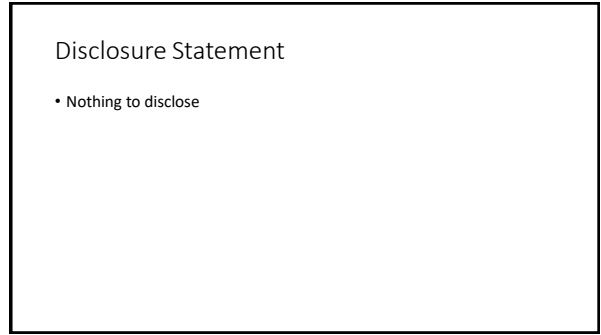


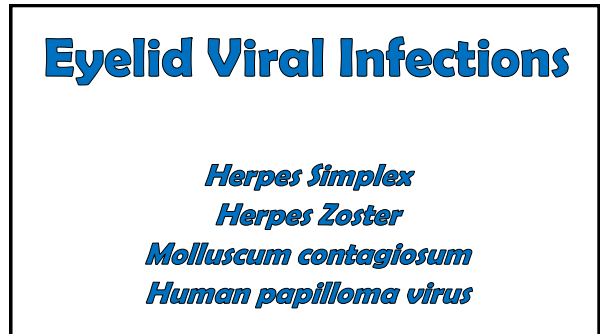
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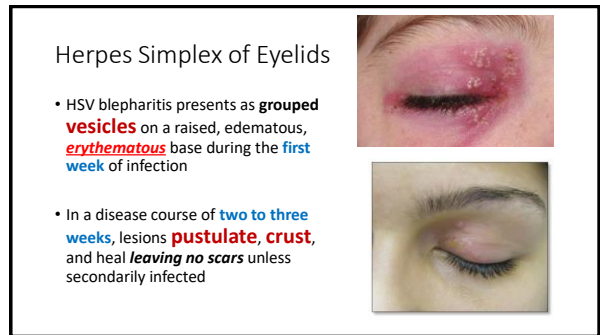
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4



5



6

Herpes Zoster

7

HZV Skin Lesions

Viral release from the sensory nerve endings results in a macular rash, becomes **vesicular** within 24 hours

New vesicles continue to develop for about **four days**. The vesicles become **pustular** and may eventually rupture or hemorrhage.

After two to three weeks, the acute phase subsides and the rash **crusts** over and dissipates

8

32 yo male, was seen at urgent care 5 days ago and diagnosed with _____ ?

Pt was treated with Valtrex 1,000 mg tid x 7 days

9

2020-09-28, **17 year old** with mild pain, no vision changes, and facial lesions x 2 days

Pt immunosuppressed on corticosteroid therapy

10

55 yo female with skin rash who also later developed scleritis

11


Molluscum Contagiosum

"Soft contagious" spots

12

Molluscum Contagiosum

- Common self-limiting cutaneous viral infection in healthy children and young adults
- Caused by **poxvirus**
 - Since the eradication of smallpox, **molluscum contagiosum** has been the principal **poxvirus** cause of human disease
- Spreads by direct skin-to-skin contact, scratching and **swimming pools**



Molluscum contagiosum lesions.

13

Verruca Vulgaris

“Common wart”



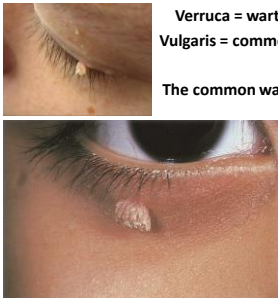
Human Papilloma Virus

14

Verruca Vulgaris

- One of the most common skin growths
- Benign epithelial hyperplasia
 - Papilloma of **viral** origin
 - 2^o to **HPV infection**
- Low risk of malignancy
- Variable colored
- May be
 - Round and flat
 - (**verruca plana**)
 - Finger like projection from a broad base
 - (**verruca digitata**)

Verruca = wart
Vulgaris = common
The common wart



15

2018-02-13, 59 yo Hispanic male
What's this on right upper eyelid? Has had it for 10 years




“Si si, ‘verruca’. Siempre se dice en Mexico”

16


2022-03-26, 45 yo female, was getting her **eyebrows trimmed** 3 weeks ago. Shortly after that, noticed growth on skin.

Transmission of HPV is usually by **direct contact** or fomites. Removal of eyebrow and facial hair by **“threading”** has been published as a risk factor for **verrucae transmission**



17

“People Try Threading for First Time”



18



19



20

Benign Tumors of the Epidermis

- Acrochordon (Skin Tag)*
- Epidermal Inclusion Cyst*
- Seborrheic Keratosis*
- Milia*
- Actinic Keratosis*
- Dermoid Cyst*

21

Acrochordon

Greek
'acro-' (which means top, summit, or refers to an arm or leg)
+
'chorde', string.

"Skin Tag"

22

Acrochordon ("Skin Tag")

- Very common benign eyelid tumor
- Often ambiguously referred to as "papilloma" or "skin tag"
 - Papillomata is a descriptive yet **nondiagnostic** term used to describe **many** cutaneous lesions with various histopathological diagnoses
- **Variable appearance**, often appearing as small, multiple, flesh-colored lesions attached to the eyelid margin or skin by a thin pedicle

Acrochordon (skin tag) of the upper eyelid.

23

2022-06-13, 73 yo male. Has had these for a long time. Wants them removed.

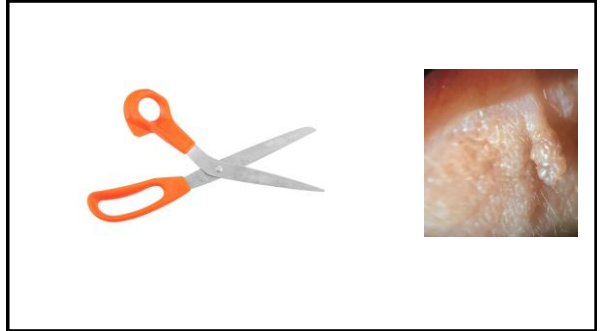
Right Upper Eyelid

Left Upper Eyelid

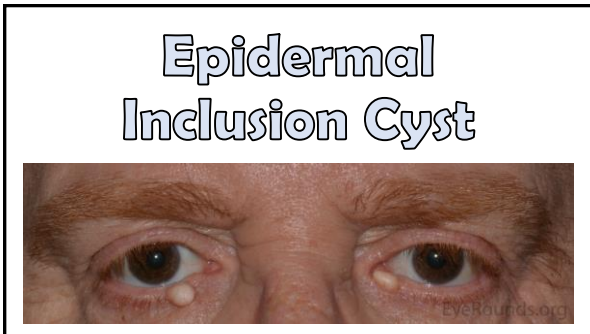
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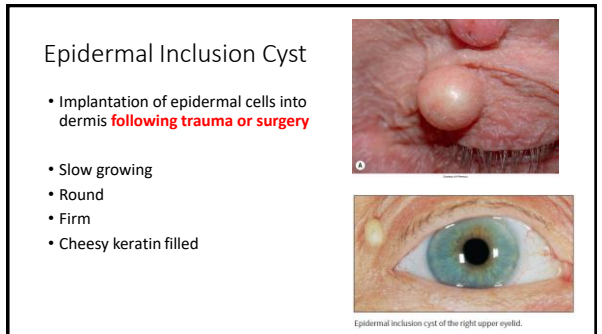
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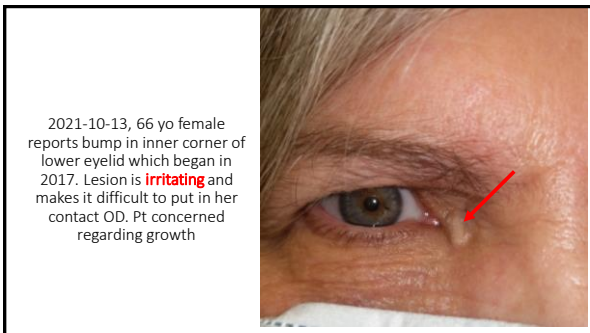
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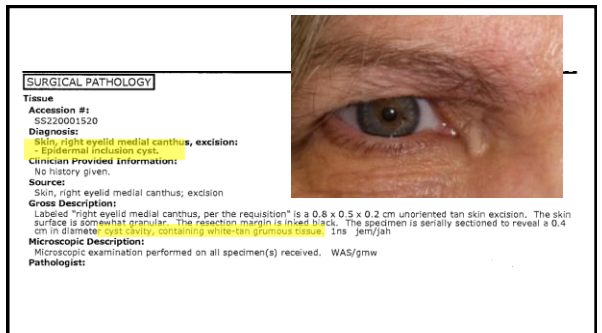
27



28



29



30

Seborrheic Keratosis

Also called:
 Seborrheic wart
 Senile verruca
 Basal cell papilloma

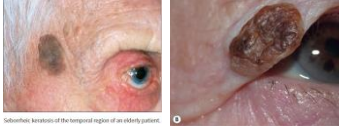
Very common
 Slow growing
 Elderly patients



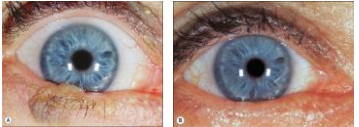
31

Seborrheic Keratosis

Facial lesions appear smooth and greasy, with elevated and well-demarcated borders producing a classic "stuck on" appearance



Eyelid lesions appear lobulated, papillary, or pedunculated, with friable, cerebriform excrescences on the surface




The lesion displays a papillomatous configuration with friable, cerebriform excrescences.

The same patient following surgical excision of the lesion.

32

What's that growth on upper eyelid?



SURGICAL PATHOLOGY

Tissue

Accession #:
SS220004232

Diagnosis:
Skin, left upper lid:
- Seborrheic keratosis.

33

2023-08-31, 75 yo female, reports this has been there for several years, wants it removed LLL




34

Lidocaine injection



35

Snip snip



36

Cautery for bleeding



37

Sending sample



38

SURGICAL PATHOLOGY

Tissue
Accession #:
 S5230004613
Diagnosis:
 Skin, right eye lower lid:
 Actinic keratosis, with features of a verruca.
Clinician Provided Information:
 Neoplasm. Other benign neoplasm of skin of left lower eyelid, including canthus.
Source:
 Skin, right eye lower lid
Gross Description:
 A shave biopsy of pale tan exophytic, slightly friable apparent skin is 0.3 x 0.2 x 0.2 cm. The margin is inked blue. IHS
 hms/SD
Microscopic Description:
 Microscopic examination performed on all specimens received. MPA/vs

39

Milia

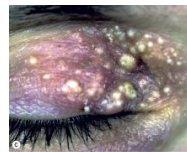


Millet Seeds

40

Milia

- Small, raised, white, round, superficial cystic lesions (retained keratin)
- Common in newborn infants
- Occur in **cropl**
- Treatment
 - Incision of overlying skin and expression of contents)



41

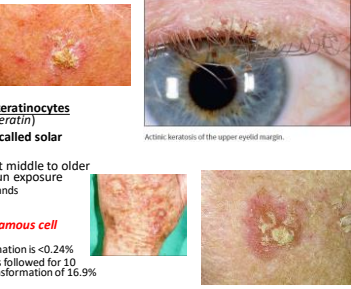
Actinic Keratosis



(Solar Keratosis)

42

Actinic Keratosis



- Proliferations of **transformed keratinocytes** (epidermal cell that produces *keratin*)
- Induced by **UV exposure** (also called **solar keratosis**)
- Highly prevalent – seen in most middle to older aged patients with history of sun exposure
 - Face, forearm, scalp, back of hands
- ***Low risk of converting to squamous cell carcinoma***
 - The risk of malignant transformation is <0.24%
 - BUT, a patient with several AK's followed for 10 years has risk of malignant transformation of 16.9%

Actinic keratosis of the upper eyelid margin.

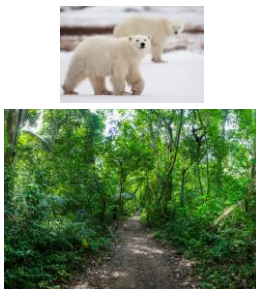
43

Dermoid Cysts

44

Choristomas

Tumor-like growths composed of elements **not normally indigenous** to the affected area

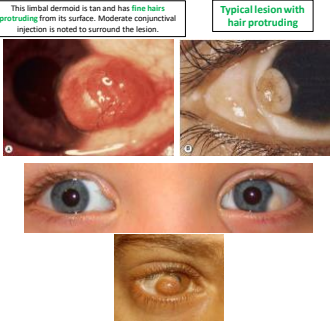


- Polar bears are perfectly normal creatures....but NOT in the jungle
- Dermoids have normal tissue.....but in the wrong place!

45

Dermoid

- Choristomatous congenital lesions which most commonly occur in the **inferotemporal limbal** region
- Small dermoids appear clinically as tan, rather inconspicuous lesions, whereas **larger lesions are whiter** and may protrude from the ocular surface
- **Arise from the outer third of the sclera** and consist of thick dermis-like collagen within which may be **hair follicles**, sebaceous glands, sweat glands, and fat lobules



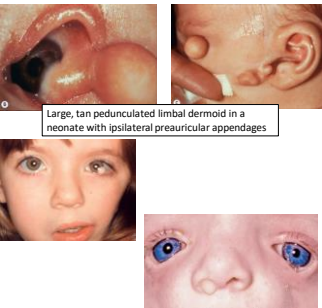
This limbal dermoid is tan and has fine hairs protruding from its surface. Moderate conjunctival injection is noted to surround the lesion.

Typical lesion with hair protruding

46

Dermoid Associations

- Dermoids may occasionally coexist with other systemic malformations including:
 - **Goldenhar syndrome** (with preauricular appendages, hemifacial microsomia)
 - Mandibulofacial dysostosis (**Treacher-Collins syndrome**)



Large, tan pedunculated limbal dermoid in a neonate with ipsilateral preauricular appendages

47

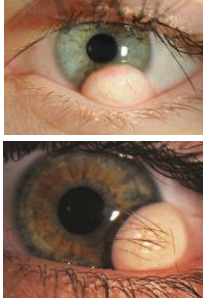
11-8-2019 – 11 yo male, with Limbal Dermoid - Goldenhar



48



Management of Dermoids

- Dermoids tend to grow with the patient and tend **not** to undergo neoplastic transformation
- Clinically, **most** are asymptomatic
- Indications for **removal** include **astigmatism** with or without amblyopia, **irritation**, and **cosmetic deformity**



49

Benign Tumors Derived from Vascular Tissue

- Nevus Flammeus ("Port Wine Stain")** 
- Capillary Hemangioma**
- Cherry Hemangioma** 

50

Port Wine Stain




"Nevus Flammeus"

51

Port Wine Stain

- Also called "Nevus flammeus"
- Rare congenital subcutaneous lesion
 - Follows dermatome, usually unilateral
- Composed of **dilated capillaries** that results from a congenital weakness of capillary walls
- Presentation
 - Well demarcated soft pink patch
 - **No blanching with pressure**
 - Darkening of lesions with age
 - Hypertrophy of overlying skin







52

Nursing student born with massive birthmark caused by rare disorder undergoes life-changing surgery

Ellaha has undergone more than 20 surgeries to treat Sturge Weber Syndrome (SWS)



"Horrible people told me I shouldn't come out in public and stay inside, but I didn't listen to them because it's my life,"

"I believe in myself, my face doesn't define me, what defines me is my abilities, what I do with my life and how I help other people,"

53

Port Wine Stain and Glaucoma

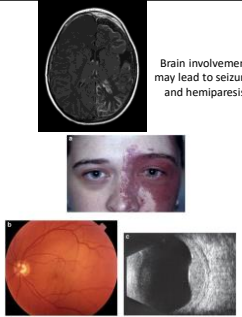
Glaucoma may result from ocular vascular hamartomas causing **increased episcleral pressure**

54

Port Wine Stain and Sturge-Weber Syndrome

When a **facial nevus** is associated with **leptomeningeal angiomatosis** (arachnoid and pia mater vascular malformation) or ocular vascular hamartomas (such as a **choroidal hemangioma**), it represents **Sturge-Weber Syndrome**




Brain involvement may lead to seizures and hemiparesis

55

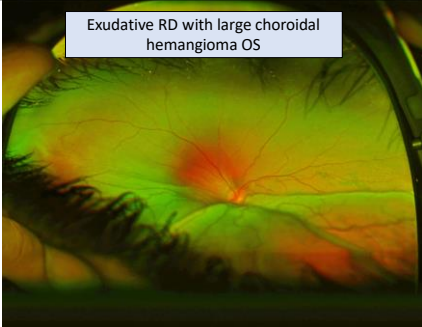
- **4 year old** hispanic male
- Failed vision screening at pediatrician's office
- **OS light perception (+ APD OS)**

Port wine stain




56

Exudative RD with large choroidal hemangioma OS



57

What's this?



58

What's this?



59

What's this?



60




61



Capillary Hemangioma







62



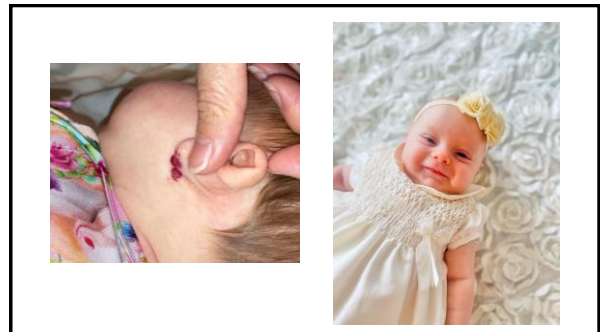
Capillary Hemangioma

- "strawberry nevus"
- most common benign periorbital tumor of childhood
- **vascular hamartoma**
- In most cases, the lesions are not present at birth, but become manifest within the first 2-6 weeks of life
- Approximately 95% are evident by six months of age

Recently, many groups have reported success with topical and systemic propranolol

63



64

Capillary hemangioma not to be confused with....

Nevus simplex

"Angel's kiss" (glabella, eyelid)



"Stork bite" (back of neck)




65


Cherry Hemangioma




66

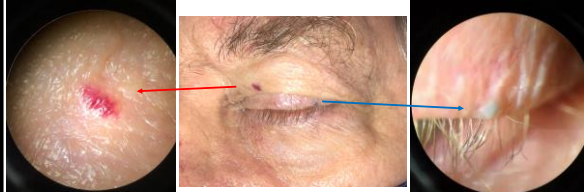
Cherry hemangioma 

- **Acquired** capillary hemangioma
 - Histopathologically, they are **identical** to an **infantile capillary hemangioma**
- Common in **older** individuals and appear as **bright red nodules**, 1–5 mm in diameter
- Treatment is observation or surgical excision for improved cosmesis




67

2021-08-05, 78 yo male, has noticed these spots on eyelid for a long time. Any thoughts?



68

Benign Vascular Tumor
(With the Wrong Name)




Pyogenic Granuloma

69

Pyogenic Granuloma

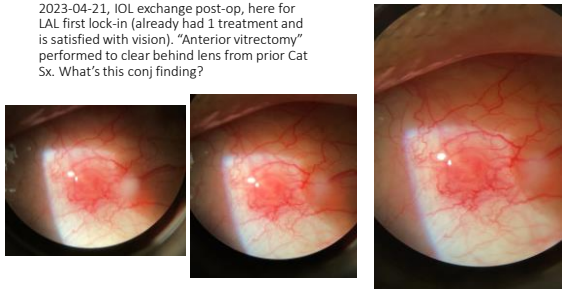
- **Who hates their name?**
 - Pyogenic = producing pus
 - Granuloma = organized collection of macrophages.
 - Pyogenic Granuloma is neither
- **Presentation**
 - Fast growing
 - Vasularized
 - Occasionally painful
 - Polypoidal red lesion
 - **Possible bleeding**
- **Composed of granulation tissue**
 - Connective tissue and blood vessels
- **Etiology**
 - 2nd to surgery, trauma, or infection
 - May be idiopathic



Pyogenic granuloma of the lower eyelid conjunctiva.

70

2023-04-21, IOL exchange post-op, here for LAL first lock-in (already had 1 treatment and is satisfied with vision). "Anterior vitrectomy" performed to clear behind lens from prior Cat Sx. What's this conj finding?



71

Benign Tumor
Derived from Histiocytes



Xanthelasma

72

Benign Tumor (With a Cool Name)




Xanthelasma

73

Xanthelasma


- Relatively common
- Bilateral (usually)
- Middle-aged / elderly
- Can be associated with **hyperlipidemia**
 - Young males
- Presentation
 - Multiple yellowish subcutaneous plaques
 - medial aspect of eyelids



Xanthelasma of the upper and lower eyelids.

74

2018-06-26, 37 yo male, young patient with these findings??



Corneal Arcus (deposition of lipid in the cornea)

Xanthelasma

75

2023-03-21, 71 year old female. She says she does NOT have high cholesterol. Think they came on suddenly, and never changed much after that. Taking Synthroid for thyroid dysfunction.



76

Benign Tumors of Sweat Gland Origin

Syringoma
(Eccrine Sweat Gland)

The eyelid **eccrine** glands are independent of the hair follicle apparatus


Apocrine
Hidrocystoma

The **apocrine** glands appear *in association with the eyelashes* and are referred to as glands of Moll

77

Syringoma

- Benign proliferations
- Arise from **eccrine sweat glands**
- More common in young female
- **Lower eyelids** are predominantly affected, but the lesions may also occur on the upper lids, cheeks, and forehead


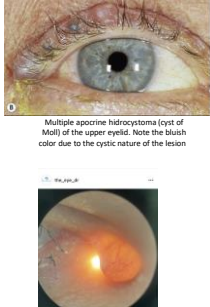


Pale yellow, waxy nodules, 1-2mm in diameters

78

Apocrine Hidrocystoma (Cyst of Moll)

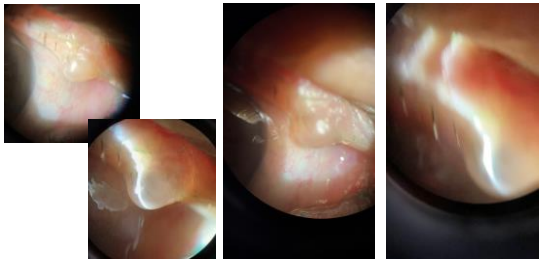
- Adenoma of the secretory cells of the glands of Moll
- The majority occur as solitary lesions near the eyelid margin
- They are usually small, but may reach a size of several centimeters
- May appear translucent or **bluish** in color

Multiple apocrine hidrocystoma (cyst of Moll) of the upper eyelid. Note the bluish color due to the cystic nature of the lesion

79

2023-03-29, 66 yo female with this growth upper eyelid




80

Benign Melanocytic Lesions

- Freckle (Ephelis)**
- Congenital Nevus**
- Nevocellular Nevi (Junctional, Compound, Intradermal)**

81

Freckle



(Ephelis)

82

Freckle (Ephelis)

- Brown macule
- Increased melanin in the basal layer of the epidermis
 - Excessive melanin production by a normal number of melanocytes
- Sunlight exposed areas
 - Exposure to sunlight causes darkening of macules
- **No malignant potential**






FIG. 5.8 Freckle (ephele)
Very efficient melanocyte factories that pump out melanin



83

Congenital Nevus



Flat papules or nodules may develop over time.


The color varies from dark to light brown and lesions often contain dark coarse hairs.

84


Congenital Nevus

- May be single or multiple
- Large lesions may undergo malignant transformation (15%)
 - Malignant potential greater for larger lesions

Common nevus





A congenital nevus on the lower eyelid of a child.




"Giant hairy nevus" (very rare)

85

Florida toddler born with 'Batman' mask due to rare skin condition to seek treatment in Russia

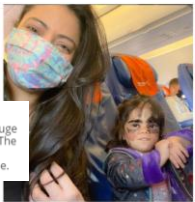



"Luna was born with a congenital melanocytic nevus and have a higher-than-normal risk for melanoma"



86

Update! Miracle treatments in Russia help Luna




Since she started her treatment, Luna is barely recognizable. The first major procedure was a huge success, with most of the dark mark now gone. The therapy is expected to last a total of 18 months, with eight painless interventions during that time.

Luna has had to travel all the way to Russia from Florida for her treatments, but she always seems to be in good spirits. © College-Screenshots/instagram/luna_lovehope

87

Nevocellular Nevi (Acquired Melanocytic Nevus)

Junctional


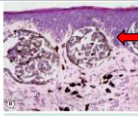

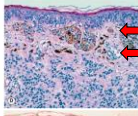

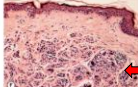
Compound

Intradermal

Nevi are divided into three histological types

There is **considerable variation** in the clinical appearance of these lesions



88

Junctional Nevus			Pigmented nevus cells at epidermal/dermal junction
Compound Nevus			Pigmented nevus cells at epidermal/dermal junction AND within dermis
Intradermal Nevus			Pigmented nevus cells within the dermis

89

Junctional Nevi



- Young individuals
- Flat, pigmented macules
- Cells located **at the junction of epidermis and dermis** (deep layers of epidermis)

90

Compound Nevus

- **Middle age** individuals
- Raised papule
- Light tan to dark brown
- Cells extend from **epidermis into the dermis**



"Kissing Nevus"
Very rare type of compound nevus that results from deposition of nevus cells in the eyelid fold while the lids are fused during embryogenesis

"Kissing nevus" involving the upper and lower eyelids of a child.

91

Intradermal Nevus

- **Most common**
- **Older** individuals
- Papillomatous lesion
- Little or no pigmentation
- May have protruding lashes
- Cells confined to the **dermis**
- Almost no malignant potential



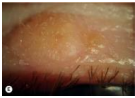



A dome-shaped intradermal nevus of the eyelid margin.

92

Risk of Malignancy Transformation

- Although uncommon, **junctional and compound** nevi have the capacity to **evolve into melanoma**
- Malignant transformation of purely **intradermal** nevus, in contrast, is **very rare**

↑ Younger Patient and Larger Size ↑
(Increased Melanoma Risk)

93

MALIGNANT EYELID NEOPLASMS

Features of malignant transformation include:

<ul style="list-style-type: none"> Rapid and asymmetric growth pattern Ulceration Itching Pain Color change Bleeding 	<p>Lesions exhibiting any of these characteristics should always be biopsied to rule out malignancy</p>
--	---

94



95

Will you see skin cancer?

- **Carcinoma of the skin** is the **most common malignancy** in the United States, accounting for half of all cancers
- Each year in the US, nearly **5 million people** are treated for skin cancer
- **40-50% of Americans** who live to age 65 years will be diagnosed with **at least** one skin cancer during their lifetime
- Approximately 5% to 9% of all cutaneous cancers arise in the **eyelids**

Yes

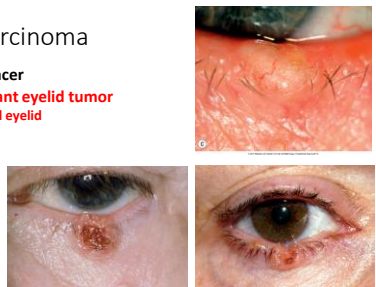
96

Basal Cell Carcinoma

97

Basal Cell Carcinoma

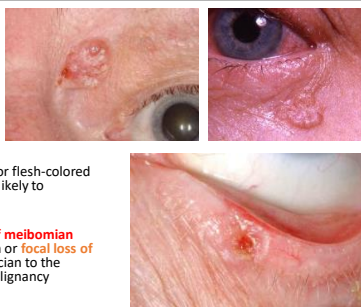
- **Most common skin cancer**
- **Most Common malignant eyelid tumor**
 - (Accounts for 90% of all eyelid malignancies)
- **Who gets BCC?**
 - Elderly patients
 - M>F
 - Risk factors
 - Fair skin
 - Inability to tan
 - Chronic sun exposure



98

Basal Cell Carcinoma

- Characteristics
 - Slow growing
 - Locally invasive
 - Rarely metastatic
- A more translucent, white, or flesh-colored lesion stretching the skin is likely to represent a BCC
- **Distortion or destruction of meibomian orifices of the eyelid margin or focal loss of lashes** should alert the clinician to the **possibility of underlying malignancy**

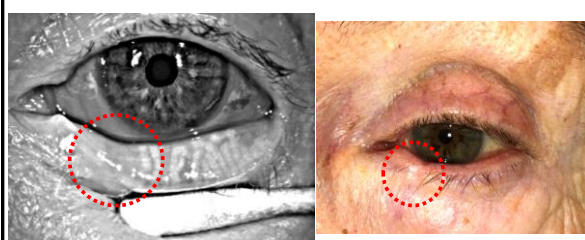


99

77 yo female, had BCC removed from left lower lid nasally a year ago.
Experiencing dry eye OS > OD.



100



101

Main Types of Basal Cell Carcinoma

Nodular
Noduloulcerative
Morpheaform (Sclerosing)

102

Nodular BCC

- Shiny firm pearly nodule
- Small dilated surface vessels (**telangiectatic vessels**)
- Initially very slow growing
- May develop an ulcer → Noduloulcerative BCC

(a) Early nodular lesion; (b) larger nodular tumour; (c) The typical appearance of a nodular basal cell carcinoma.

103

Noduloulcerative BCC

- With increasing radial growth, the interior of the tumor may outgrow its blood supply, leading to **central ulceration**
- Eventually, this may appear as a slowly enlarging ulcer
 - Border will be **indurated** and seem to "roll over"
- Dilated vessels at margins

(a) rodent ulcer; (b) large rodent ulcer

Rodent ulcer
"lesions resemble tissue gnawed by a rat"

104

Morpheaform (Sclerosing) BCC

- Less common
- Lateral infiltration beneath the epidermis
- Indurated plaque
- Margins difficult to delineate
- **Looks like chronic blepharitis**

(a) sclerosing tumour; (b) extensive sclerosing tumour

A morpheaform basal cell carcinoma with its centrifugal extension

105

70 yo Caucasian male, eye exam Feb 2018 showed normal slit lamp. May 2019, pt reports lower lid lesion that has been **growing for 6 months**

3mmx3mm elevated lid lesion w/overlying **vasculature and feeder vessel**

106

Biopsied, sent to pathology and got the report back....

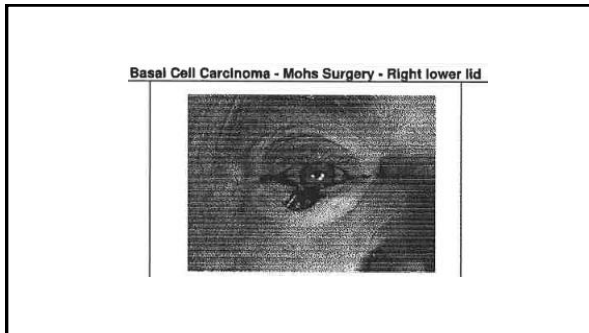
Diagnosis:
Skin, right lower lid:
Basal cell carcinoma, favor superficial and nodular types, margin involved.

107

2022-08-10, **three years later** this change. What do you think?

Diagnosis:
Skin, right lower lid:
Basal cell carcinoma, nodular and infiltrating types, margin involved.

108



109

2022-07-05, 77 yo male, hx of eye injections for Wet AMD, can't remember most recent injection. Started seeing a "brown fingerprint" in vision 4 days ago (on Friday). OD vision reduced to **20/200**. (Patient also mentioned as a child that he would stare at the sun)

Pt applies "fluorouracil ointment" to face lesions (5FU)

110

Journal of Investigative Dermatology
Volume 138, Issue 3, March 2018, Pages 527-533

Original Article
Clinical Research

Five-Year Results of a Randomized Controlled Trial Comparing Effectiveness of Photodynamic Therapy, Topical Imiquimod, and Topical 5-Fluorouracil in Patients with Superficial Basal Cell Carcinoma

Tumor free after 5 yrs

~70% 5FU

~80% Imiquimod

Maud H.E. Jansen^{1,2}, A. W. Klara Mosterd^{1,2}, Aimee H.M.M. Arts^{1,2,3}, Mariëtte H. Roozboom¹, Anja Sommer⁴, Brigitte A.B. Essers⁵, Han P.A. van Peijl⁶, Patricia J.F. Quaedvlieg⁷, Peter M. Steijnen^{1,2,3}, Patsy J. Nelemans^{8,9}, Nicole W.J. Kalkreuth-Smeets^{1,2,9}

111

Management of Basal Cell Carcinoma

Mohs surgery (what to expect)

- The visible tumor and a small segment of surrounding skin are removed.
- The tissue is examined under a microscope for cancer cells.
- If cancer cells are found, skin continues to be removed and examined.
- This continues until no more cancer cells are found.

- Currently, the best available options are surgical excision with standard frozen section control or **Mohs micrographic surgery**
- Reports suggest five-year **cure rates** using these two forms of treatment **in excess of 95%**

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Mohs Surgery

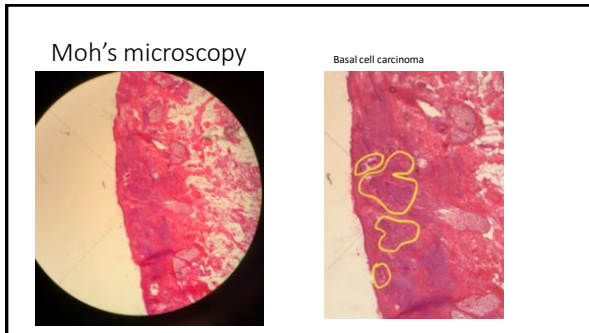
- Removal of the tumor, plus a small peripheral margin of normal tissue
- Specimen is frozen, sliced and placed on glass slides
- Slides are passed through various dyes (ex. **hematoxylin and eosin**)

113

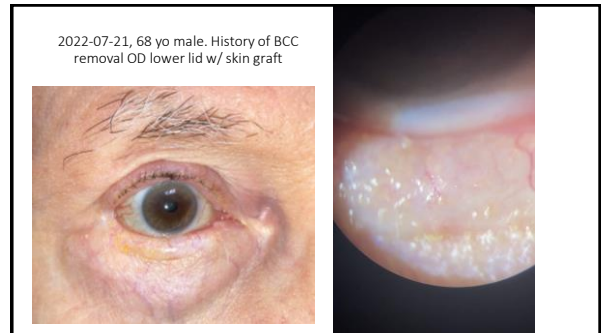
Mohs Surgery

- Specimen is viewed microscopically, locations of residual tumor are marked and only those areas are re-excised
- Surgical resection is **continued until** there is a microscopically proven **tumor-free plane**

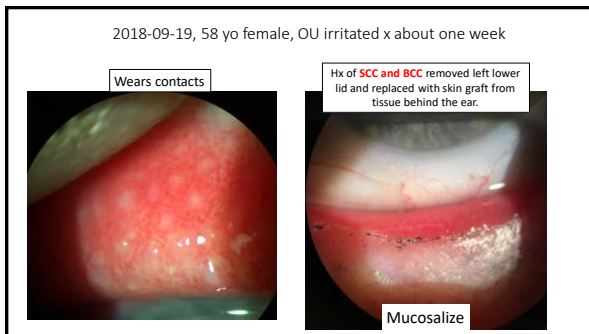
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Squamous Cell Carcinoma

118

Squamous Cell Carcinoma

- Less common than BCC
 - <10% of eyelid malignancies
- **More aggressive than BCC**
 - Metastatic in 20% of cases
 - Metastasis to intracranial space via orbit possible
- Most common on **lower lid** and lid margin
- Elderly patients with fair complexion
- Hx of chronic sun exposure
- Immune compromised = higher incidence

A: medial canthal squamous cell carcinoma presenting as a raised nodule

119

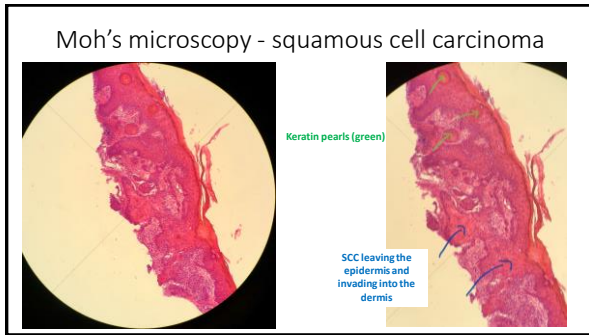
Squamous Cell Carcinoma

- Clinical Presentation Varies
 - Often present as painless plaques or nodules
 - May be scaly, crusty or ulcerated
- Will NOT see pearly translucent border or telangiectatic vessels (*which would be seen in BCC*)

May also present as cutaneous horn

B: Nodular tumour with surface keratosis.
C: Ulcerating tumour.

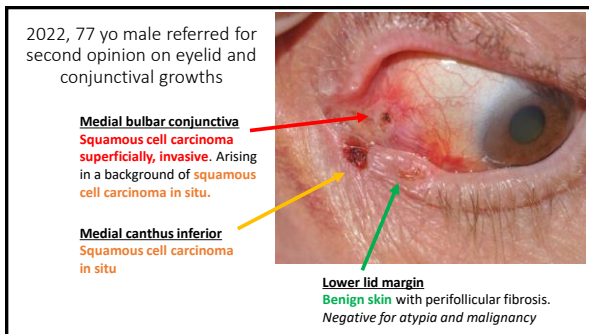
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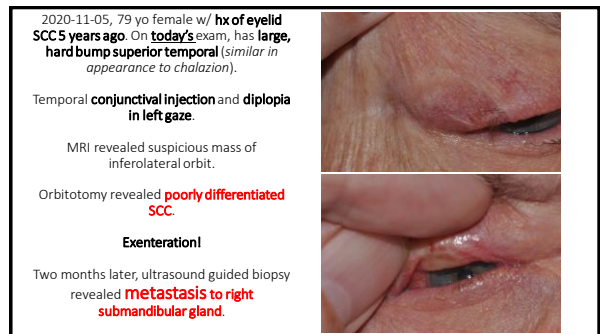
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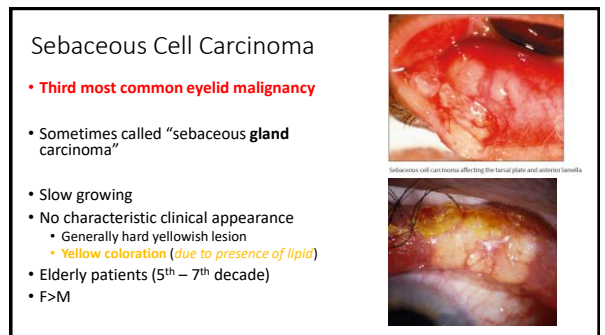
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Sebaceous Cell Carcinoma


125



126

Sebaceous Cell Carcinoma

- Arises from meibomian glands
- **More common on upper lid**
 - **More glands on upper lid**
- Occasionally from
 - Glands of zeis
 - Sebaceous glands of caruncle
- Diagnosis difficult
 - Early stage resembles **recurrent chalazion**
 - **Sebaceous cell carcinoma rock hard and immobile** whereas **chalazion rubbery and not adherent to skin**




Note the madarosis

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Pagetoid Spread

- Cardinal clinical signs
 - Madarosis
 - Poliosis
 - Thickened red lid margin
 - Marginal inflammation
- As neoplastic nodule enlarges, it may erupt toward eyelid skin and sebaceous cells spread diffusely throughout epidermis
- This "pagetoid" epidermal invasion **frequently misdiagnosed as blepharitis**
- "Pagetoid" = upward spreading (into epidermis) with **skip lesions**




A patient with sebaceous cell carcinoma masquerading as unilateral chronic blepharconjunctivitis for many years.

Closer inspection of the involved eyelid showed madarosis, hyperemic conjunctiva, and keratitis.

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Sebaceous Cell Carcinoma

- Regional lymph node **metastases** develop in 17-28% of cases
- **Orbital invasion** occurs in 6-17% of cases
- It is a **potentially lethal tumor** that clinicians must recognize early, as the morbidity and mortality rates approach those of malignant melanoma
- One of factors that worsen prognosis is:
 - Duration of symptoms > 6 months




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Malignant Melanoma

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Melanoma

- **Most lethal primary skin tumor**
- Pigmented plaque or lesion
 - May be non-pigmented (50%)
- **Highly metastatic**
 - Early detection and treatment is critical
- Rare
 - <1% of all eyelid malignancies
- BUT
 - An American's lifetime risk for developing cutaneous melanoma is 1 in 128.
 - Almost 2/3 of all deaths from cutaneous cancer are caused by malignant melanoma

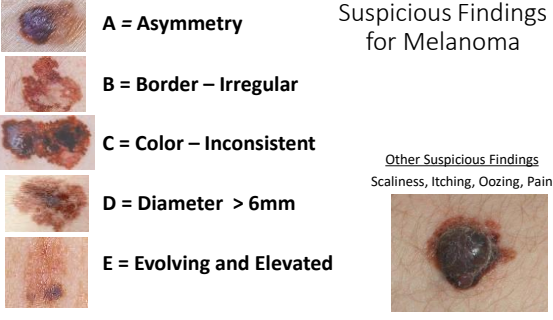


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Suspicious Findings for Melanoma

- A = Asymmetry**
- B = Border – Irregular**
- C = Color – Inconsistent**
- D = Diameter > 6mm**
- E = Evolving and Elevated**

Other Suspicious Findings
Scaliness, Itching, Oozing, Pain



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3 Main Types of Malignant Melanoma

Lentigo Maligna Melanoma
Superficial Spreading
Nodular

133

Lentigo Maligna Melanoma

- 10% of melanoma cases
- Elderly patients
- Flat tan-brown plaque with irregular borders
- Occurs on sun-exposed skin
- Enlarges radially
- Can form from premalignant lesion called simply "lentigo maligna" or "Huthinson's melanotic freckle"

Lentigo maligna "Hutchinson's Freckle"

Melanoma arising from lentigo maligna

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Superficial Spreading Melanoma

- Most common form (70%)
- Onset 20-60 years of age
- Plaque with an irregular border
- Pigment is often variable and inconsistent
- Quickly develop into a raised nodule
- Primarily involves non-exposed skin surfaces (upper back and anterior tibia most common sites)

A fully developed malignant melanoma of the lower lip in an elderly man

135

Nodular Melanoma

- Very rare on eyelids
- Bluish black nodule
- Surrounded by normal skin
- Very aggressive
- Worst prognosis

136

Benign or Malignant Game

Benign

Benign, but could convert

Malignant

137

Milia

Benign

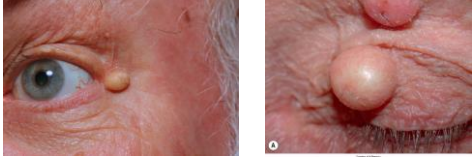
138

Acrochordon ("skin tag") **Benign**
👍



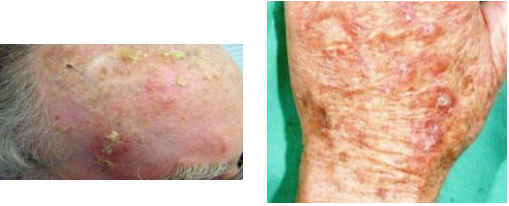
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Epidermal inclusion cyst **Benign**
👍



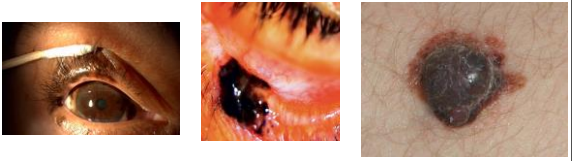
140

Actinic Keratosis
(low risk conversion to SCC) **Benign, but could convert**
👉



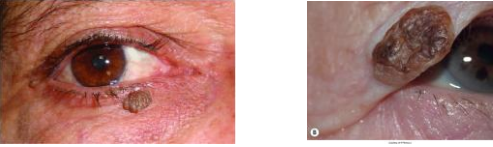
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Malignant Melanoma **Malignant**
👎 **Malignant**
👎



142

Seborrheic Keratosis **Benign**
👍

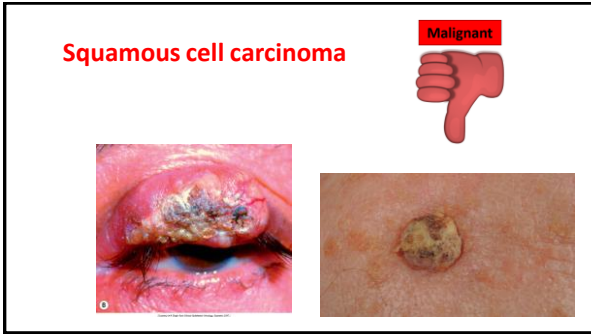


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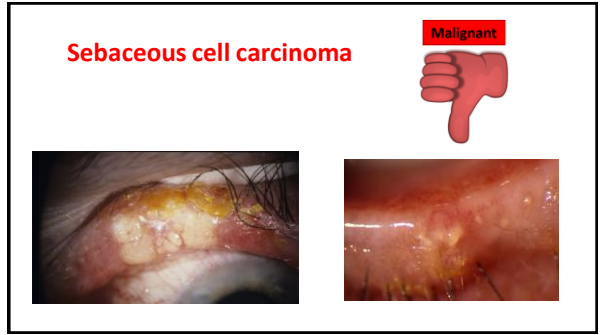
Port Wine Stain **Benign**
👍



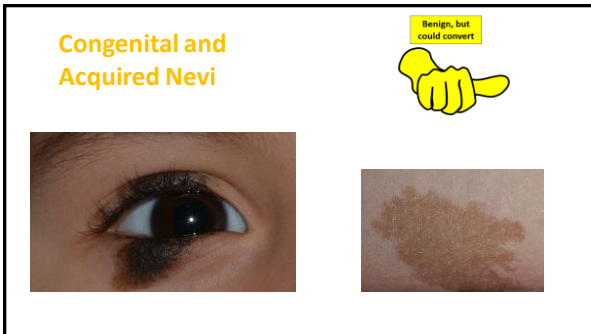
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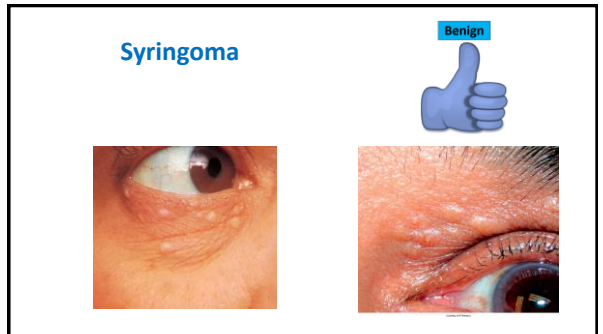
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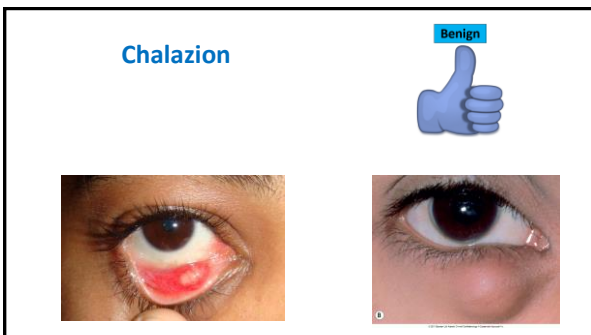
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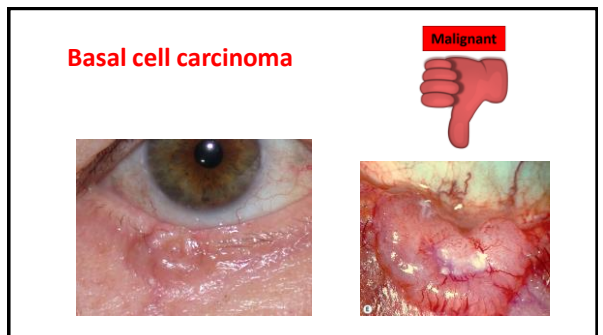
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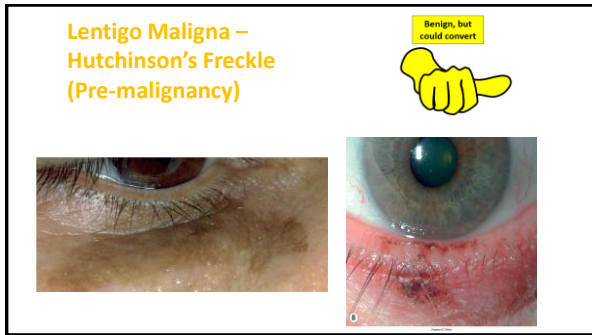
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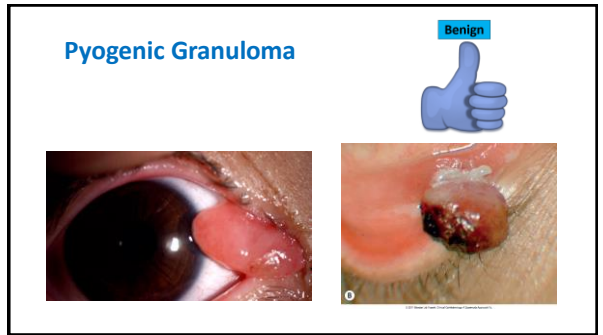
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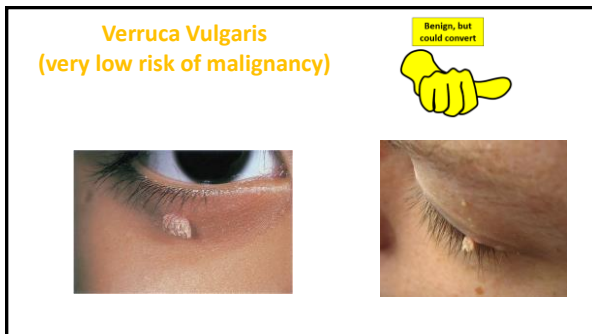
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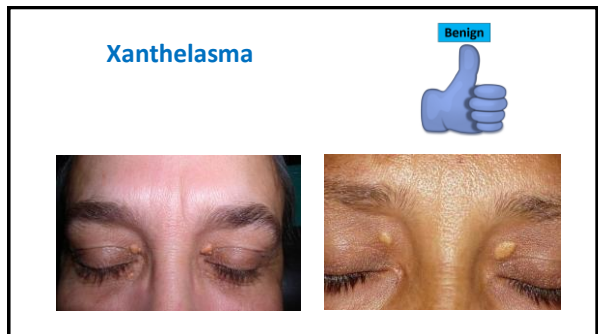
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CONJUNCTIVAL DEGENERATIONS AND GROWTHS (Not a Pterygium)

Pierce Kenworthy OD, FAAO
Arizona College of Optometry
OEC 2024

- Membrane Pseudomembrane
- Conjunctivochalasis
- Lymphangiectasia
- Conjunctival Capillary Hemangioma
- Orbital Fat Prolapse
- Lymphoma
- Giant Fornix Syndrome
- Conjunctival Squamous Papilloma
- OSSN (conjunctival intraepithelial neoplasia and squamous cell carcinoma)
- Pigmented Conjunctival Lesions (nevus, secondary acquired melanosis, PAM, melanoma)

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What are all of these conjunctival pathologies??

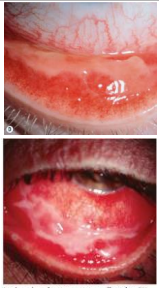
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Membranes/Pseudomembranes

- A pseudomembrane is formed when **fibrin-rich exudate** coagulates on the conjunctiva
 - thin yellow-white membrane** in the fornices and palpebral conjunctiva
 - can be readily **peeled off**
- Historically**, *Corynebacterium diphtheriae* and *streptococci* were the principal causes of membranous/pseudomembranous conjunctivitis; however, **adenoviral conjunctivitis is now the most common cause of membranes in Western countries**



Pseudomembranes form when a purulent exudate flows from the eye. As pseudomembranes form, blood and lymphatic channels, that are normally covered by the membrane, which penetrates and adheres to the affected tissue.

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Petechial hemorrhages (1) can be seen.

Membranous conjunctivitis secondary to **epidemic keratoconjunctivitis**. The **pseudomembrane** is composed of fibrin and polymorphonuclear leukocytes obscuring much detail of the palpebral conjunctiva.

160




Don't fidget when membranes show up

31 yo male, diagnosed with "hemorrhagic EKC" 11 days ago
Used Tobradex x 1 week, eye getting worse





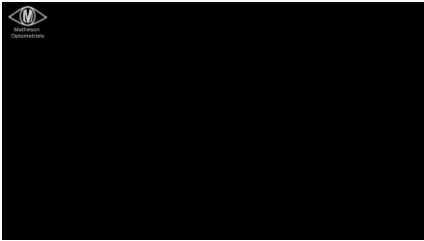
161

**YOU SPIN ME RIGHT ROUND, baby
RIGHT ROUND like a RECORD, baby
RIGHT ROUND ROUND ROUND &2**

162

Pseudomembranes and membranes should be removed when detected
Cotton swabs may be used in the procedure but forceps are usually necessary



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Initial Appearance Immediately after pseudomembrane removal One Week Follow-Up



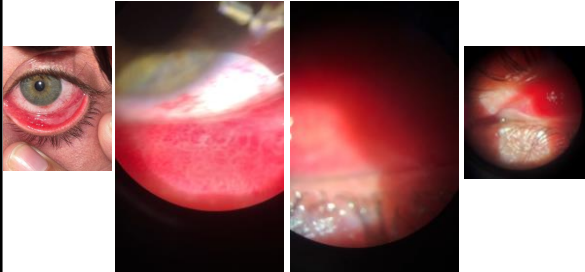
164

2021-11-24, 25 yo female with pseudomembrane secondary to EKC

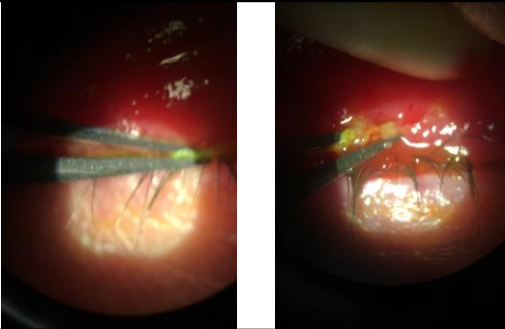


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Check lower and upper palpebral conjunctiva



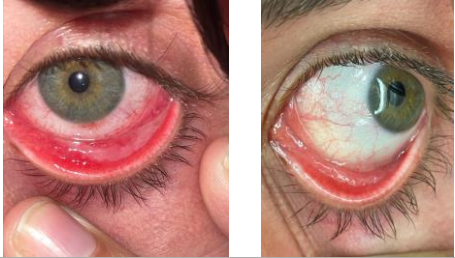
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167

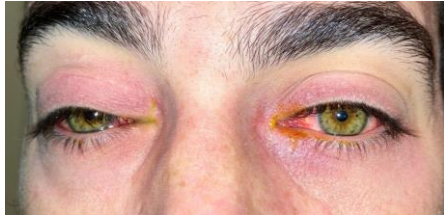
Pseudomembrane Removal

Before 5 Days After



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2023-04-20, 29 yo male, OS got red 5 days ago, left eye 3 days ago.

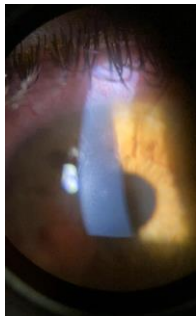
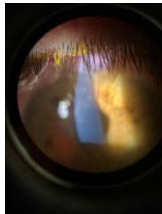


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170

What will you do?



171

We did...

- Betadine
- Pred acetate qid OU



172

We did....

- Betadine
- Pred acetate qid OU



173

EKC Tx Recipe

- 3 cc bottle of Refresh
- Snap cap off with out touching inside
- Remove 1.4 cc of Refresh with syringe
- Then add 0.2 cc of proparacaine and 0.2 cc of iodine
- Final volume is 2 mL



(Get it?)

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Conjunctivochalasis

- Usually a bilateral condition characterized by **redundant**, loose, and **nonedematous** conjunctiva
- Exacerbated by posterior lid margin disease
- Typically presents as loose inferior bulbar conjunctiva that prolapses above the lid margin

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Conjunctivochalasis is an important differential diagnosis that must be considered in patients with **ocular irritation and epiphora**

2018-05-30, 75 yo male, complains of **tearing OS for over a year**

In CCH, **delayed tear clearance (DTC)** may be caused by anatomical **obstruction of the punctum** by redundant conjunctival folds

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Cauterization

- The goals of **cauterization** are to attain **shrinkage of the redundant conjunctiva** and possibly to promote conjunctival fixation to the underlying tissue.
- **Advantages** include short operating and healing times and the elimination of suture-related complications
 - Importantly, cauterization does **not** result in removal of normal conjunctival tissue, significant scar formation, or motility restriction.

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2021-10-06, 88 yo male, wears scleral lenses, but when he takes sclerals off, the conj stretches out and suction on

179

2021-09-14 – 7 months **after fornix reconstruction and conjunctival cautery** (2021-02-17)

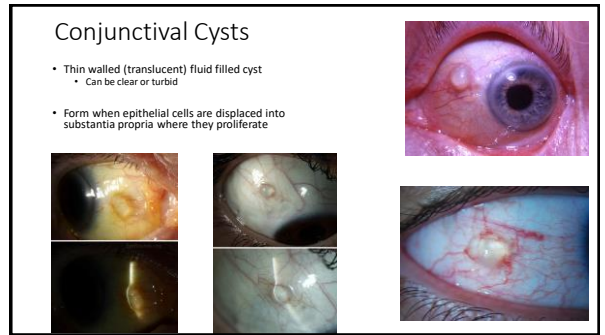
Right Eye

Left Eye

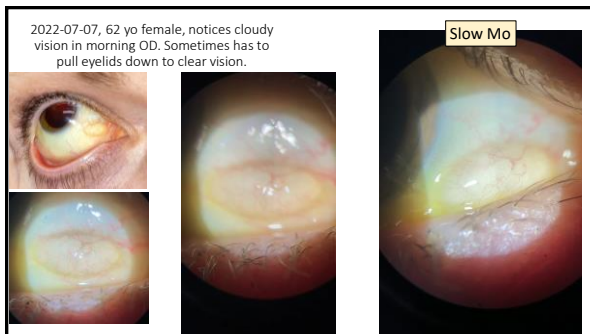
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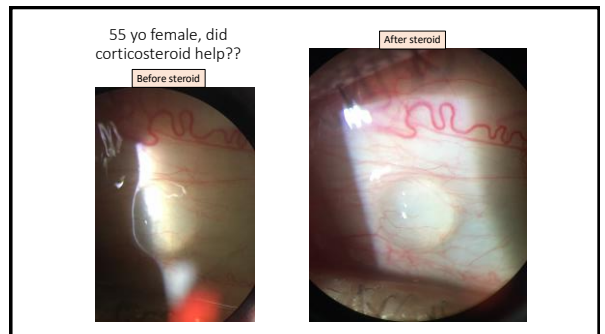
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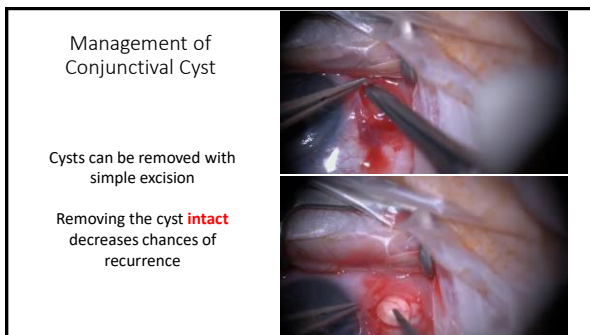
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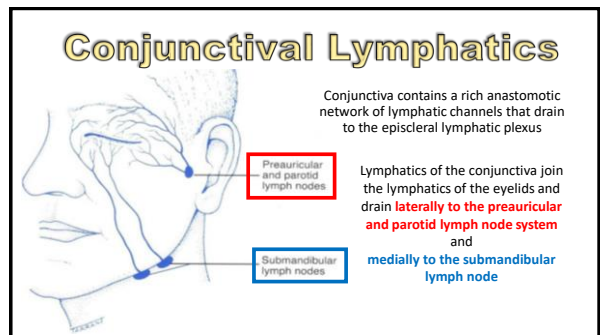
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Lymphangiectasia

- Many small, irregular lymphatic channels arise 1 mm peripheral to the limbus and anastomose to form larger collecting channels in the deep layer of the substantia propria
- Occasionally, these can be seen as **irregular, dilated, sausage-shaped channels (lymphangiectasia)**
- The presumed underlying etiology is **obstructed lymphatic channels**
- The condition is thought of as **benign**, but can be associated with **local inflammation**

(Occasionally may be filled with blood)

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External (a) and slit lamp photos (b and c) showing chemosis

AS-OCT images (d and e) showing dilated lymphatic channels and conjunctival edema

Indian J Ophthalmol. 2019 Aug; 67(8): 1338
doi: 10.4103/ijo.IJO_2019_118

AS-OCT in diffuse conjunctival lymphangiectasia
Nikhil S. Gokhale

AS-OCT showed dilated lymphatic vessels as empty **thin-walled dark spaces** of varying caliber in the sub-conjunctival space.

Conjunctiva is elevated and thickened due to edema and the sclero-conjunctival interface can be visualized

188

What the heck? Dancing Lymph

189

Case Reports > Cornea. 2013 Apr;32(4):547-9.

TECHNIQUES

Removal of Lymphangiectasis Using High-Frequency Radio Wave Electrosurgery

Kyung E. Han, MD,* Chul Y. Choi, MD, PhD,† and Kyoung Y. Seo, MD, PhD*

Purpose: To describe a novel technique using high-frequency radio wave electrosurgery (Elman Surgitron Dual Frequency RF; Elman International, Inc) for the management of lymphangiectasis.

Lymphangiectasis is clinically diagnosed as translucent, dilated, and prominent lymphatic vessels in the interpalpebral area of the bulbar conjunctiva. It usually resolves spontaneously without causing ocular symptoms. However, if it is

190

24 yo female, OS has been irritating her for a week, boyfriend noticed **this** about a week ago

Immediate post-treatment appearance

Lymphangiectasia treatment OS using high-frequency radio wave electrosurgical device (Elman unit) with energy setting 1 out of 100

October 2020 11-17-2020

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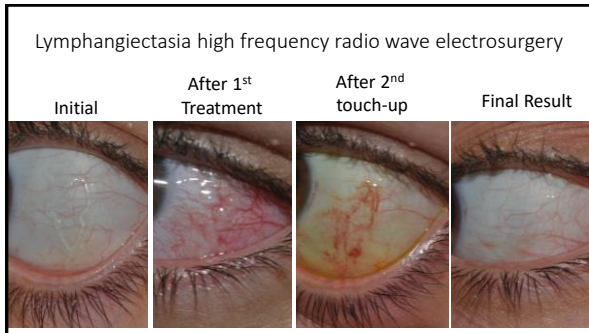
Pt states irritation was gone initially after procedure, but then came back

Needed touch-up

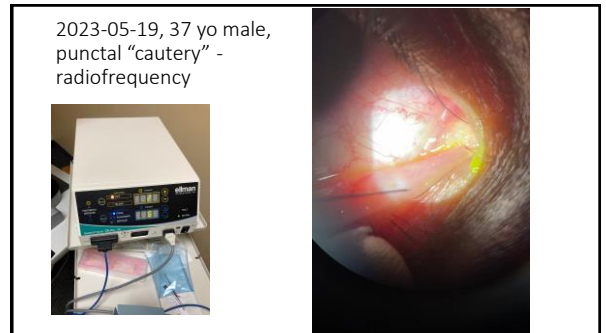
One week post-op appearance

And finally!

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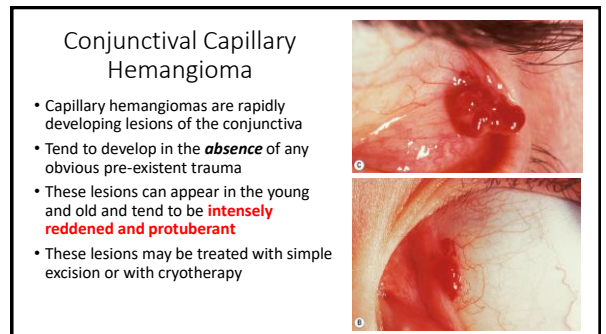
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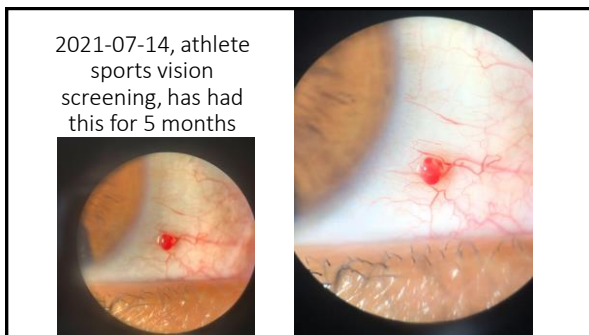
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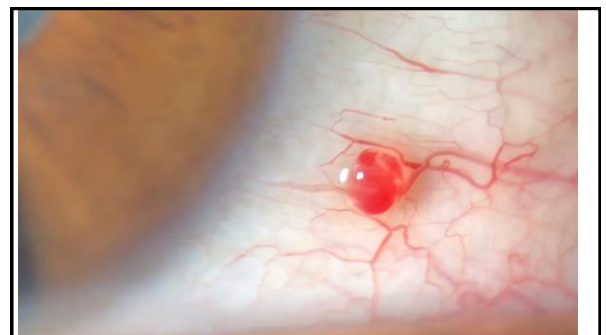
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197



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Cornea. Author manuscript; available in PMC 2015 Jan 1.
 Published in final edited form as:
 Cornea. 2014 Jan; 33(1): 96-100.
 doi: 10.1097/COO.0000000000000022

PMCID: PMC4389546
 NIH-MSID: NIH-R05541738
 PMID: 24273023

RESOLUTION OF CONJUNCTIVAL SESSILE HEMANGIOMA WITH TOPICAL TIMOLOL

Jordan G. Lublin, M.D., Howard K. Lee, M.D., PhD, and Carol L. Kern, M.D.

Acquired sessile hemangioma of the conjunctiva of a 77-year-old African-American woman.

"It was with interest that we noted complete resolution of the lesion in our case after coincidentally starting topical timolol-dorzolamide therapy for her glaucoma."

A—Lesion as seen before treatment. B—Resolution 6 months after starting topical dorzolamide-timolol with only trace residual vessel irregularity remaining.

199

Acquired sessile conjunctival capillary haemangioma in an adult managed with topical timolol

Deepsekhar Das, Sandton Jayakumari Simon Raj, Manddeep S Bajaj

A 19-year-old woman presented to the ophthalmology outpatient department with complaints of a reddish mass in her right eye for the past 6 months

Acquired conjunctival haemangioma in the bulbar conjunctiva of the right eye after 1 week of starting topical timolol.

Near-total resolution of the haemangioma after 4 weeks of topical timolol 0.5% gel application.

200

Orbital Fat Prolapse

201

Orbital Fat Prolapse

Intraocular orbital fat can **herniate into the subconjunctival space** when Tenon's capsule is violated spontaneously or after trauma or surgery.

This process appears as a unilateral or bilateral, elevated, compressible, yellow-orange mass with visible lipid globules.

It is most commonly located in the **superotemporal quadrant** of the globe in elderly, obese men

Orbital fat that prolapsed spontaneously, resulting in adjacent subconjunctival hemorrhage

Bilateral orbital fat prolapse in a different patient

202

Orbital Fat Prolapse

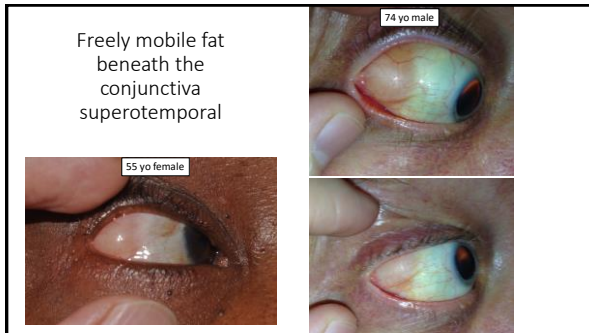
Subconjunctival herniated orbital fat (HOE), also known as intraocular fat prolapse

The patient also had bilateral inferior and superior medial eyelid festoons, also known as extraocular fat prolapse

203

65 yo male, was hit in left eye with tree branch while doing yardwork yesterday

204



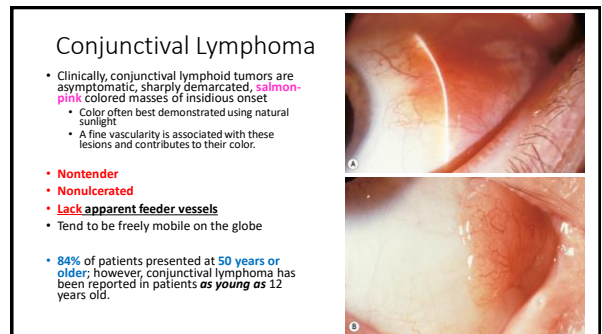
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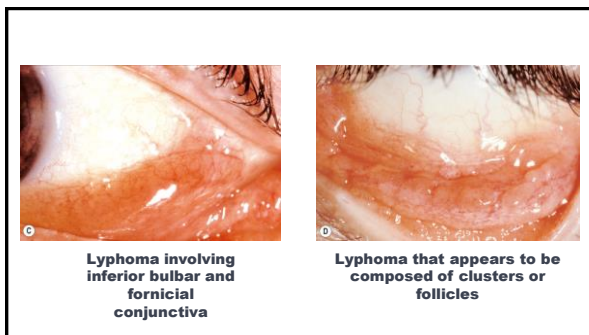
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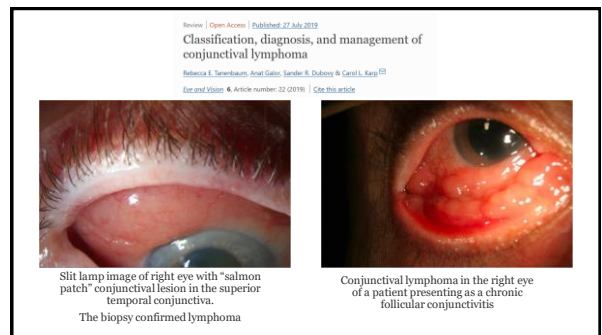
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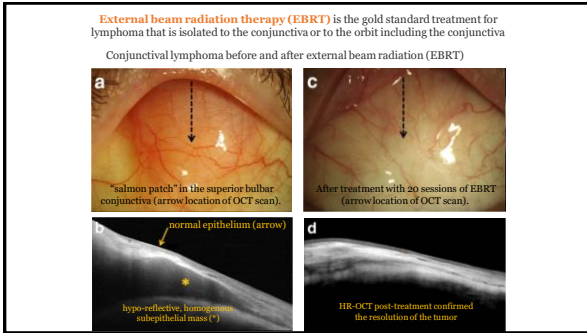
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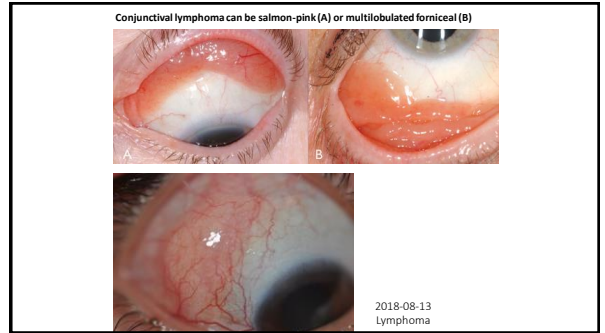
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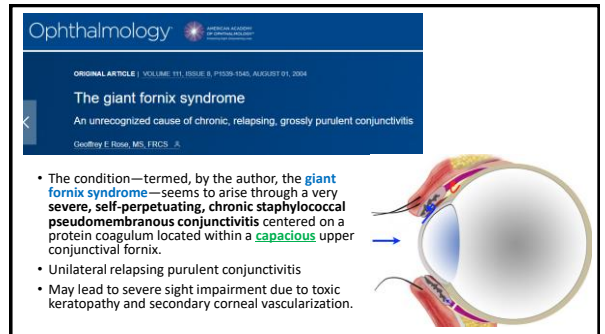
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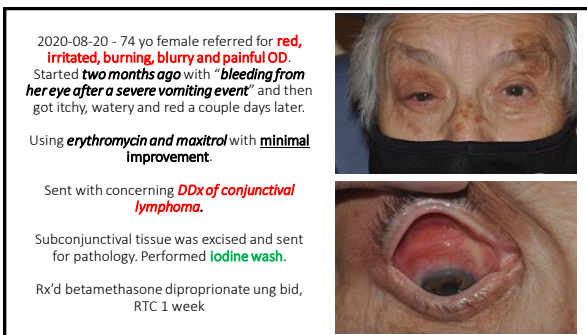
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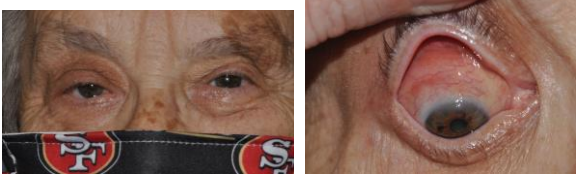


215



216

2020-09-17
Resolving – continue betamethasone, start tobradex.



Schedule for repeat biopsy w/ flow cytometry (still concerned for lymphoma)

217

October 19, 2020 - Lab results (Leukemia Lymphoma Panel)

Diagnosis:
 Conjunctiva, right, biopsy:
 - Loose fibrovascular stromal tissue with perivascular chronic inflammation consisting of mature appearing lymphocytes and plasma cells.
 - Epithelium is not identified.
 - Flow cytometry is negative (FC20-7687).
 - Malignancy is not identified.

Clinician Provided Information:
 Neoplasm of uncertain behavior of other specified sites

Source:
 Conjunctiva, right; biopsy

Summary:
 Cytometric and morphologic analysis of right conjunctiva reveals no specific diagnostic abnormality.

Pathologist:

Biopsy showed only inflammation, **negative for lymphoma**

Start pred acetate bid OD, continue betamethasone

218

2020-11-19 – Significant improvement, patient feeling much better



219

Referral for "Lymphoma"
(actually is **Giant Fornix Syndrome**)



Before Treatment After Treatment

220

BMJ Case Reports Management of giant fornix syndrome with irrigation with povidone-iodine

Name / Article / Volume 2018, Issue 1
 Published Online: 2018/08/01
 Copyright © 2018 BMJ Publishing Group Ltd

B Before treatment **A After treatment**

C **B**

We describe a case of a 98-year-old woman with GFS who did **not respond** to several weeks of intensive (two hourly) treatment with topical prednisolone 1% drops and chloramphenicol.

But resolved with manual coagulum debridement and application of 10% povidone-iodine.

221

97 yo woman referred for refractory conjunctivitis


- Treated with polymyxin-trimethoprim x **6 months**
- Multiple topical fluoroquinolones had **failed**
- Intense papillary conjunctivitis
- Copious purulent discharge

Cultures grew Pseudomonas and MRSA

- Treated with fortified Tobramycin and Vancomycin
- Failed** oral antibiotics
- After one month, the left eye got involved

Surgical tarsal injections of 0.1cc of both Vancomycin (50mg/ml) and triamcinolone (40mg/ml)

- Right eye relapsed



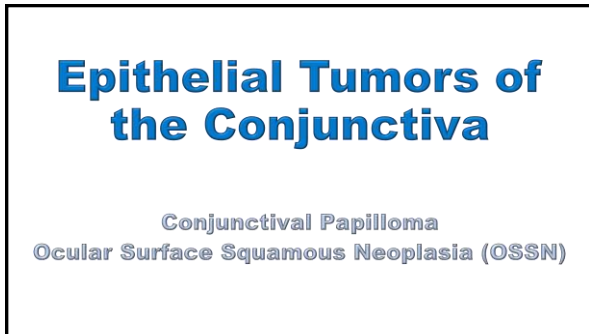
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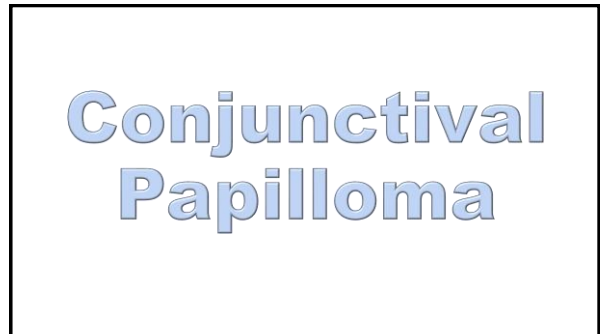
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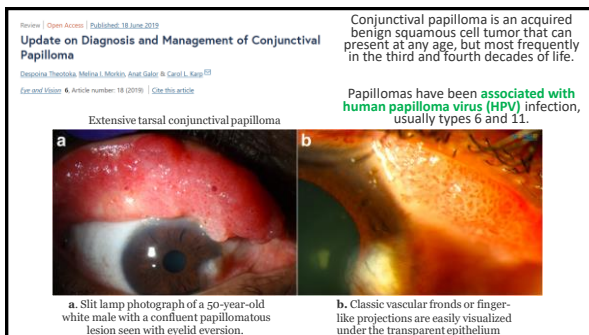
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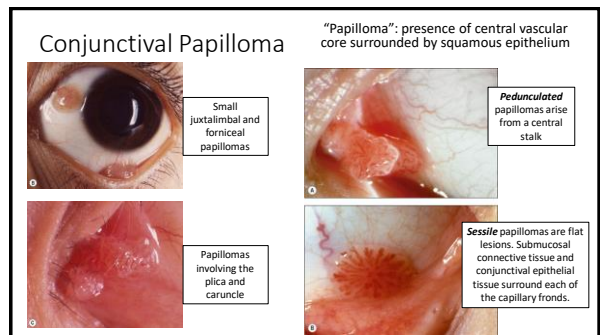
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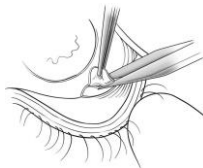


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228

39 yo male referred for red spot on right eye which has been present for > 5 years, unchanging, "not bothersome at all"

Excision with cryotherapy to margins and amniotic membrane

229

Diagnosis:
Conjunctiva, right eye, excision:
Atypical conjunctival tissue, pending further evaluation and consultation. Final diagnosis and addendum report to follow.
Clinician Provided Information:
 Conjunctival neoplasm of unspecified behavior of unspecified site.
Source:
 Conjunctiva, right eye; excision
Gross Description:
 A shave biopsy of raised, glistening, dome-shaped, gray, soft tissue is 0.5 x 0.4 x 0.2 cm. The margin is inked black and the specimen is bisected. Ims SJA/cb/vs

Discussion:
 Sections of the conjunctival lesion biopsy demonstrate a thickened conjunctival epithelium with scattered goblet cells. There is mild atyp, focal dyskeratosis and scattered mitotic figures. No atypical mitosis are identified. Focally intraepithelial neutrophils are clustered. The differential diagnosis includes squamous papilloma with mild dysplasia. Studies for organisms include negative stains for GMS, modified Steiner and HSV. A p16 immunostain is negative. Ki-67 proliferation index is elevated and there is expression present throughout the full-thickness of the conjunctival epithelium. Another consideration includes a viral etiology. No evidence of malignancy is identified.

Biopsy negative for malignancy, only mild dysplasia

230

Ocular Surface Squamous Neoplasia (OSSN)

The general clinical term of OSSN includes a spectrum of malignancies that ranges from mild epithelial dysplastic changes, such as conjunctival intraepithelial neoplasia (CIN), to more severe invasive carcinoma that invades through the basement membrane into the substantia propria, such as squamous cell carcinoma.

Non-Invasive: "Conjunctival Intraepithelial Neoplasia" (CIN)

↑

Conjunctival Basement Membrane

↓

Invasive: Squamous Cell Carcinoma


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Conjunctival Intraepithelial Neoplasia (aka. Non-Invasive Ocular Surface Squamous Neoplasia)

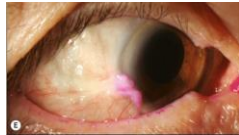
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Conjunctival Intraepithelial Neoplasia (CIN)

- Also known as:
 - Non-invasive form of OSSN
 - Carcinoma in situ
 - Conjunctival dyskeratosis
- 95% present at the limbus
- Associated with
 - UV exposure
 - Human papilloma virus
 - AIDS
 - Xeroderma pigmentosum
 - inability to repair tissue damaged by UV light
 - Stem cell therapy
- May involve any area of conjunctiva or cornea
- Most common in interpalpebral space at limbus

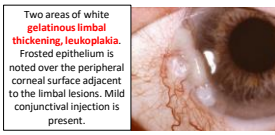


Small lesion




233

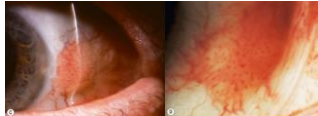
Various Presentations of CIN



Two areas of white gelatinous limbal thickening, leukoplakia. Frosted epithelium is noted over the peripheral corneal surface adjacent to the limbal lesions. Mild conjunctival injection is present.



An elevated, translucent conjunctival lesion is arising beneath a leukoplakic nodular lesion. Minimal corneal involvement is present.



This OSSN has a sessile papillary appearance. Frequently, lesions with this appearance are associated with the human papillomavirus.

234



45 yo Hispanic male, presents for "red eye". Was just in for routine exam **four months ago** with **normal** anterior segment findings.

But **now** (4 months later) back for red, irritated left eye



235

Papillomatous lesion with corkscrew vessels

Dysplastic squamous lesions have fine vascular patterns with a **hairpin** configuration

236

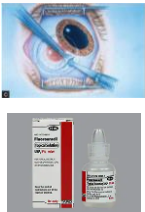
Review | Open Access | Published: 20 July 2018

Clinical Management of Ocular Surface Squamous Neoplasia: A Review of the Current Evidence

Maria Vittoria Cicinelli, Alessandro Marchese, Francesco Bandello & Giulio Modorati


Ophthalmology and Therapy, 7, 247–262 (2018) | [Cite this article](#)

- **Surgical removal with or without cryotherapy** is still considered the traditional treatment for OSSN
- When there are positive margins or incomplete excision, local or topical IFN- α 2b represents the best cost-effective approach to minimize tumor recurrence
- Nevertheless, **primary monotherapy with immunomodulator or chemotherapy agents** is now earning increasing recognition and acceptance



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Chemotherapeutic Agents Against OSSN



5-fluorouracil (5FU)
Antimetabolite that inhibits the action of thymidylate synthase, therefore interrupting the synthesis of nucleosides used for DNA formation

Interferon alfa-2b (IFN)
Endogenous glycoprotein released by various immune cells with antiviral, antimicrobial, and antineoplastic activities that is used in recombinant form

Mitomycin C (MMC)
Alkylating agent that acts in all phases of the cell cycle and inhibits RNA and protein synthesis.


All of these agents, despite their differing mechanisms of action, have been shown to be effective in the treatment of OSSN, with varying resolution rates.

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American Journal of Ophthalmology
Volume 159, March 2019, Pages 216-222

Comparison of Topical 5-Fluorouracil and Interferon Alfa-2b as Primary Treatment Modalities for Ocular Surface Squamous Neoplasia

Nandini Venkateswar*¹, Candice Marchese¹, Axel Galor^{1,2}, Carol L. Kay^{1,3,4}



"Topical **5FU 1%** eye drop is **comparable in efficacy** to **IFN** in the treatment of OSSN. Both modalities resulted in a high frequency of tumor resolution and low recurrence rates."

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American Journal of Ophthalmology
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Comparison of Topical 5-Fluorouracil and Interferon Alfa-2b as Primary Treatment Modalities for Ocular Surface Squamous Neoplasia

Nandini Venkateswar*¹, Candice Marchese¹, Axel Galor^{1,2}, Carol L. Kay^{1,3,4}

Topical 5-Fluorouracil Concentration of 1%	Topical Interferon Alfa-2b Concentration of 1 MIU/mL
4 times daily for 1 week, followed by a drug holiday for 3 weeks.	4 times daily continuously without any cessation of therapy.
High frequency of resolution (average 91% resolution, range 82%-100%)	High frequency of resolution (average 95% resolution, range 75%-100%)
Benefits of 5FU are its low cost (approximately \$37 per cycle).	A downside of treatment is its high cost (approximately \$500 per month in the United States), need for continuous treatment, and requirement for refrigeration.
Downsides include its side effects , most commonly ocular pain and lid inflammation	An advantage of IFN is its gentleness .

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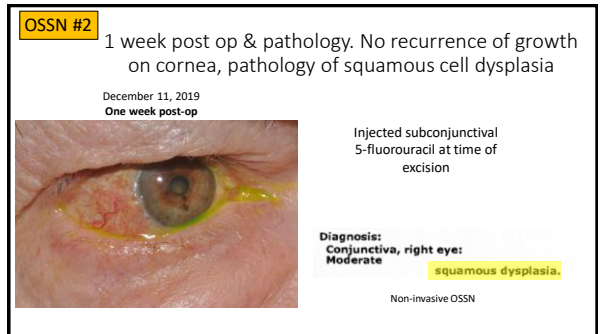
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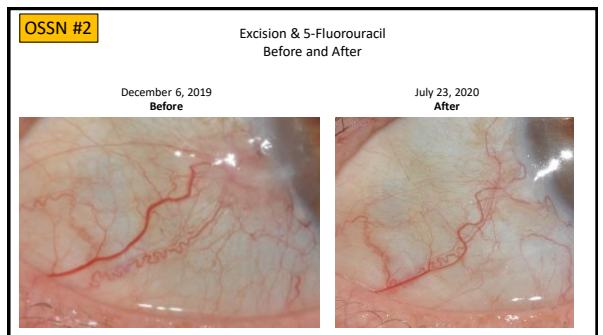
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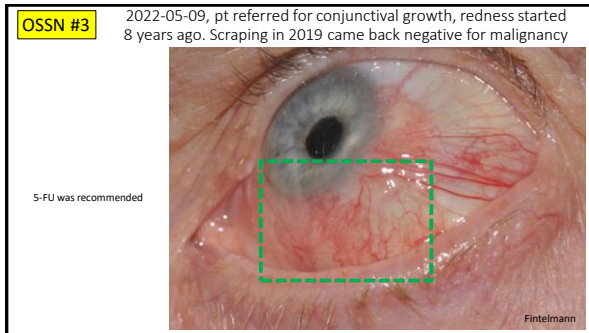
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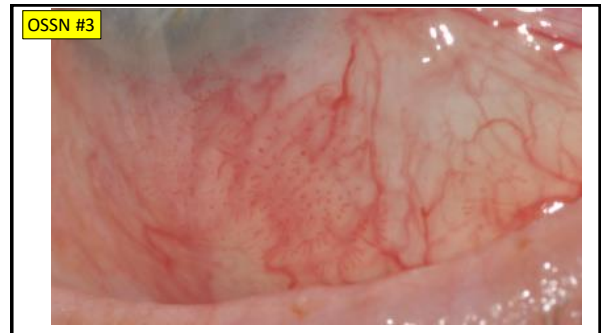
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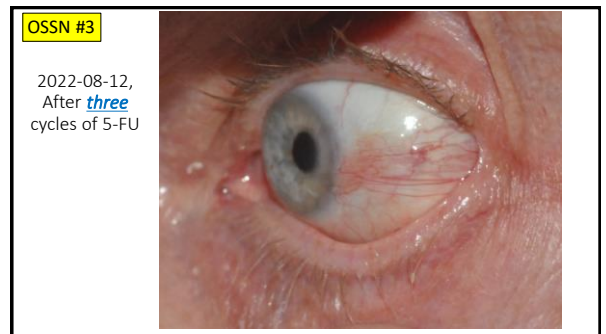
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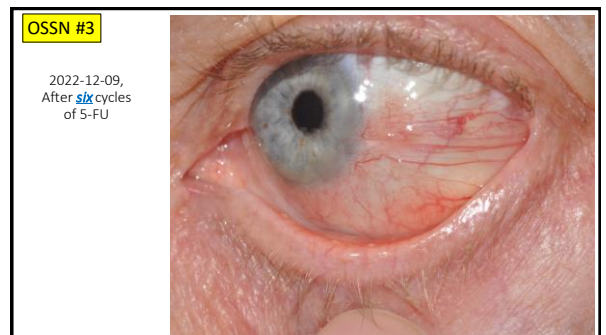
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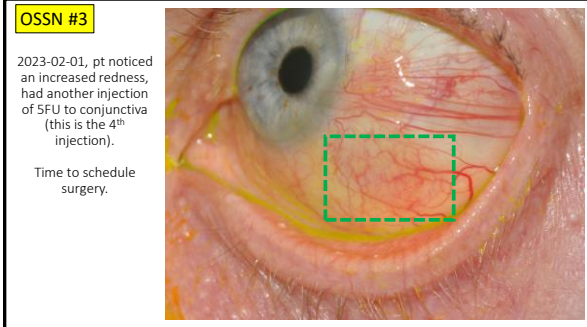
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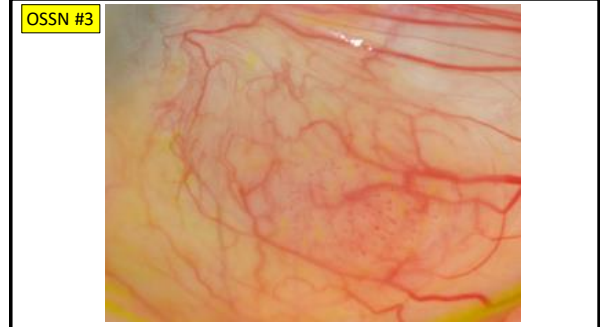
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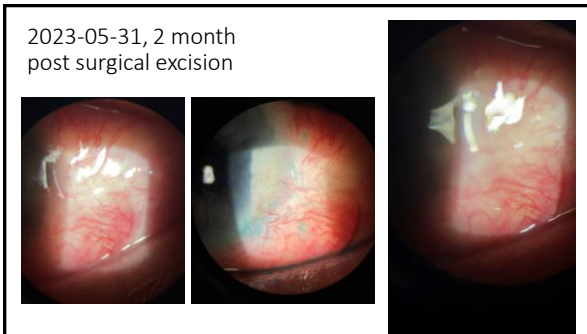
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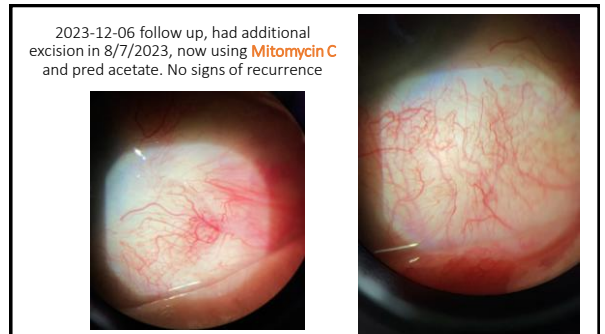
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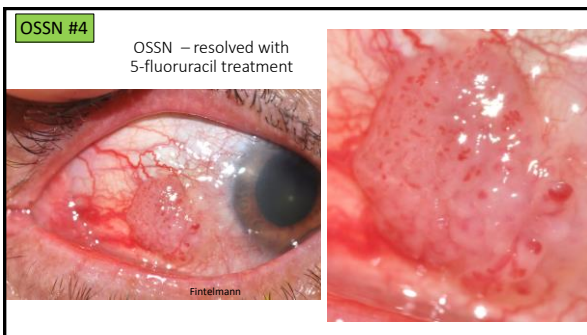
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OSSN #5

Pathology report



SURGICAL PATHOLOGY

Tissue
Accession #: ST200008940

Diagnosis:
Conjunctiva, right eye, biopsy:
Squamous cell carcinoma in situ, tumor focally extends to the lateral margin.

Comments:
Multiple deeper levels examined.
The case was reviewed by dermatopathologist Dr. S. Amin with agreement.
Clinician Provided Information:
Malignant neoplasm of right conjunctiva

Source:
Conjunctiva, right eye; biopsy

Gross Description:
A tan-brown thin-walled portion of tissue is 0.7 x 0.6 x 0.1 cm. The margin is inked black and the specimen is trisected. In: MMW/lt/vc

Microscopic Description:
Microscopic examination performed on all specimen(s) received. WQ/vs

Pathologist:

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OSSN #5

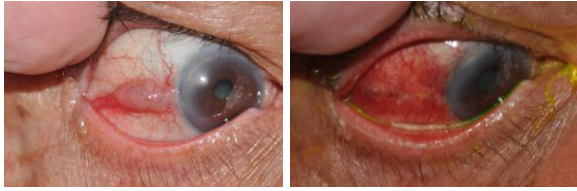
At time of biopsy: injection of 5mg 5-FU; gentamycin, FML, erythromycin, ketorolac, Maxitrol in office. Shield placed over OD and patient educated to keep shield on for one day. Polytrim and prednisolone acetate TID OD. RTC 1 week for follow up.

Steroids!

PredForte BID and 5-FU QID OD for one week, then none for 3 weeks, then repeat the cycle until resolution

Excision completed on August 6, 2020

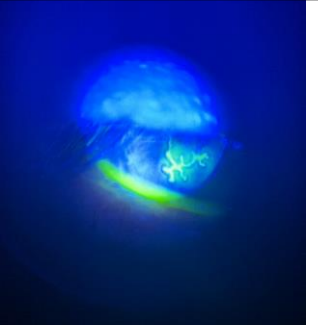
Three week post op August 27, 2020



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OSSN #5

Two months later, conjunctiva healing with topical 5-FU drops and **pred forte**, but what is going on with **CORNEA!?**



262

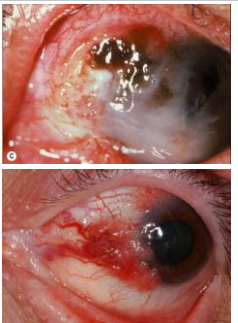
Squamous Cell Carcinoma

Invasive Ocular Surface Squamous Neoplasia

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Squamous Cell Carcinoma

- CIN is often the precursor of squamous cell carcinoma
 - Dysplastic epithelial cells penetrate the basement membrane (invasive OSSN)
- Fleshy pink papillomatous lesion
- Feeder vessels
- May exhibit diffuse growth
 - Looks like chronic conjunctivitis
- May involve cornea
- Intraocular extension rare
- Metastasis rare




264

Coolest sentence I have ever read in a textbook


"If the surgeon is concerned about **possible deep tissue invasion**, a cutaneous **cryogun** may be used to produce a full-thickness trans-scleral **ice ball**."

The author?

265


Double freeze-thaw cryotherapy to the resected margins



266

OSSN #6 2019-08-21, 75 yo male, **over the last year** has noticed a **bump on his right eye**. Vision is blurry when he wakes up, and he has **mild redness OD**. Visine helped a little bit. Proceed with excision and amniotic membrane, followed by topical therapy.

Lissamine green staining cornea Feeder vessels



Pathology??

Addendum
Addendum Diagnosis:
Conjunctiva, right eye:
Superficially invasive moderately differentiated squamous cell carcinoma. Tumor extends to deep and peripheral resection margins, confirmed by deeper sections.

Fintelmann

267

OSSN #6 Treated with **two cycles of 5-FU**, but developed **red lid margins**

D/C 5-FU drops, Continue pred acetate
Wash face and apply Vaseline to skin
Rx'd maxitrol and betamethasone cream



August 21, 2019 October 24, 2019
Two Month Post-Op

268

OSSN #7 December 9, 2020 - 77 yo white male, referred to clinic, complaining of **foreign body OD**, started **2 months ago** when he was **working under his motorhome**. Currently using erythromycin and gentamicin with some relief. Has **increased in size**. Pt reports **previous eye doctor called it a pterygium**.




Excised in office w/ forceps and scissors
Cautery for hemostasis

Closed with sutures and conjunctival injection of 5 mgs of 5-fluorouracil

Rx Maxitrol, sent biopsy specimen to lab

269

OSSN #7 December 16, 2020 - One week post op
(Pt reports last suture fell out yesterday)



But who cares!

What does the pathology report say!?

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OSSN #7

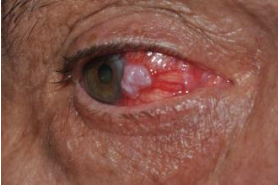
Pathology report

Diagnosis:
 Skin, right eye:
 - Invasive squamous cell carcinoma, margins free of tumor.

Clinician Provided Information:
 Malignant neoplasm of unspecified site of right eye

Source:
 Skin, right eye

Resolved after
5 cycles of 5-FU



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Pigmented Conjunctival Lesions

Conjunctival Nevus
 Secondary Acquired Melanosis
 Primary Acquired Melanosis
 Malignant Melanoma

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Pigmented Conjunctival Lesions




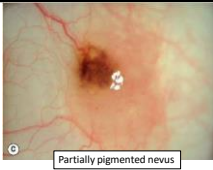

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Conjunctival Nevus

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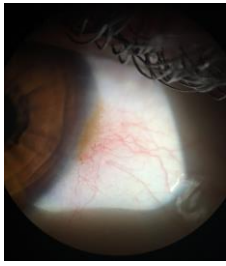
Conjunctival Nevus

- Most common melanocytic conjunctival tumor
- **~1% chance of malignant transformation**
- Presentation
 - 1st-2nd decade
- Solitary unilateral discrete **mildly elevated** intraepithelial lesions
- Signs
 - Pigmentation variable
 - Non-pigmented possible
 - May have cystic spaces
 - **Can become pink and congested in children and adolescents**

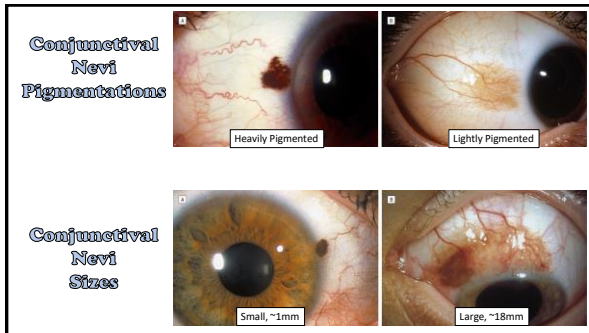
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14 yo female with this conjunctival finding on routine examination, asymptomatic

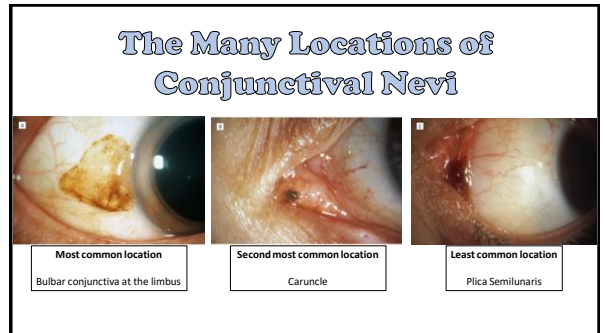


- Conjunctival nevi may become **more noticeable during puberty.**
- As the **nevus increases in volume, changes in hydration** of the ocular surface may cause **irritation with secondary inflammation.**
- Inflammatory cell infiltration further increases the size, elevation, and **vasculature** of the nevus.
- These alterations tend to provoke clinical concern that a malignant melanoma has arisen from the nevus, which has led to **surgical excision of a large number of benign conjunctival nevi**

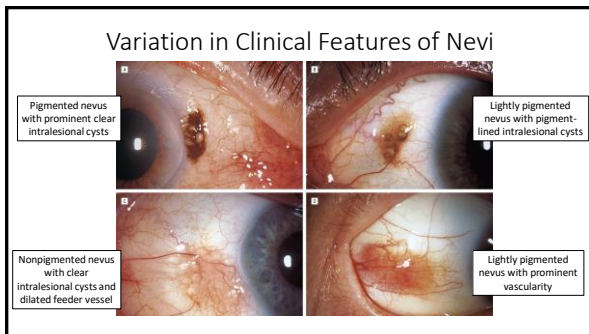
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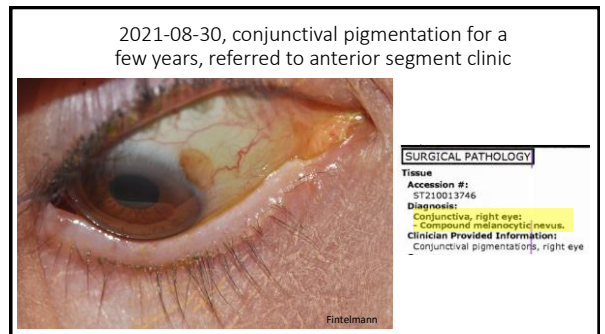
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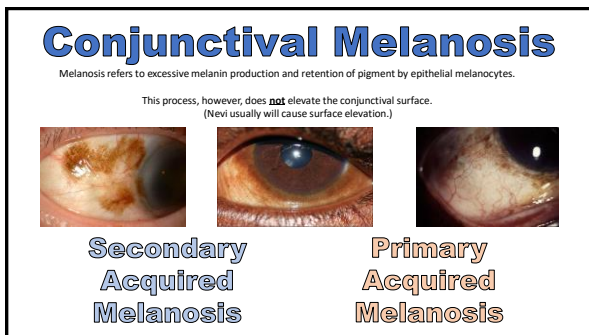
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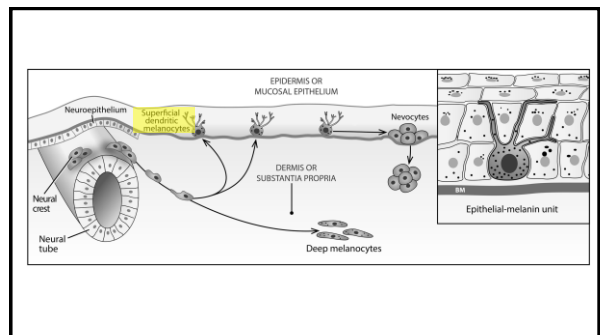
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Secondary Acquired Melanosis

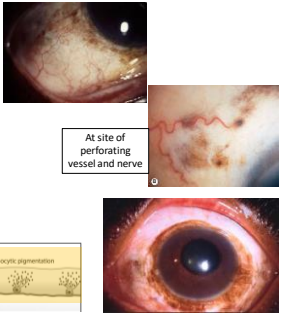

(Complexion-Associated Melanosis) CAM

Secondary = caused by extraocular factors (genetic, metabolic, toxic)

283

Secondary Acquired Melanosis


- Increased pigmentation is attributed to complexion associated genetic, metabolic, or toxic factors
- Does **not** predispose to development of malignant melanoma
- Common
 - More so in darkly pigmented ethnicity
- In darkly pigmented individuals, **progressive bilateral conjunctival pigmentation** is generally considered a **normal aspect of aging**
- Bilateral**
 - Asymmetric
- Due to increased melanin production

284

31 yo Hispanic male, what is this bilateral finding?

Secondary Acquired Melanosis





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Primary Acquired Melanosis (PAM)

286

Primary Acquired Melanosis (PAM)

- Irregular, **flat** areas of golden brown to dark chocolate pigmentation
- Usually involves limbus and inter-palpebral region
- Affects elderly fair skinned individuals
 - Most often observed as a **unilateral** lesion in middle-aged Caucasians.
- Onset of PAM - **after age 45**

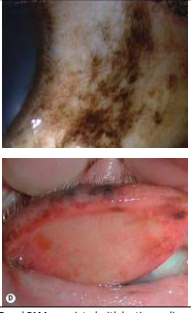



pigmented region is **not** elevated above the surrounding non-pigmented tissue

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Primary Acquired Melanosis (PAM)

- Can be seen on **any part of conjunctiva**
 - Evert lids
- May expand or shrink or remain stable
- May lighten or darken focally
- Sudden onset of nodules**
 - Strong suspicion of melanoma



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Primary Acquired Melanosis (PAM)

With out melanocytic cellular atypia = benign intraepithelial proliferation of epithelial melanocytes with **NO risk of malignant transformation**

With melanocytic cellular atypia = increase in # of melanocytes that exhibit **pleomorphism (variable size and shape)**, **RISK of malignant transformation**

PAM w/out atypia
No malignancy

PAM w/atypia
50% chance of manifesting infiltrative malignancy w/in 5 years

289

PAM = Primary Acquired Melanosis

How to know if w/ or w/o atypia??

Need Biopsy!!

290

Basilar hyperplasia of melanocytes is present at the **dermal-epidermal junction** seen at low magnification of limbal tissue

At higher magnification, the melanocytes can be seen to be mildly to moderately **atypical**, characterized by increased **nuclear to cytoplasmic ratio** and **nuclear pleomorphism** (1).

291

Nuclear to cytoplasmic ratio

292

2019-03-01 - 30 year old Italian female referred for **pigmentation OS temporally**. Pigmented spot has been there for **8 years**, but recently in the last few months it has **become larger and darker**. Scheduled excisional biopsy for April 2, 2019.

FINAL DIAGNOSIS
Conjunctiva (biopsy) - benign melanosis with dendritic melanocytic hyperplasia (see note)

Fintelmann

293

Which of these have a risk of malignancy?

Tiny Risk (nevus)
20 year old Korean female, had since birth

No Risk
75 year old African American male, has darkened a little in the last 20 years, in both eyes

Risk if Atypia (PAM)
70 year old Caucasian male, noticed about 3 years ago, unilateral

Too late for Risk - MALIGNANT
65 year old Mexican male, has noticed pigmented lesion for 6 months, changing color and growing

294

Melanoma

295

Malignant Melanoma

- Conjunctival melanoma is a pigmented or non-pigmented malignancy that can arise from PAM, nevus or *de novo*
 - 74% of cases arise from PAM w/atypia
 - 7% of cases arise from pre-existing nevus
 - 1/300 nevi develop into melanoma
 - Remaining arise de nova

Malignant melanoma has arisen from an extensive area of primary acquired melanosis in the conjunctival fornix.

Conjunctival melanoma extending onto eyelid

296

PAM's to blame for melanoma – quite often

Pigmented conjunctival melanoma can arise from PAM

PAM could also cause mixed pigmented/non-pigmented conjunctival melanoma

PAM caused limbal melanoma in this African-American patient

297

Non-pigmented melanoma? Yep! Annoying, I know!

Non-pigmented conjunctival melanoma may have intense vascularity

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Variations of Melanoma Tumors

(B) pigmented melanoma

(C) amelanotic melanoma
Pink, smooth, "fish flesh" appearance

(D) multifocal melanoma arising from PAM
Appear as focal areas of thickening and nodularity

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- The most important predisposing factor for conjunctival melanoma is the presence of long-standing conjunctival nevus or PAM

E, Mixed pigmented/ nonpigmented conjunctival melanoma arising in the fornix from primary acquired melanosis

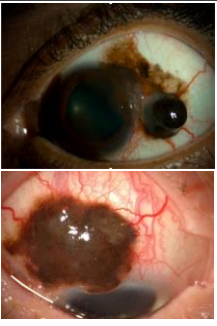

F, Tarsal melanoma arising from primary acquired melanosis

- Signs of Potential Malignancy
 - Unusual location (palpebral conjunctiva and fornix)
 - Prominent feeder vessel
 - Sudden growth or change in pigmentation
 - Adult age development

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Treatment & Prognosis of Conjunctival Melanoma

- Wide margin excision
- Cryotherapy
- Radiotherapy
- Exenteration does **NOT** improve survival rate
 - Reserved for very aggressive disease
- Mortality at 5 years
 - 12%
- Mortality at 10 years
 - 25%
- Main sites of **metastasis**
 - Regional lymph nodes
 - Lung
 - Brain
 - Liver

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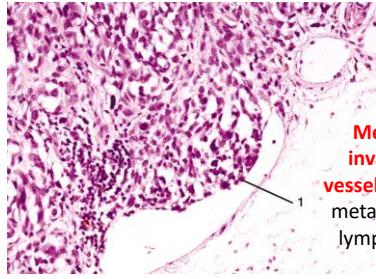

What do we want?

No metastasis



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Scariest image of this lecture!

Melanoma cells are invading a lymphatic vessel (1) in the process of metastasizing to regional lymph nodes and other distant sites

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77 yo white male. Pt didn't want to see anyone, waited and waited. Was removed, pt still refused to see oncologist.



Conjunctival Melanoma

Fintelmann

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9-25-2019
63 yo male with inferior portion of left eye blood shot and red.

Strong FHx of polycystic kidney disease and received kidney transplant in 2011. After the transplant, pt reports frequent episodes of conjunctival bleeding and a dark lesion on the left conjunctiva.



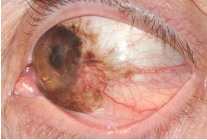
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2019-10-07 – surgery w/ cryotherapy, epitheliectomy and ocular surface reconstruction

Pathology report **positive for melanoma**



CLINICAL INFORMATION
Conjunctival melanoma

FINAL DIAGNOSIS


CONJUNCTIVA (EXCISIONAL BIOPSY):
 - Melanoma with invasion into the substantia propria, tumor thickness approximately 0.40 mm, the green-linked resection margins appear negative. (See Comment)
 - Mitotic activity: 0 mitotic figures/mm² (all of cancer was completely removed during surgery!)
 - Tumor infiltrating lymphocytes: Not present
 - HMB-45 and Mart-1 immunohistochemical stains are positive and highlight the lesional cells

COMMENT:
 Invasive melanoma is approximately 0.25 mm from the deep margin. Melanoma in situ is approximately 1.2 mm from the closest peripheral margin.

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October 2019 : PET-CT scan: no evidence of malignant lymphadenopathy

Rx'd Interferon alpha 2B ophthalmic drugs to left eye



Conjunctival Melanoma
September 25, 2019

3 week post-op
October 30, 2019

2 month post-op
December 4, 2019

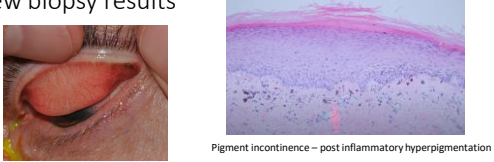
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10-29-2020 – one year since surgery, small amount of pigment superior temporal palpebral conj. In consultation with oncologist, excision recommended



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New biopsy results



Pigment incontinence – post inflammatory hyperpigmentation

SURGICAL PATHOLOGY
 Addendum
 Tissue was referred to Cleveland Clinic for an expert opinion and rendered the following diagnosis: "Melanosis with severe atypia and stromal pigment incontinence; no evidence of stromal invasion."

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Final Exam

Tell Your Neighbor...

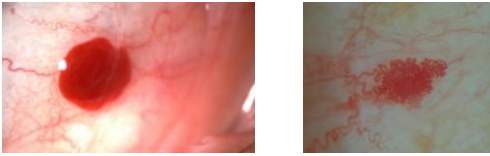
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Conjunctivochalasis



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Capillary Hemangioma



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Pseudomembrane



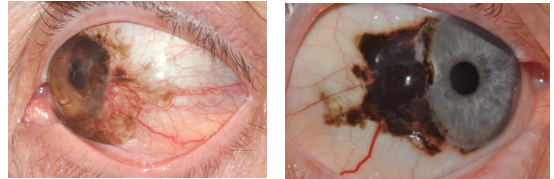
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Giant Fornix Syndrome



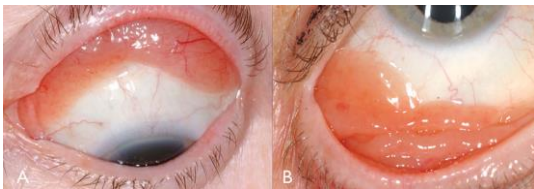
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Melanoma



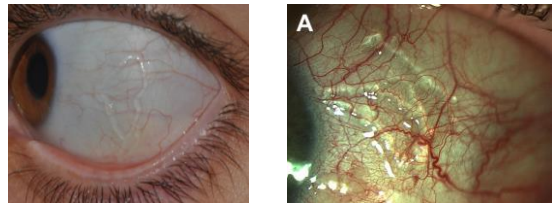
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Lymphoma



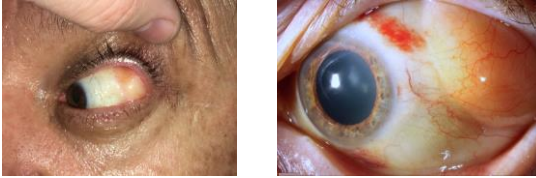
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Lymphangiectasia



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Orbital Fat Prolapse



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NOT a pterygium!



Thank you for your time!!

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