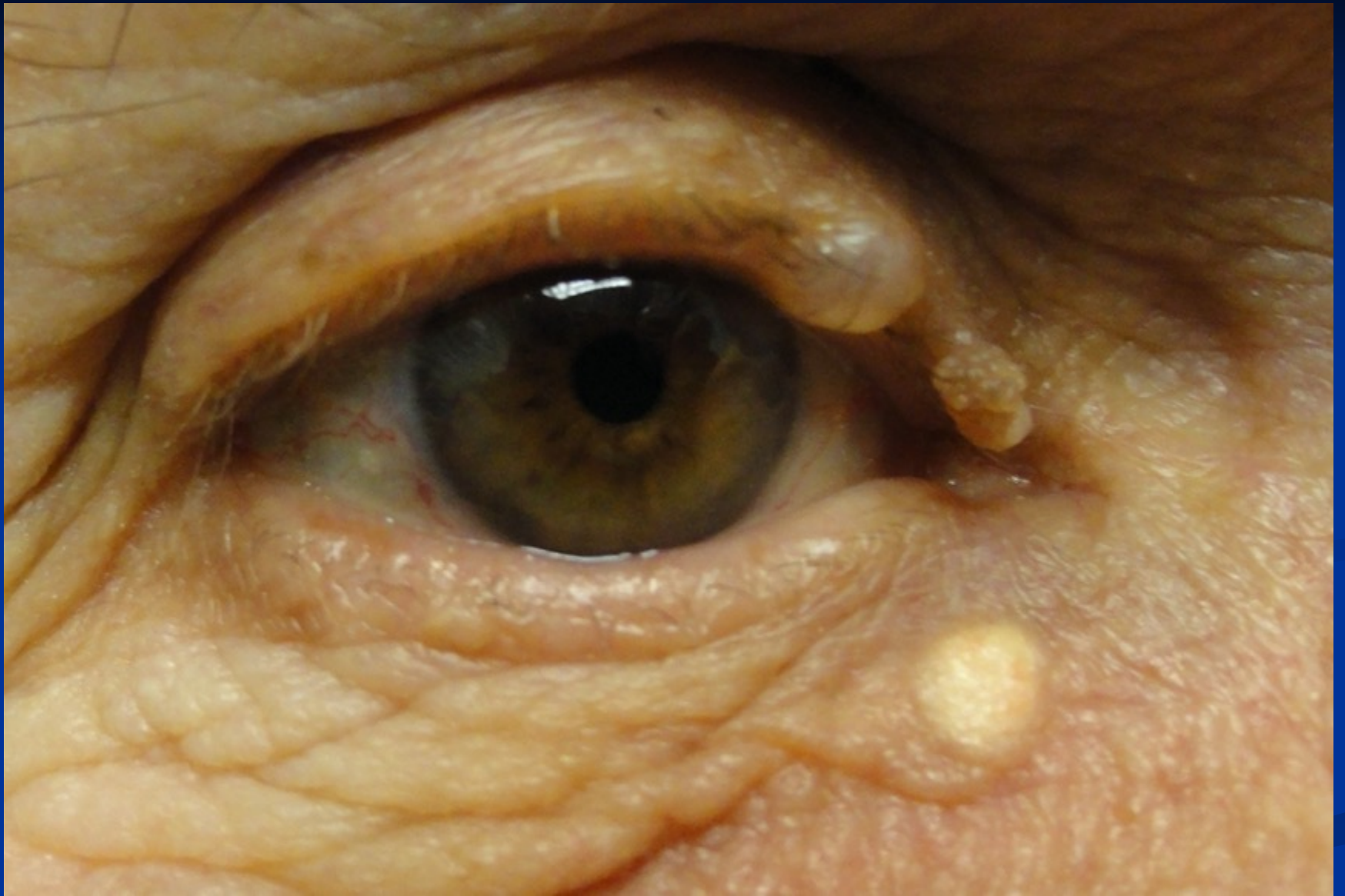
# Goals

- Review basic skin anatomy
- Understand basic skin physiology
- Recognize peri-ocular skin pathology
- Review basic treatment and management of these conditions.



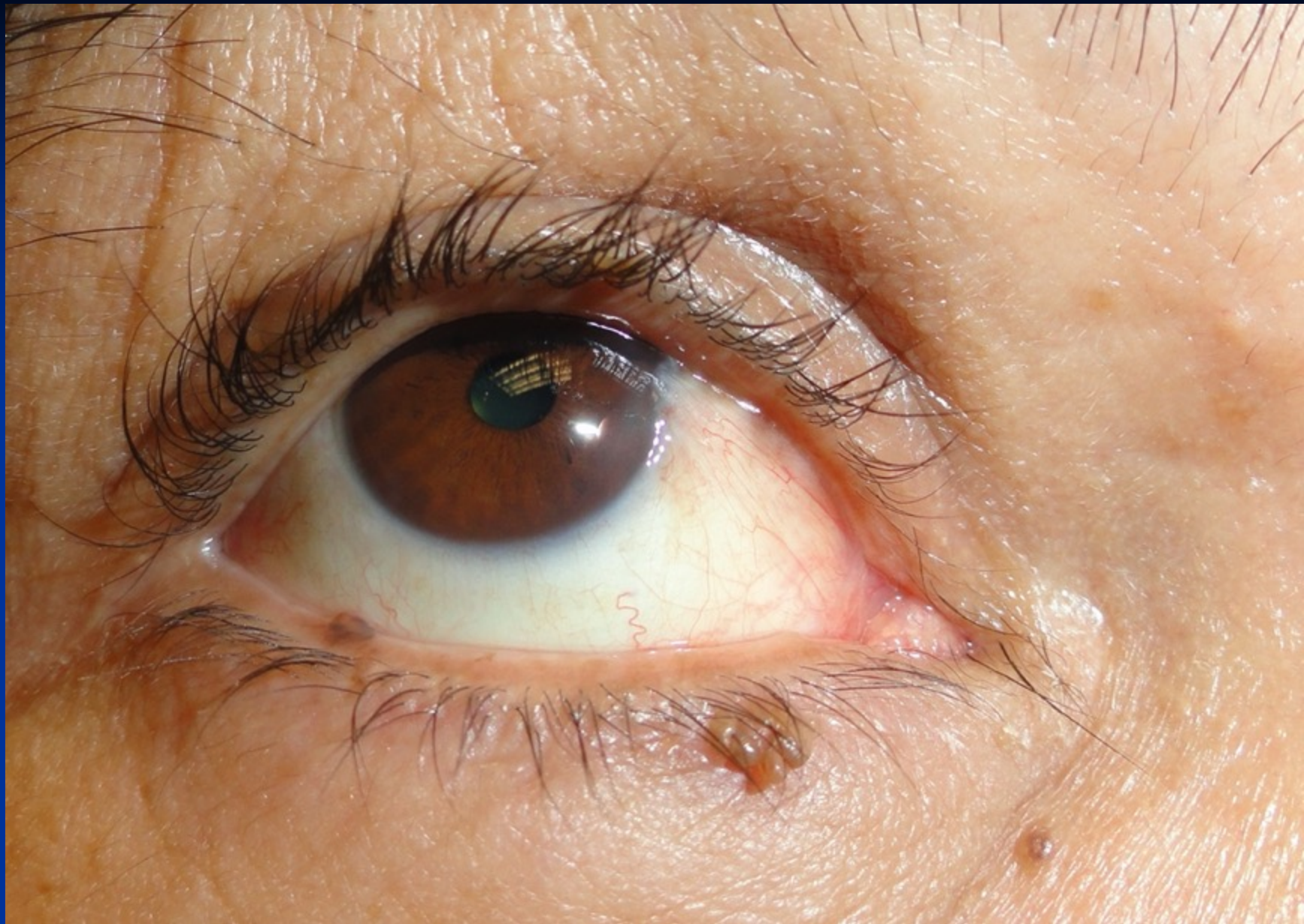
# Pre Test

- Test your knowledge















# Anatomy



# Basic Skin Anatomy

- Multi-layer structure

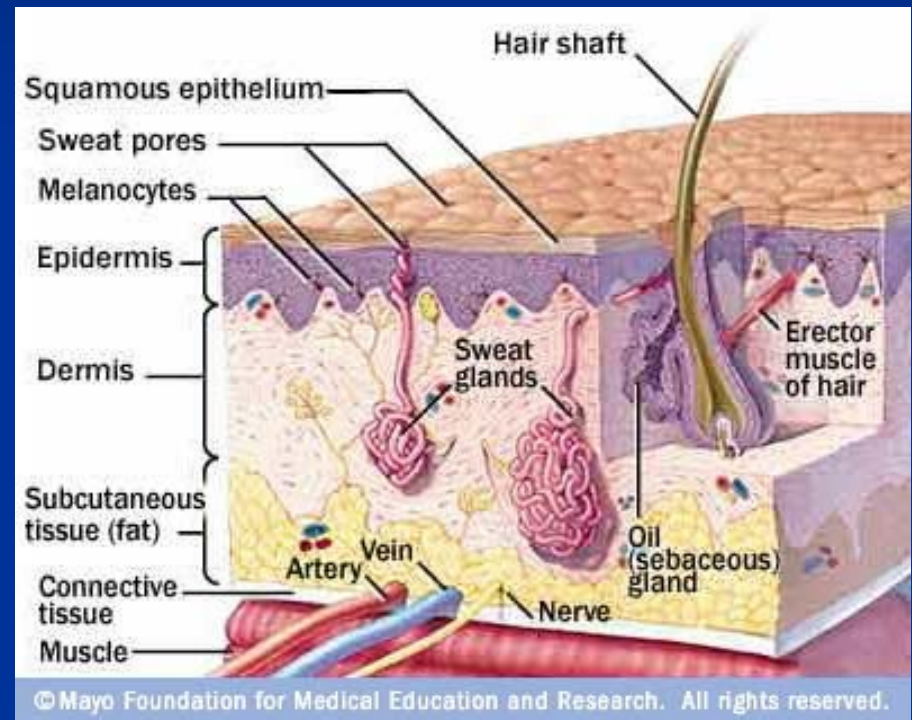
Epidermis

Dermis

Subcutaneous fat

(no SQ fat in lids)

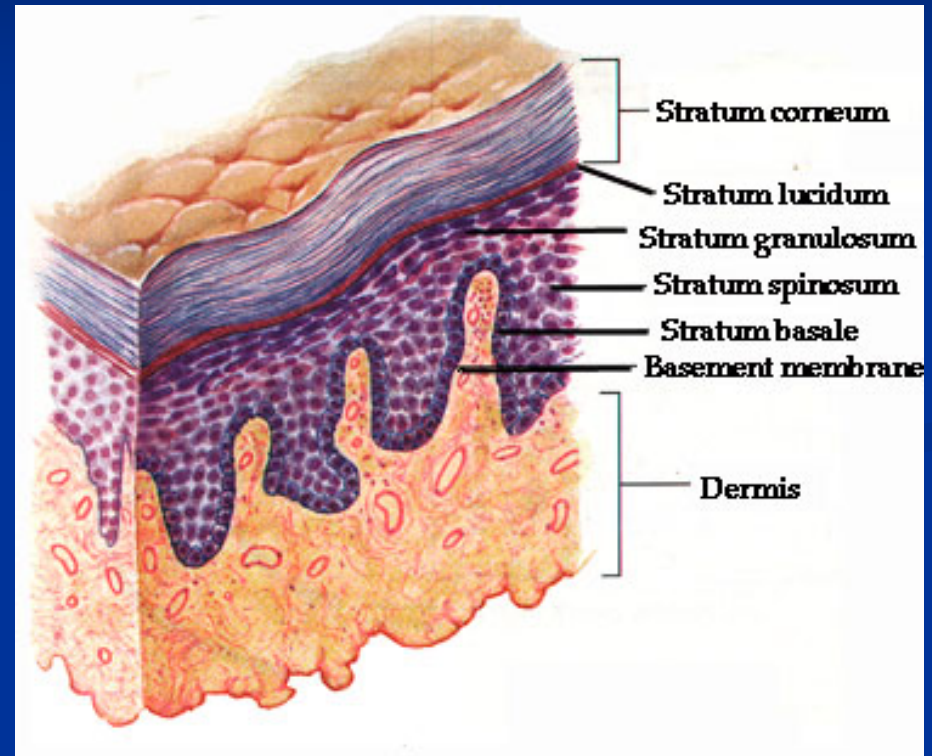
- Contains sweat & oil glands, hair follicles, etc.





# Epidermis

- Keratinocytes
  - Migrate from the basal layer to surface
  - Produce keratin
  - Become epithelial cells of the stratum corneum over 6 week cycle



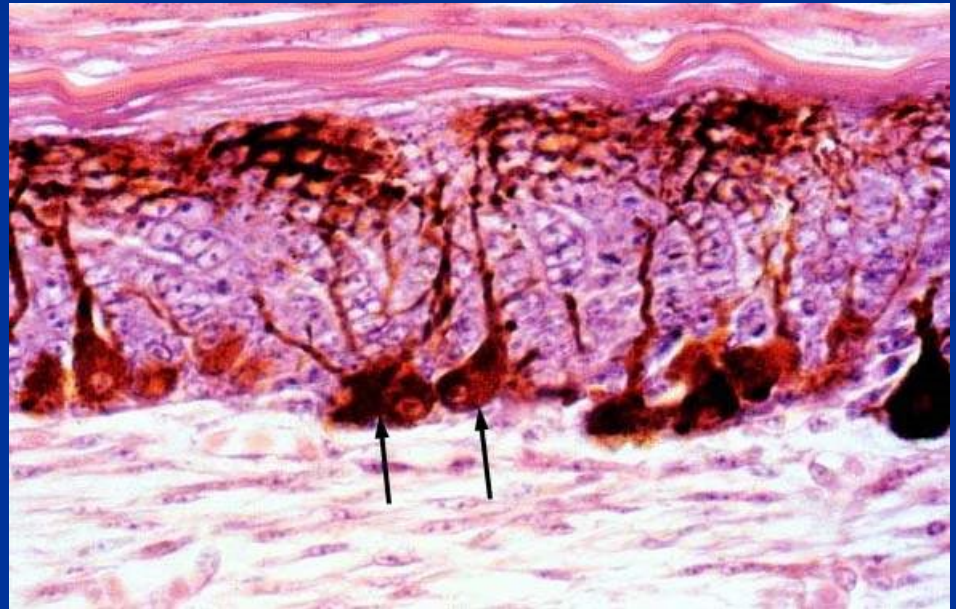
# Epidermis

- Melanocytes

  - Produce melanin

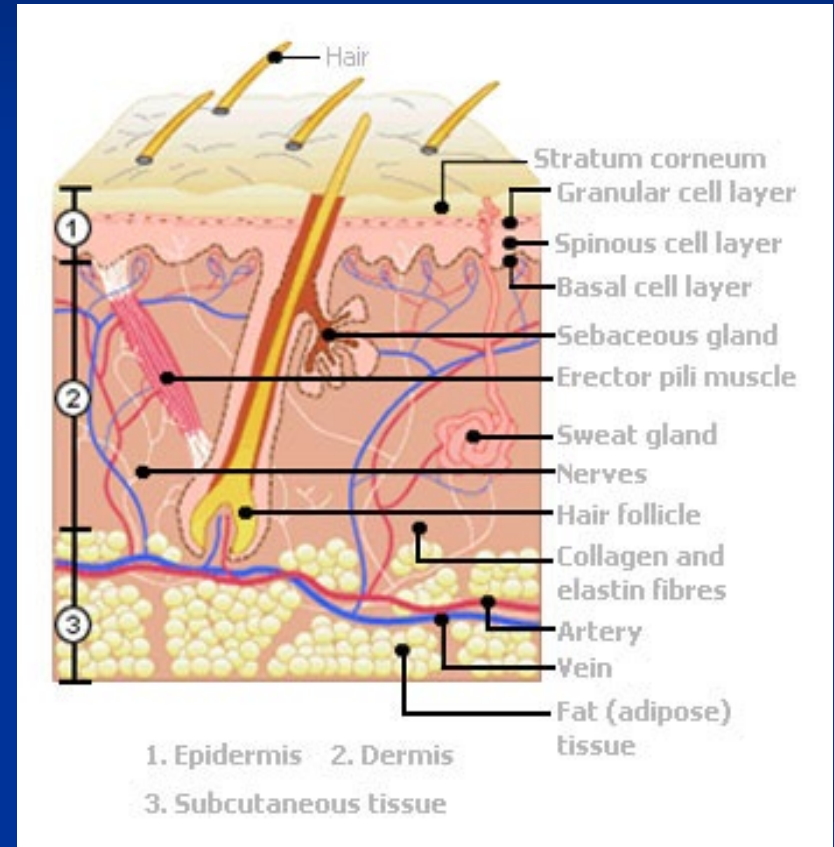
  - Packaged into the  
melanosomes

  - Absorbed by  
surrounding cells to  
protect DNA  
(natural “sun  
blocker”)



# Dermis

- Structural scaffolding of the skin
- Composed of collagen & elastin
  - Produced by fibroblasts
- Dermal appendages
  - Sebaceous and sweat glands
  - Hair follicles



# Skin Physiology

## ■ External Barrier

- Prevents microbes and irritants from entering the body

## ■ Internal Barrier

- Vital component to thermoregulation
  - Vasculature: heat conduction
  - Moisture: evaporation

# Skin Health

- Intact & Healthy Skin Maintains Itself
- Cellular Dysfunction Leads to Pathology
  - Sun & environmental damage
    - Intrinsic aging
    - Infection
    - Inflammation/Allergy
    - Cancer

# Clinical Approach

# Approach to Patient

- Thorough History
  - Duration of lesion?
  - Any change?
  - Tempo of change?
  - Any pain or itching?
  - Any crusting, ulceration, bleeding, discharge?
  - Previous trauma, skin cancer?



# Approach to Patient

## ■ Careful Examination”

- Asymmetry
- Border/shape
- Color
- Diameter, Depth
- Extra features (pearly, margin, ulceration, umbilication, warmth, edema, tender, etc.)



# How Accurate Are We?

- Kersten et al.

- “Accuracy of Clinical Diagnosis of Cutaneous Eyelid Lesions”

Ophthalmology 1988; 105(2):203-4

Predicted Benign: 1.9% were actually malignant

Predicted Malignant: 8.5% were actually benign

Biopsy is the best way to make the Diagnosis!

# Common Benign Lesions

- Epithelial Hyperplasias (skin tags, papillomas, seborrheic keratoses)
- Cystic lesions
- Inflammatory/Allergic (chalazia, hordeola)
- Melanotic Nevi (moles)

# Benign vs Malignant

- Malignant lesions may masquerade as inflammation or benign lesions
  - 5-10% of all skin cancers arise in the eyelids
    - 90% are Basal Cell Carcinoma
    - Male = Female
    - Older > Younger

# Many Clinical Characteristics of eyelid lesions give strong clues as to whether the lesion is benign or malignant

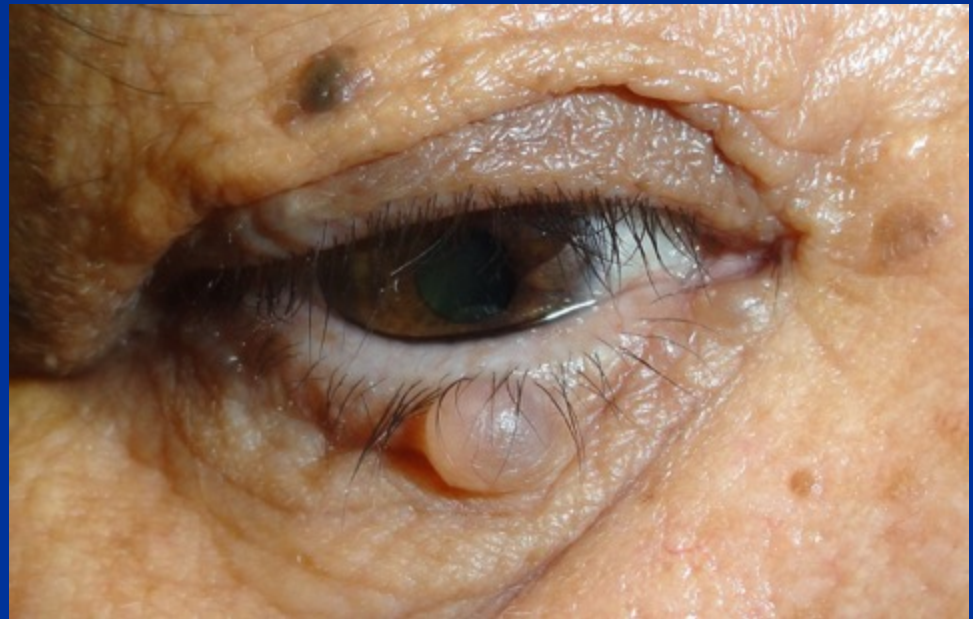
- Cyst With Clear Fluid (Benign)
- Pigmentation/Color Change
- Bleeding & Scabbing
- Umbilication
- Rate of Growth
- Palpation Characteristics

# Exceptions Often Occur

Nothing is 100%

# Cysts with Clear Fluid

- Usually indicates benign lesion
  - Hydrocystomas
- However some benign cysts can look suspicious
  - White to yellow (milia)
  - Pigmented or Yellow
    - (epidermal inclusion cyst)
- Viscous Contents – Malignant
  - Cystic basal cell, Eccrine Adenocarcinoma



# Pigmented Lesions



# Pigmented Nodule



# Bleeding or Scabbing

- More Often Seen with Malignancy
  - Actinic keratosis
  - Squamous cell carcinoma
  - Basal cell carcinoma
- Can Occur with Inflamed Benign Lesions
  - Benign keratoses and papillomas
  - Patient manipulation
  - Infections with drainage
  - Excoriation from scratching

# Scabbing



# Madarosis or Lash Loss

- Associated with malignancy of lid margin
  - Basal cell carcinoma
- However can occur with benign lesions
  - Chronic inflammation (chalazion)
    - Trauma (eyelash curlers)

**This is a very important clue!!**

# Lash Loss



# Umbilication

- Often Considered a Hallmark of Malignancy
  - Basal cell carcinoma
  - Keratoacanthoma
- However Can Occur in Benign Lesions Too!
  - Molluscum contagiosum
  - Sebaceous hyperplasia



# Umbilication



# Tempo of Growth

- Most Benign and Malignant Lesions Are *Slow* Growing
- Explosive Growth
  - Benign
    - Ruptured cysts, infection, inflamed keratosis
  - Malignant
    - Keratoacanthoma, Merkel cell, Kaposi Sarcoma







# Palpation

- Indurations Beyond Visible Borders Suggest Infiltrative Process
  - Usually malignant
  - Ruptured, inflamed cysts
- Benign Lesions Typically Have Distinct Margins

# Palpation

- Soft, Spongy, Non-Tender
- Firm, Tender, Slightly Mobile

# Masquerade

- Blepharitis
- Chalazion
- Eyelid edema
- Nevus



# Biopsy

The **definitive** way to make the  
diagnosis.

# Categories of Skin Lesions

- Vascular
- Infections
- Inflammatory
- Allergic
- Neoplastic (Benign & Malignant)
- Involutional

# Vascular

The background is a solid dark blue. In the lower right quadrant, there are several lighter blue, wavy, horizontal lines that resemble stylized waves or a topographical map contour. The word "Vascular" is centered in the upper half of the image in a white, serif font with a subtle drop shadow.

# Stork Bite

- Nevus Simplex
- Represents Dilated Capillaries
  - Often seen on neck
    - Also on lids and glabella
- Flat and Blanch with Pressure
- No Treatment
  - Fades over time



# What is the diagnosis?

# Infantile Capillary Hemangioma

- Presents In the First Few Weeks of Life
- Grows Rapidly for About 6 Months.
- Continues to Grow Until About Age 1.
- Then Involutates Over Several Years
  - 10% per year

# Angioma

- Small Benign Vascular Growth
- Common on Face and Trunk
- Treat with Electodissection or Laser
- Histologically, also Capillary Hemangioma



# Infectious

# Verruca Vulgaris



# Chronic Conjunctivitis



# Molluscum Contagiosum

- DNA Pox Virus
- Small Papular Lesion  
with Central  
Umbilication
  - May cause follicular  
conjunctivitis
- TX
  - Irritate Lesion
    - Curette
    - Cautery
    - Excise

# Molluscum Contagiosum





# Herpes Simplex Dermatitis

- HSV-1 Infection
- Less Common on Lid, More Common on Cornea if V-I Involved
- Treatment
  - Antiviral therapy



# Eczema Herpeticum



# Herpes Zoster Ophthalmicus

- Varicella Zoster Virus  
Reactivation
- Follows Dermatome
- Remember...  
Contagious
  - Can transmit chicken pox
- Secondary Cellulitis is  
Uncommon



# Stye (Hordeolum)

- Usually Starts as a Small Pimple Like Lesion at the lid margin.
- Occasionally Worsens into an Abscess or Cellulitis.
- Tx:
  - Warm Compresses
  - +/- Topical Antibiotic
  - Incise & Drain

# Chalazion

- Originates in Meibomian Glands.
- Chronic Lipogranuloma
- May Occur after, or in Conjunction with a Hordeolum
- Painless, Hard Nodule.





# Chalazion

- Usually Starts as a Small Pimple Like Lesion on the Lid Margin or Higher.
- Occasionally Worsens into Abscess or Cellulitis.
- Tx:
  - Warm compresses
  - +/- Topical steroids
  - Steroid injections
  - Incise & Drain



# Pyogenic Granuloma & Chalazion



# Preseptal Cellulitis

- Gram Positive Cocci skin infection
- Often from Local Lesion (Chalazion) or Trauma.
- Tx:
  - Oral antibiotics (Bactrim, Doxycycline, Keflex, Augmentin, Levaquin)
  - Hot compresses
  - Drainage of abscess

# MRSA Abscess/Cellulitis





# MRSA Abscess/Cellulitis



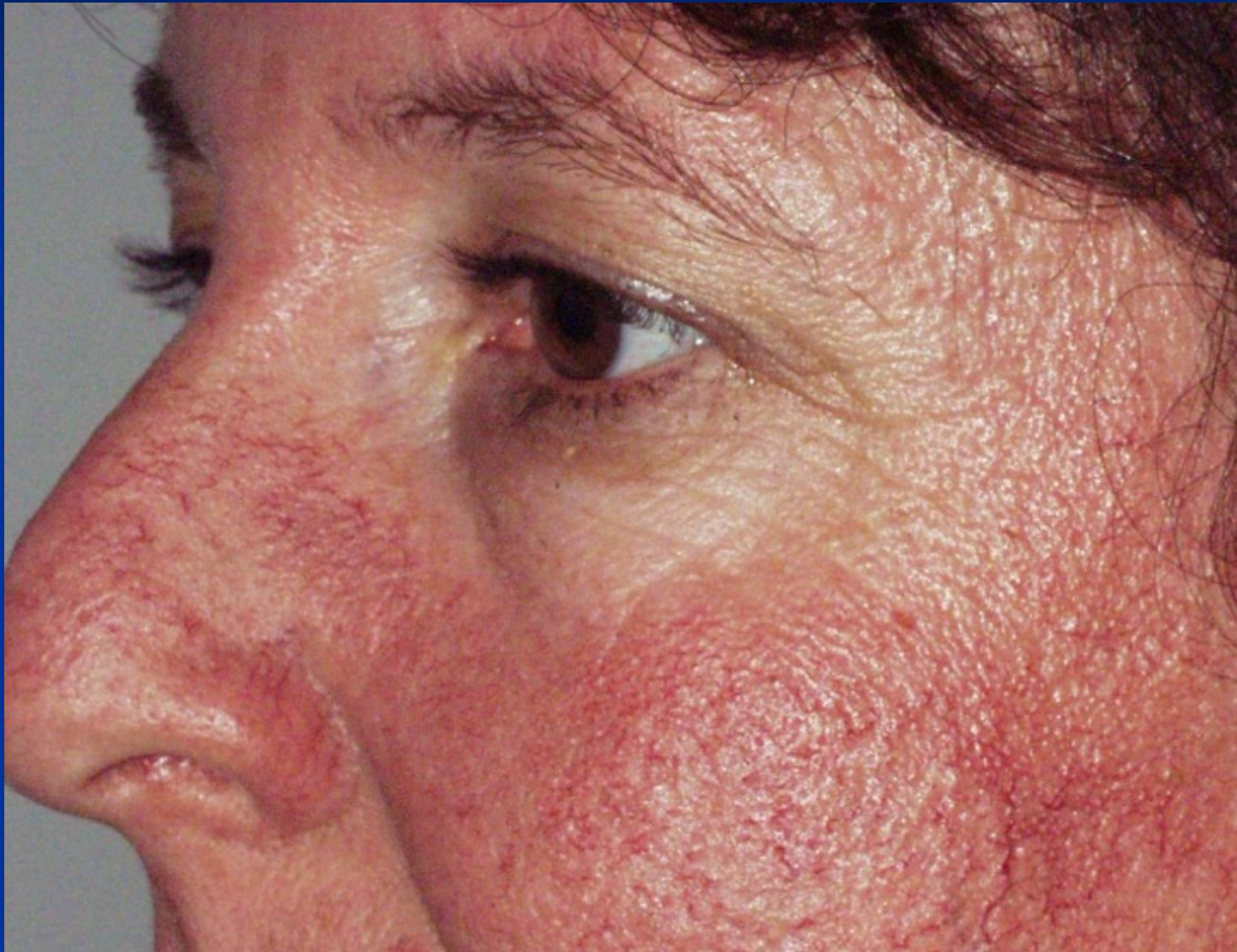


# MRSA: Antibiotic Choice

- The Prevalence of MRSA is High
  - Outpatient
    - Doxycycline
    - Bactrim DS
  - Inpatient
    - Vancomycin
- Surgical Drainage and Debridement May Be Needed.

# Inflammation and Allergy

# Rosacea



# Rosacea

- Common, chronic adult like acne
  - Facial erythema with telangiectasia
  - Papules & pustules
- Triggers
  - Alcohol, Spicy Foods, Stress, Hot Weather, Sun



# Rosacea

## ■ Treatment

Topical

Metronidazole gel

Oral Doxycycline

50 – 100 mg x one month, then lower dose (20-50mg)

Intense Pulsed Light Therapy (IPL)



# Fotofacial™



Rosacea -- decreased spider veins and pore size

# Blepharitis

- Multifactorial Inflammatory Process of the Lid Margin, Lash Follicles and MGs.
  - Very common
    - Seborrhea
    - Staphylococcal
    - Rosacea
    - Demodex
- Tx
  - Lid scrubs
  - Topical antibiotic/steroid
  - Tea tree oil
  - Blepharotomy



# Atopic Dermatitis

- Typically with Chronic Fluctuating Areas of Erythema and Hyperkeratosis with Lichenification
- Often History of Allergies & Asthma

# Atopic Dermatitis Treatment

Topical Steroid (FML ointment)

Use sparingly and taper off over 1-2 weeks.

Immunomodulator

Pimecrolimus/Tacrolimus

Use short course (2-3 weeks to bring under control

Typically use when chronic steroid doesn't control

Lubricants

Vaseline, Aquaphor at bedtime

# Eyelid Edema

- Inflammatory
  - Graves disease, Surgery
- Fluid shift
  - Fluid overload, dependent edema
- Infectious
  - Bacterial cellulitis, HSV, HZ
- Medication
  - Immunomodulators

# Graves Disease



# Eyelid Edema from Allergy



# Post-Inflammatory Hyperpigmentation



# Melkerson-Rosenthal Syndrome





# Discoid Lupus

- Chronic, Scarring Atrophic Skin Lesions
  - Start as small plaques with inflammation, erythema
- 5% DLE convert to SLE
- Mean age 38, F:M is 2:1
- Tx:
  - Steroids (Topical, Intralesional)
  - Plaquenil, Dapsone
  - Methotrexate

# Orbital Inflammation



# Dermatomyositis



# Dermatomyositis

- Systemic Inflammatory Myopathy with Proximal Weakness, Dermatitis, Arthralgia, Dyspnea, Dysphagia
- Rash: Facial Heliotropic Rash, Neck, Hands, (Gottron Nodules)
- Tx:
  - Steroids
  - Antimalarials
  - Methotrexate, cellcept

# Infiltrative Lesions

# Xanthelasma

- Lipid laden macrophages
- Most patients have normal lipid profile
- Can excise but may recur



# Amyloid

- Amorphous Protein Deposition
  - Can be localized to the conjunctiva
  - Can be systemic
  - Skin lesions usually yellow waxy plaque





# Amyloid

- Amorphous Protein Deposition
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  - Can be systemic
  - Skin lesions usually yellow waxy plaque



# Age Related/Involutional

# Aging and the Face

- Gradual change over time
  - Aging
    - Skin, fat, muscle, dermal volume loss
    - Hormonal changes
  - Gravity
  - Environmental
    - Sun exposure
    - Smoking

# Sun Exposure

95% of skin changes on the face are directly due to UV exposure.

# UV Exposure

- Damage to Collagen
- Increased Pigmentation & Wrinkles
- Increased Risk for Skin Cancer

# Benign & Malignant Lid Lesions





# Benign vs Malignant



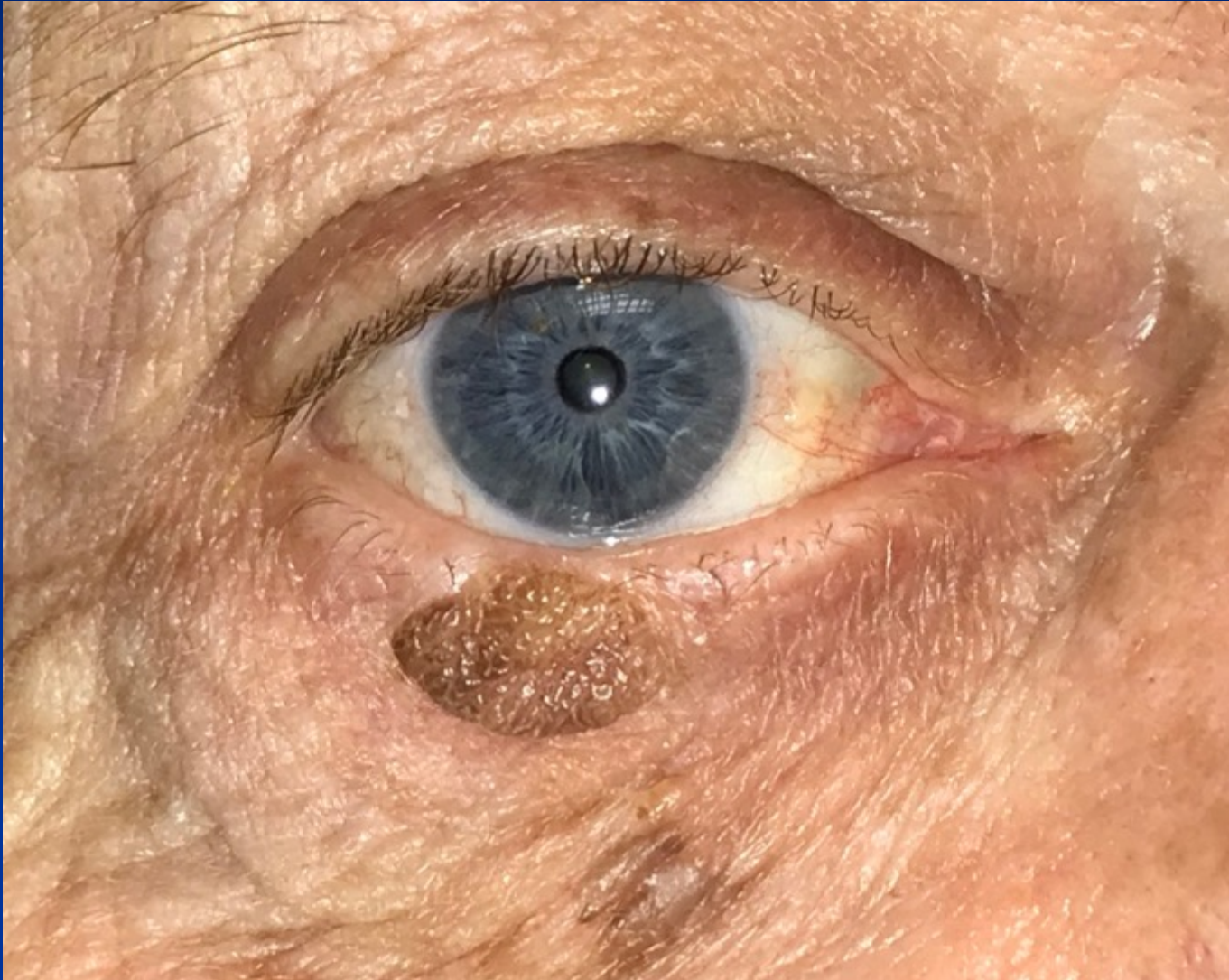
# Seborrheic Keratosis

- Most Common of the Benign Papillomatous Lesions
- Varying Degrees of Pigment and Hyperkeratosis
- Often Have stuck on Appearance
- Tx: Excision





# Seborrheic Keratosis





# Squamous Papilloma

- Well Circumscribed
- Common Lid Skin Lesion
- Lashes Grow Through Lesion
- Photo Document
- Excise If Any Concerns (Irritation, Growth, Visual Blockage)



# Viral Papillomas





# Viral Papilloma Treatment

Excision of all lesions

# Cutaneous Horn

- Clinically Descriptive Term
- Exuberant Hyperkeratosis
- Can Occur with a Variety of Lesions
- **Must Biopsy/Excise** at the base (May Have a Pre-cancer or Malignancy at the Base)



# Actinic Keratosis

- Most Common Epithelial Pre-cancerous Lesion Among Fair Patients
- Lesion May Appear:
  - Brown/yellow
  - Poorly demarcated
  - Topical 5-fluorouracil, liquid nitrogen cryotherapy or surgical excision

# Eyelid Cyst

- Occur from Sebaceous & Sweat Glands







# Eyelid Cyst

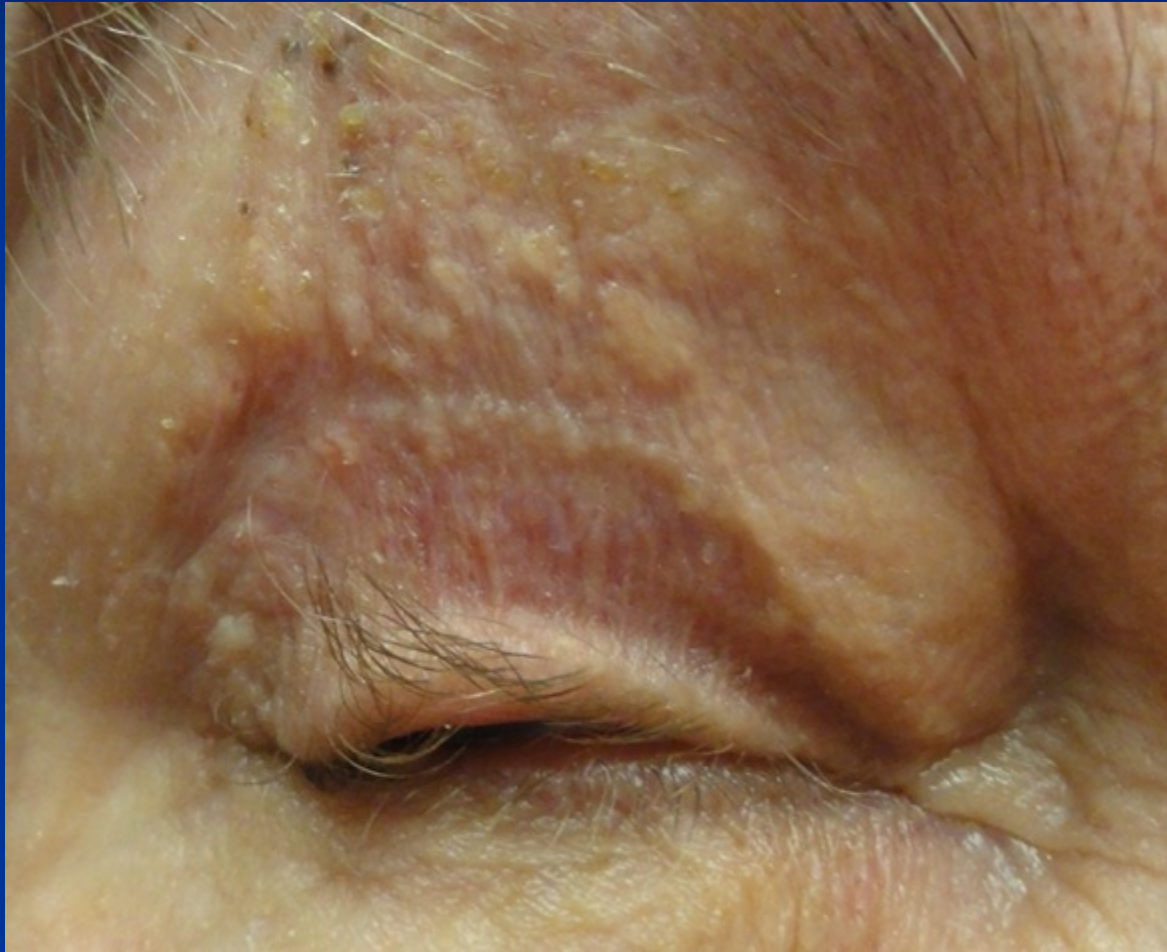


# Eyelid Cyst





# Comedones/Cysts



# Pigmented Cyst



# Epidermal Inclusion Cyst

- White – Yellow Cyst
- Originate from Pilosebaceous Follicles or Invaginations of the Surface Epidermis
- May Develop Spontaneously or Arise Following Trauma or Surgery Along an Incision Line
- Excise

# Epithelial Cysts

- Resembles epidermal inclusion cyst
- Occur secondary to obstruction of the Zeiss gland, Meibomian gland or Sebaceous glands associated with hair follicles of the lid skin or brow area.
- Unlike an epidermal inclusion cyst (filled with keratin material) these cysts contain epithelial cells, keratin, fats and cholesterol crystals.
- Tx: Excision

# Milia

- Multiple well-delineated, round, yellow-white cystic lesions ranging from 1-3 mm in diameter, found on the face.
- Felt to be retention follicular cysts caused by blockage of the fine pilosebaceous units.
- Tx: Excision



# Milia (CO<sup>2</sup> Laser)





# Trichilemmal Cyst

- Originates at the hair follicles

# Xanthogranuloma

- Juvenile Xanthogranuloma
  - Typically seen in infants
  - Often self limited
  - Etiology unknown
  - Intraocular JXG can be associated with spontaneous hyphema



# Xanthogranuloma

# Syringomas

- Benign Overgrowth of Eccrine Sweat Glands
- Small, Well Circumscribed Subcutaneous Papules, Typically Clustered in Lower Lid Skin

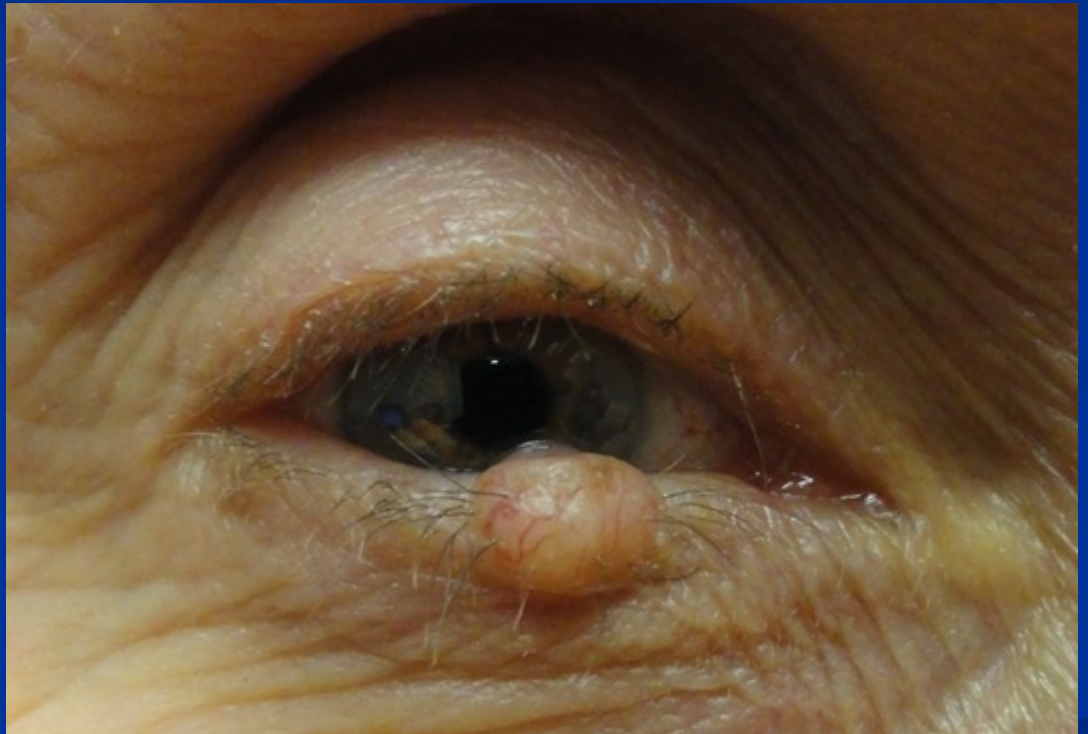


# Syringomas

- Main Reason to Treat is Cosmesis
- Treat So as to Minimize Scarring and Risk of Recurrence.
  - Surgical excision with suturing
  - Surgical excision without suturing
  - TCA peel
  - CO<sub>2</sub> laser
  - Electrodesiccation & curettage.

# Nevus

- Asymmetry
- Border
- Color
- Diameter
- Elevation



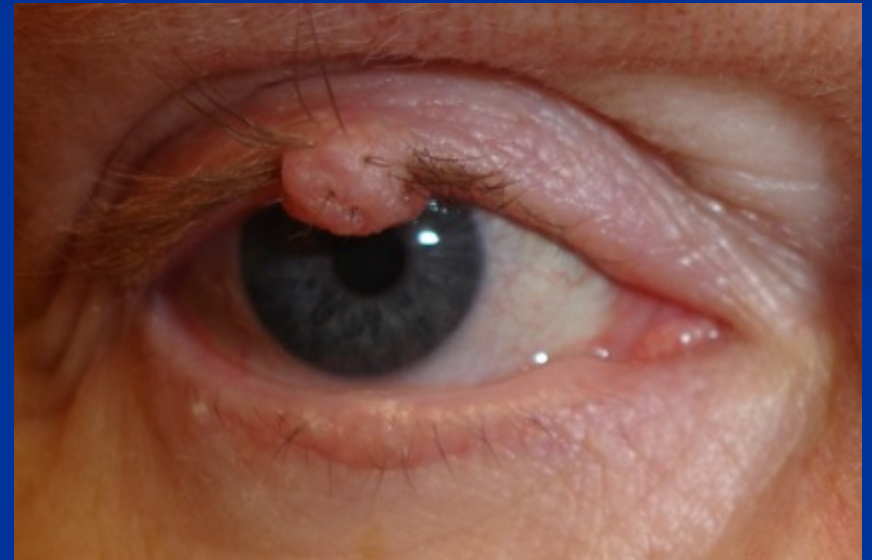


# Intradermal Nevus



# Intradermal Nevus

- Well Circumscribed
- Often Minimal Pigment Present for Many Years
- Hair Growth Through Lesion
- Can Mimic an Early Basal Cell
- Biopsy if Unsure



# Nevus of Ota



# Nevus of Ota

- Blue Congenital Nevus
- Proliferation of Dermal Melanocytes
- Heterochromia
- No Treatment
- 1:400 Develop Choroidal Melanoma.



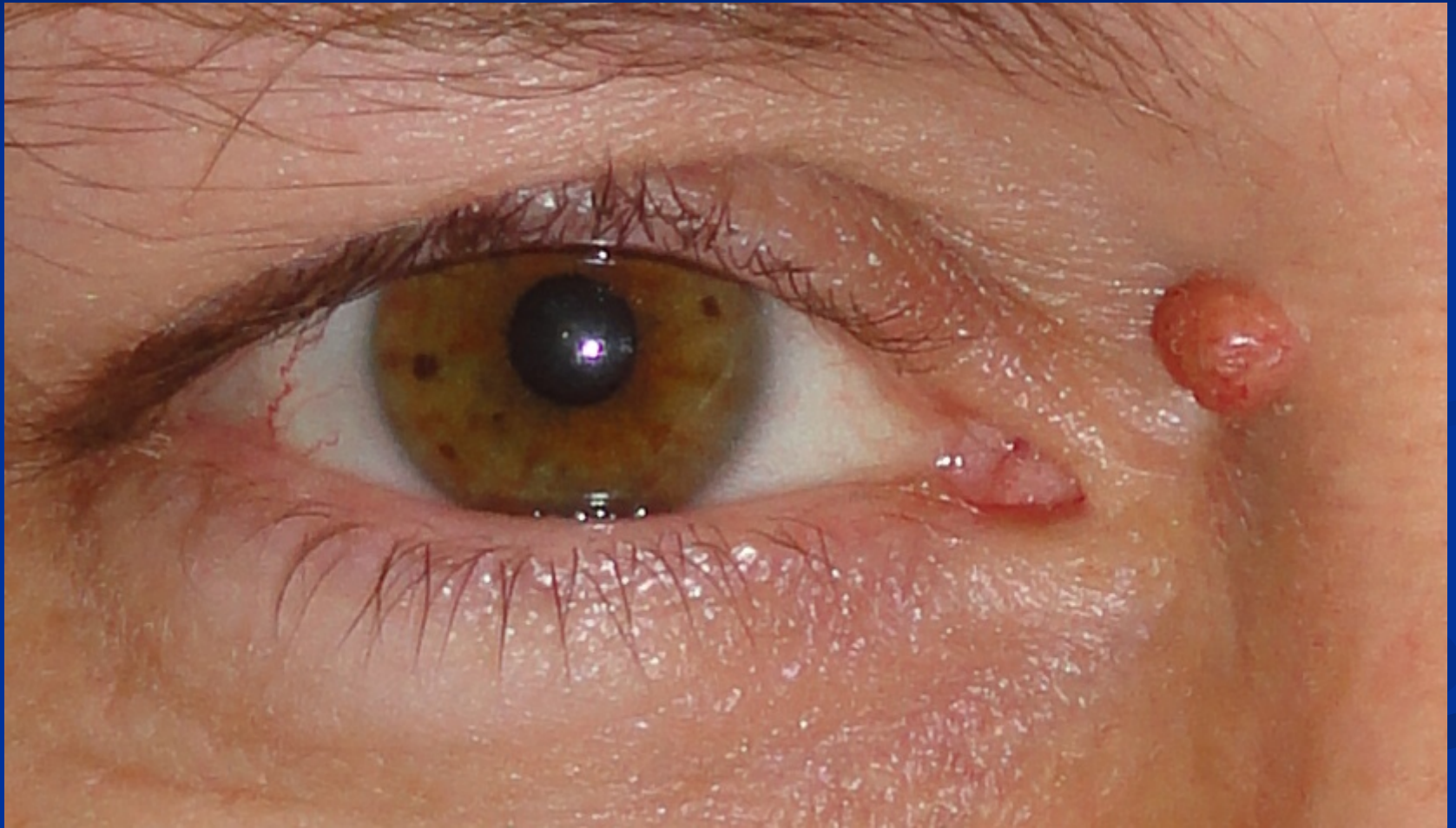
# Congenital Split Nevus

- Arise from Melanocytes at Dermal-epidermal Junction
- Can Thicken in Adulthood
- Malignant Transformation is Uncommon
- Tx:
  - Observation
  - Excision



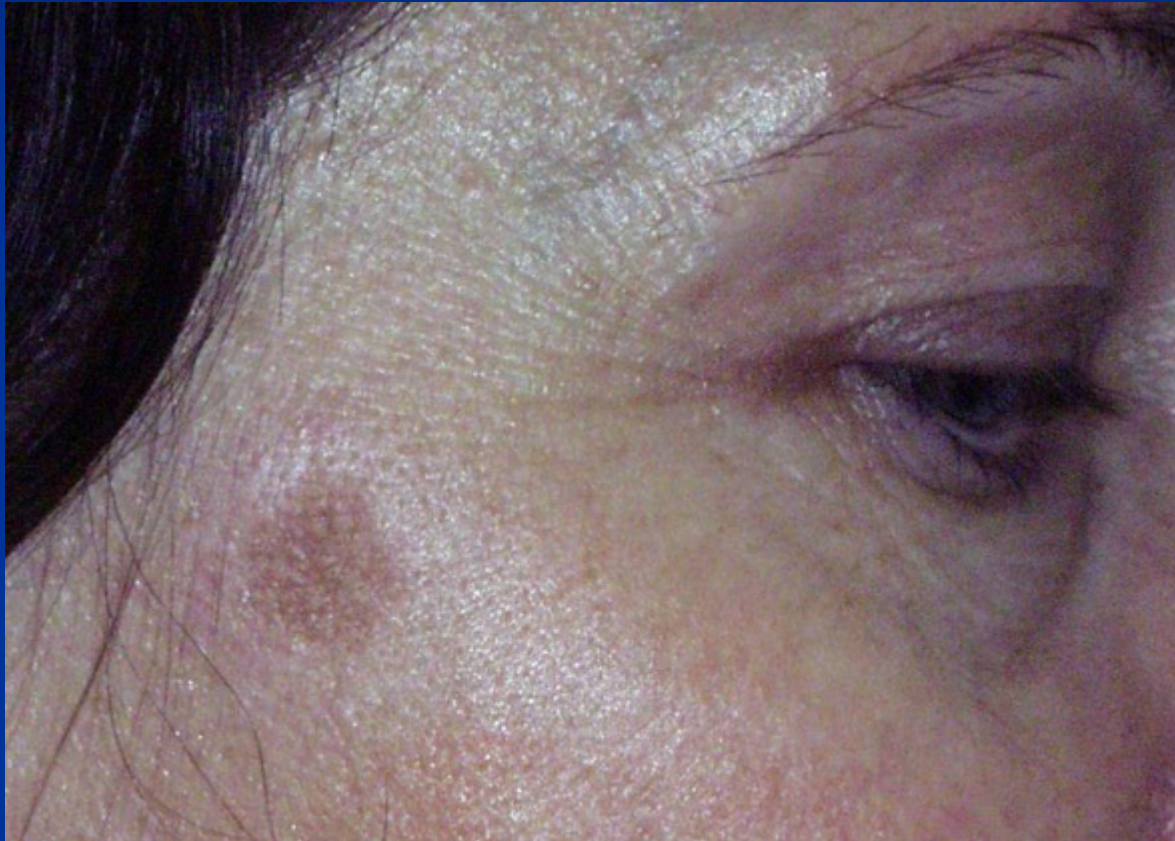


# Eyelid Nevus





# Lentigo Simplex



# Lentigo Maligna

- A Pre-melanoma
- Flat
- If Elevated Then Likely A Lentigo Maligna Melanoma



# Lentigo Maligna Melanoma



# Malignant Melanoma

- Uncommon <1% of Eyelid Tumors
- Classified
  - Lentigo maligna (10%)
  - Superficial spreading (80%)
  - Nodular (10%)
- Treatment: Wide Excision + Lymph Node Dissection
- Depth of Invasion and Thickness of Tumor Determines the Prognosis





# Neurocutaneous Syndromes

- Series of Syndromes with a Combination of Skin Pathology and Neurological Deficits
  - Neurofibromatosis
    - Neurofibromas
  - Tuberous Sclerosis
    - Angiofibroma
  - Sturge Weber
    - Nevus Flameus

# Café au Lait Spots





# Neurofibromatosis



# Tuberous Sclerosis

- Rare Genetic Disease
  - Lack tumor suppressors hamartin & tuberin
    - Coded by TSC1 & TSC2 genes respectively
- Multisystem Hamartomas
  - Brain (giant astrocytomas, tubers, nodules)
  - Skin (Angiofibromas, shagreen patch)
  - Eyes (Retinal Astrocytic Hamartomas)
  - Kidneys (angiomyolipomas)
  - Lungs (lympangioleiomyomatosis)

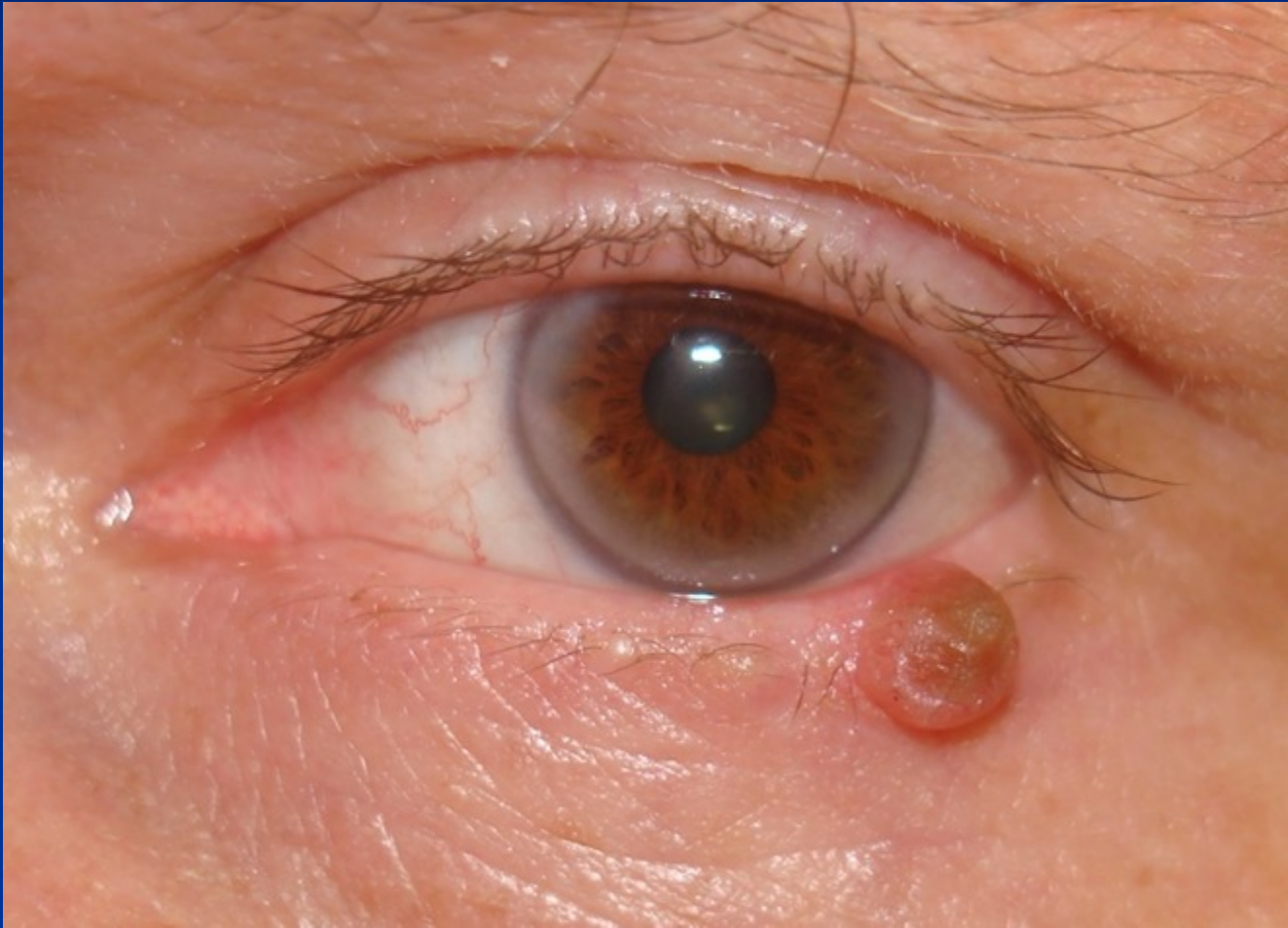
# Angiofibromas



# Sturge Weber

- Port Wine Stain
- Glaucoma
- CNS Abnormalities with Seizures
- Multifaceted Approach to Tx:
  - Glaucoma
  - Pulse dye laser or IPL
  - Anti-seizure meds

# Nodular Basal Cell



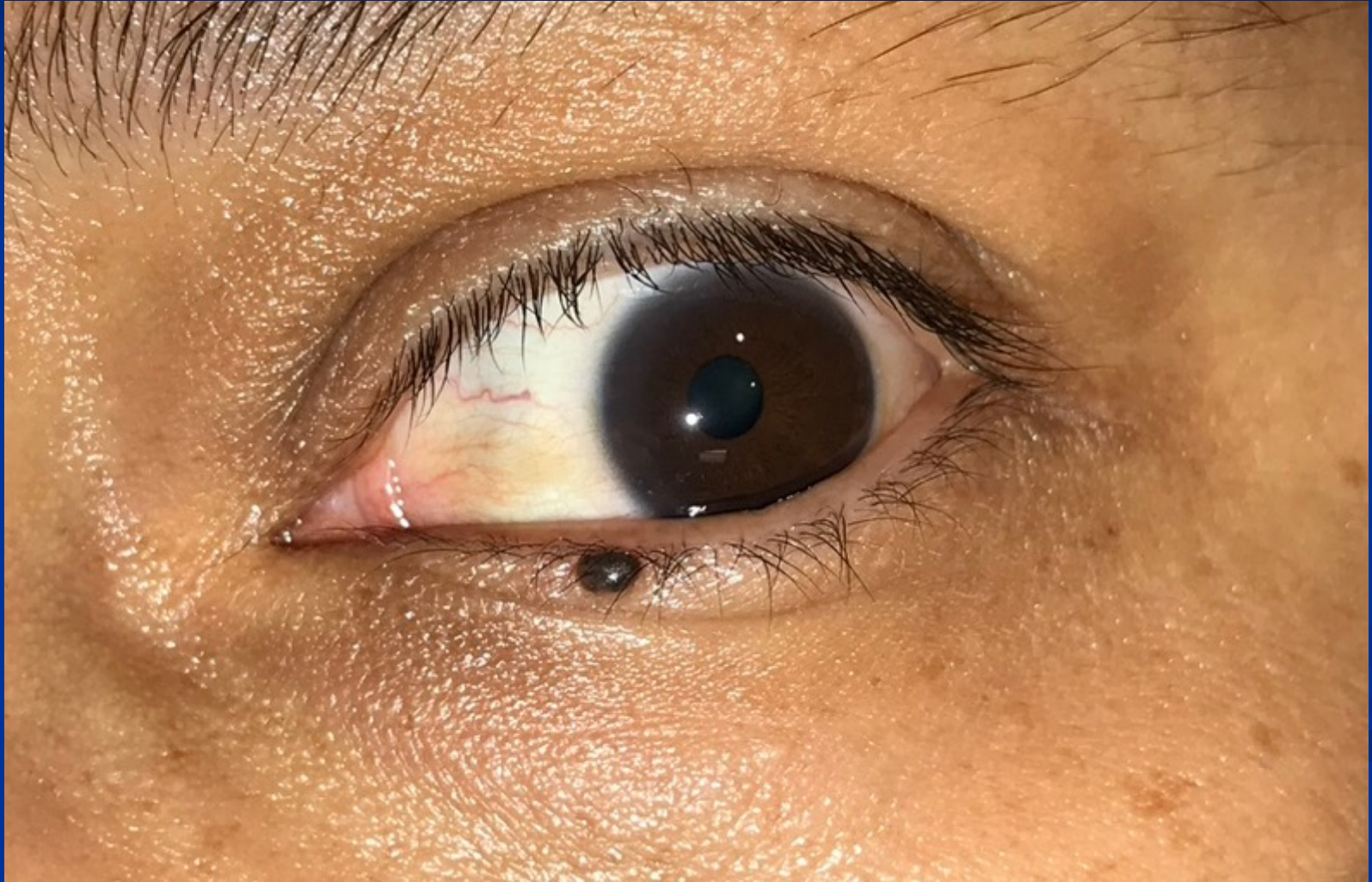


# Basal Cell Carcinoma





# Pigmented Basal Cell Carcinoma!



# Basal Cell Carcinoma

- Most Common Eyelid Malignancy
- Lower lid > Lateral Canthus > Medial Canthus > Upper Lid
- Spreads by Local Extension
- Tx: Excision
  - Mohs surgery
  - Fresh frozen technique



# Basal Cell Carcinoma

- Slowly Growing, Spreads by Local Extension
- Tx:
  - **Excision!!**
    - Biopsy
    - Mohs surgery
    - Fresh frozen technique
  - Cauterize/cryo/XRT
  - Topical (Imiquimod/5FU)
  - Oral (Vismodegib – inhibitor of sonic hedgehog)



# Pigmented BCC





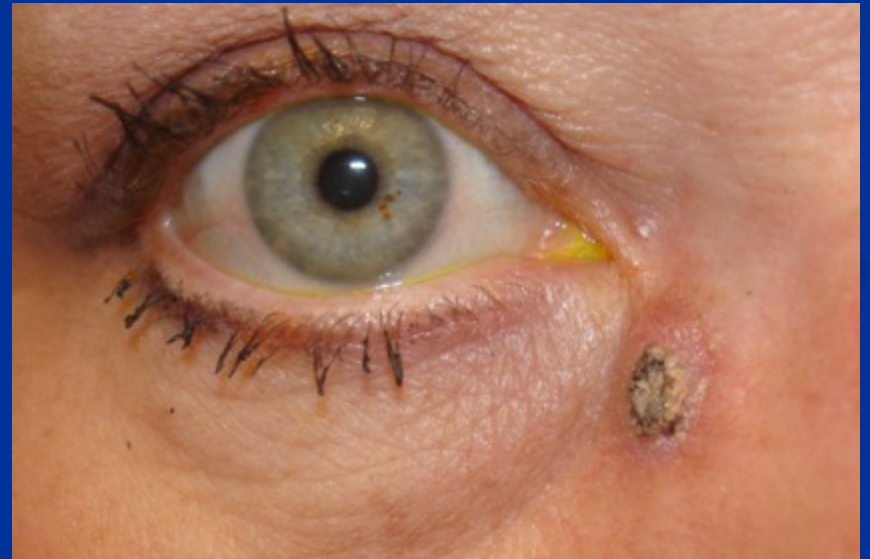
# Basal Cell Nevus Syndrome

- Gorlin Syndrome
- Autosomal Dominant (Chromosome 9)
- Multiple BCC + Skeletal abnormalities



# Keratoacanthoma

- Rapid Onset within Days to Weeks
- ??? Form of Squamous Cell Carcinoma in Situ
- Tx: Excision



# Bowen's Disease

- Squamous Cell  
Carcinoma In Situ

# Squamous Cell Carcinoma

# Sebaceous Hyperplasia

- Lesion of oil glands
- Can be confused with basal cell
- Usually smaller, softer, yellowish color and multiple small lesions on the face
- Often associated with rosacea



# Sebaceous Cell Cancer

- Malignant Transformation of Sebaceous Glands
  - Often mimic chronic recurrent chalazion or unilateral recalcitrant blepharitis
  - If no response to typical blepharitis treatment needs biopsy (usually full wedge)
  - Difficult to treat, requires wide excision
    - Spreads locally and to lymph nodes

# Sebaceous Cell Carcinoma





# Sebaceous Gland Carcinoma

- Malignant transformation of sebaceous glands
  - Arise from Meibomian Glands of Tarsal Plate, Glands of Zeis on eyelashes or from sebaceous glands of caruncle, eyebrow, facial skin
  - Spreads locally and to lymph nodes

# Cutaneous T cell Lymphoma



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