Diseases of the conjunctiva

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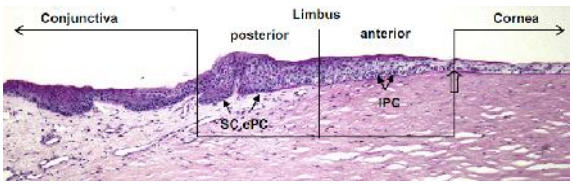
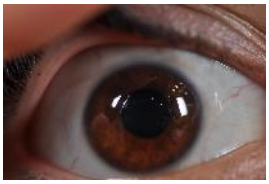
Scope

- Infections
- Allergic
- Immuno-bullous diseases
- Tumours

To be covered later:
1. Neonatal ophthalmia
2. Vitamin A deficiency
3. Trachoma

The normal conjunctiva





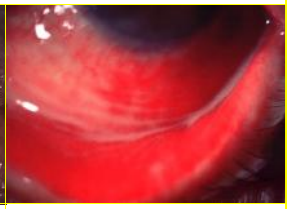
CONJUNCTIVAL INFECTIONS

1. **Bacterial**
   - Simple bacterial conjunctivitis
   - Gonococcal keratoconjunctivitis
2. **Viral**
   - Adenoviral keratoconjunctivitis
   - Molluscum contagiosum conjunctivitis
   - Herpes simplex conjunctivitis
3. **Chlamydial**
   - Adult chlamydial keratoconjunctivitis
   - Neonatal chlamydial conjunctivitis
   - Trachoma

Simple bacterial conjunctivitis

Signs

Crusted eyelids and conjunctival injection



Subacute onset of mucopurulent discharge

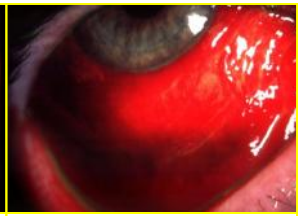
Treatment - broad-spectrum topical antibiotics

Adenoviral Keratoconjunctivitis

1. **Pharyngoconjunctival fever**
   - Adenovirus types 3 and 7
   - Typically affects children
   - Upper respiratory tract infection
   - Keratitis in 30% - usually mild
2. **Epidemic keratoconjunctivitis**
   - Adenovirus types 8 and 19
   - Very contageous
   - No systemic symptoms
   - Keratitis in 80% of cases - may be severe

Signs of viral conjunctivitis

Usually bilateral, acute watery discharge and follicles



Subconjunctival haemorrhages and pseudomembranes if severe

Treatment - symptomatic

Molluscum contagiosum conjunctivitis

Signs

- Waxy, umbilicated eyelid nodule
- May be multiple & HIV related

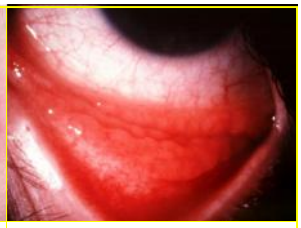
- Ispilateral, chronic, mucoid discharge
- Follicular conjuntivitis

Treatment - destruction of eyelid lesion (cryo-, curettage)

Herpes simplex conjunctivitis

Signs

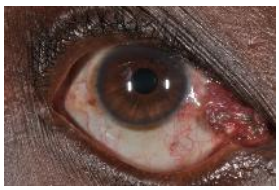
Unilateral eyelid vesicles

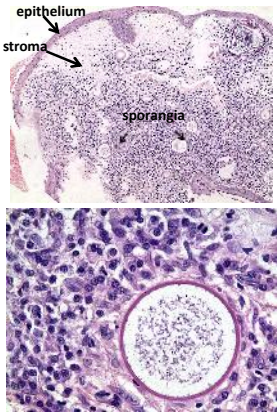


Acute follicular conjunctivitis

Treatment - topical antivirals to prevent keratitis

Rhinosporidiosis





- Parasitic infection
- *Rhinosporidium seeberi*
- Usually acquired from nasal mucosa trauma then spreads by autoinoculation

Allergic conjunctivitis

Types of allergic conjunctivitis

1. Allergic rhinoconjunctivitis
2. Vernal keratoconjunctivitis
3. Atopic keratoconjunctivitis

Allergic rhinoconjunctivitis

- Hypersensitivity reaction to specific airborne antigens – pollen, house dust,
- Frequently associated with nasal symptoms – “permanent flu“, sneezing, blockage
- May be seasonal or perennial

Vernal keratoconjunctivitis

Frequently associated with atopy: asthma, hay fever and dermatitis

- Recurrent, bilateral
- Affects children and young adults
- More common in males and in warm climates
- Itching, mucoid discharge and lacrimation

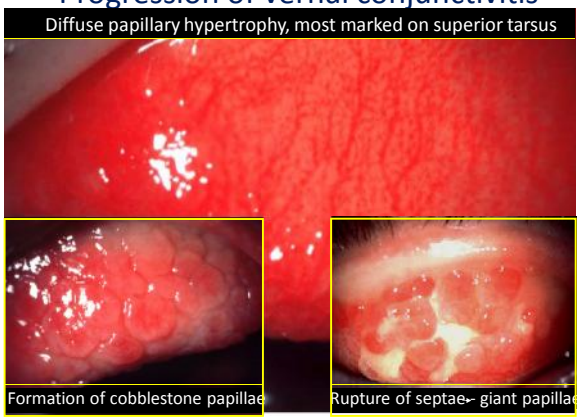
Types

- Palpebral
- Limbal
- Mixed

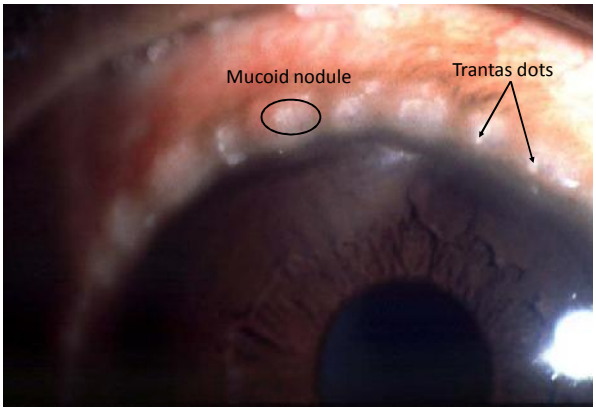
Treatment

- Topical mast cell stabilizers
- Topical steroids

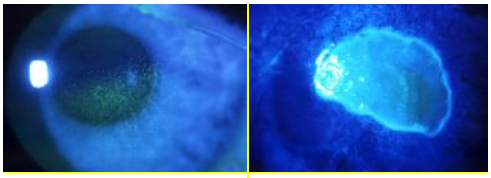
Progression of vernal conjunctivitis



Limbal vernal



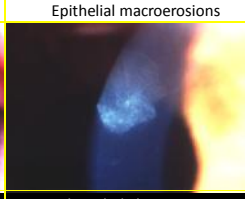
Progression of vernal keratopathy



Punctate epitheliopathy

Epithelial macroerosions

Plaque formation (shield ulcer)



Subepithelial scarring

Atopic keratoconjunctivitis

Typically affects young patients with atopic dermatitis

Eyelids are red, thickened, macerated and fissured

IMMUNOBULLOUS DISEASES

1. Stevens-Johnson syndrome
2. Cicatricial pemphigoid
3. Toxic epidermal necrolysis (TEN)
4. Epidermolysis bullosa
5. Pemphigus vulgaris
6. Linear IgA bullous dermatosis

Stevens-Johnson syndrome

- Acute, and self-limiting
- Hypersensitivity to drugs or infection
- Typically affects young men

Lesions of oral mucosa and lips	Maculopapules which may develop into target lesions	Vesiculobullous haemorrhagic and necrotic lesions

Causes of Stevens-Johnson syndrome

Drugs

- Sulfonamides
- Anticonvulsants
- Salicylates
- Penicillins
- Isoniazid

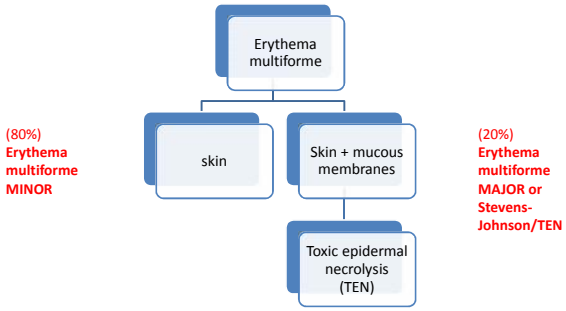
Infectious organisms

- Herpes simplex virus
- Streptococci
- Adenovirus
- Mycoplasma.

AIDS are at a higher risk, particularly patients treated for *Pneumocystis carinii* pneumonia.

Stevens-Johnson syndrome - Fansidar

Acute inflammatory vesiculobullous reaction of the skin and mucous membranes



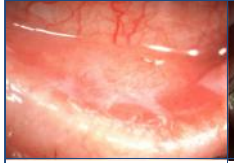
(80%) **Erythema multiforme MINOR**

(20%) **Erythema multiforme MAJOR or Stevens-Johnson/TEN**

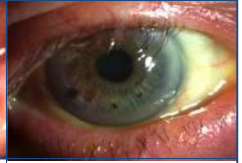
Ocular complications of Stevens-Johnson syndrome

Transient conjunctivitis and lid crusting without sequelae

Severe membranous or pseudomembranous conjunctivitis



Focal fibrotic patches and occasionally symblepharon

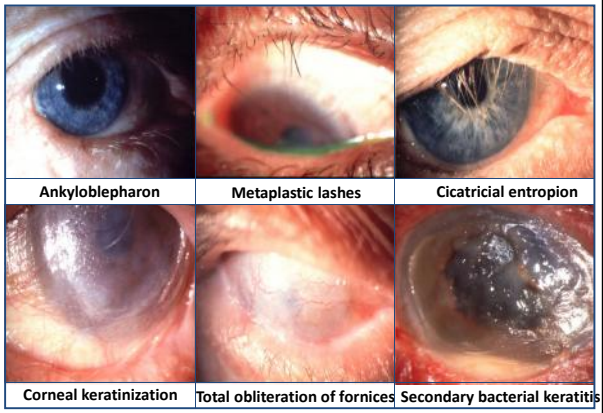


Metaplastic lashes

Ocular cicatricial pemphigoid

- aetiology remains unknown
- Autoimmune
- Type II allergic reaction
- F:M=2:1
- Age>60yr rarely ever <30yr
- Rx: systemic steroids

Complications of ocular cicatricial pemphigoid



Nairobi eye

- Dermatitis (blistering and swelling)
- Caused by a bettle *Paederus spp* found in East Africa
- Releases a toxin called pederin when the insect is crushed against the skin, often at night
- People are advised to gently brush or blow the insect off their skin to prevent irritation
- Associated with El Nino

London Eye

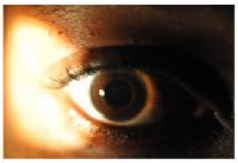
Conjunctival tumours

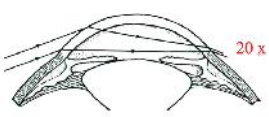
1. Benign
- pterygium
- pinguecula
- actinic keratosis
- squamous papilloma
- limbal dermoid

2. **Pre-malignant**
- Primary acquired melanosis (PAM)

3. **Malignant**
- ocular surface squamous neopasia (OSSN)
- Kaposi sarcoma
- Lymphoma
- Malignant melanoma

- Most conjunctival tumours occur on the nasal side
- 61% OSSN and 78% benign lesions





TEMPORAL **NASAL**

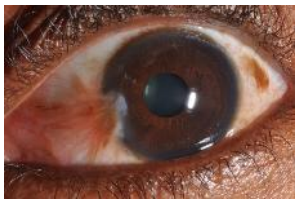
Gichuhi S Ohnuma A, Sagoo MS, Burton MJ. Experimental Eye Research, Volume 129, 2014, 172 - 182

Histopathology of conjunctival lesions from 496 Kenyan adults

Histopathology	No. (%)
Benign lesions	**308 (62.1)**
Pterygium	177 (35.7)
Actinic keratosis	93 (18.8)
Nevus	16 (3.3)
Squamous papilloma	10 (2.0)
Pyogenic granuloma	3 (0.6)
Ocular rhinosporidiosis	2 (0.4)
Chronic conjunctivitis	2 (0.4)
Haemangioma	2 (0.4)
Choristoma	1 (0.2)
Epidermoid cyst	1 (0.2)
Sebaceous hyperplasia of the caruncle	1 (0.2)
OSSN	**187 (37.7)**
Mild dysplasia (CIN I)	10 (2.0)
Moderate dysplasia (CIN II)	27 (5.4)
Severe dysplasia (CIN III)	38 (7.6)
Carcinoma-in-situ	1 (0.2)
Well differentiated squamous cell carcinoma	21 (4.2)
Moderately differentiated squamous cell carcinoma	86 (17.3)
Poorly differentiated squamous cell carcinoma	3 (0.6)
Other malignant tumour	**1 (0.2)**
Sarcomatoid spindle cell carcinoma	1 (0.2)
TOTAL	496 (100.0)

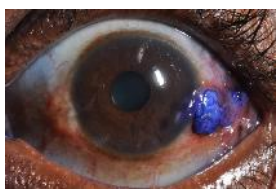
Pterygium

- Wing-shaped
- Extends to the cornea
- May be inflamed
- basophilic degeneration of the substantia propria
- Associated with ultraviolet solar radiation
- Rx: Surgical excision



Actinic keratosis

- Leukoplakia – white plaque
- elastotic stromal degeneration, acanthosis, hyperkeratosis, and parakeratosis in the presence of normal cellular polarity



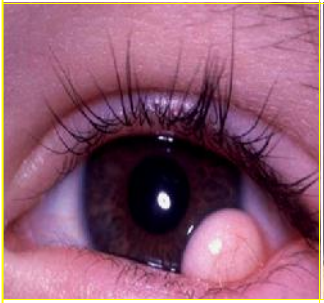
Papilloma

- displays characteristic "hairpin" vascular loops
- Pedunculated or sessile
- low-risk HPV types 6 and 11 in children)
- high-risk HPV types 16, 18, and 33 in adults
- Rx: Excision/Cryotherapy

Pinguecula

- Yellowish
- Fatty degeneration
- Does not involve the cornea
- Some of these bumps contain protein, fat, and calcium
- Unknown cause
- Linked to frequent exposure to sunlight, dust, or wind
- No Rx needed except if inflammed – topical steroid

Epibulbar limbal dermoid

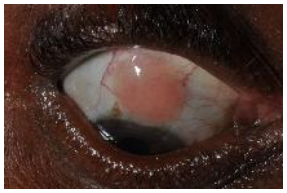
Signs	Association
	
• Presents in childhood • Smooth, soft mass • Usually juxtalimbal	• Occasionally Goldenhar syndrome

Lymphoma

- Salmon patch appearance
- Rx:

Localised - external beam radiation therapy

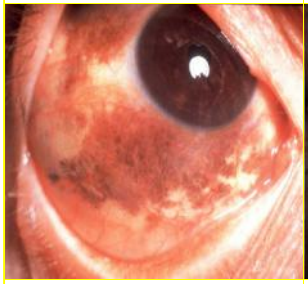
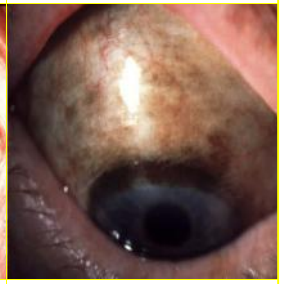
Systemic - chemotherapy



Nevus

- Benign in Africans
- May be associated with melanoma in Caucasians

Primary acquired melanosis (PAM)

Signs	Types
	
• Presents in late adulthood • Unilateral, irregular areas of flat, brown pigmentation • May involve any part of conjunctiva	• PAM without atypia is benign • PAM with atypia is pre-malignant

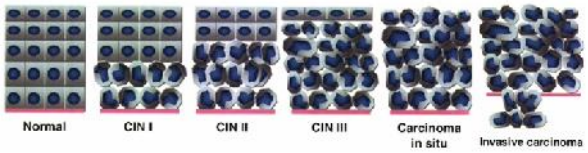
Conjunctival melanoma

From PAM with atypia	From naevus	Primary
		
• Most common type • Sudden appearance of nodules in PAM	• Very rare • Sudden increase in size or pigmentation	• Solitary nodule • Frequently juxtalimbal but may be anywhere

OSSN is a spectrum of pre-cancerous & cancerous epithelial lesions of the conjunctiva & cornea

- CIN I • mild dysplasia
- CIN II • Moderate dysplasia
- CIN III • Severe dysplasia
- CIS • carcinoma in situ
- SCC • invasive squamous cell carcinoma

Histological staging of OSSN



A range of OSSN phenotypes seen in East Africa

A. Small lesion with leukoplakia

B. Medium sized lesion with pigmentation

C. Large lesion with corneal extension but not involving the fornices

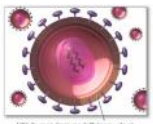
D. Very large lesion extending into the orbit

Different patterns of OSSN

	Temperate climates	Tropics
Incidence	Low	High
Age	60-70 yrs	30-40 yrs
Sex	M>F	F>M
Presentation	Slow growing	Aggressive

Risk factors of OSSN

HIV



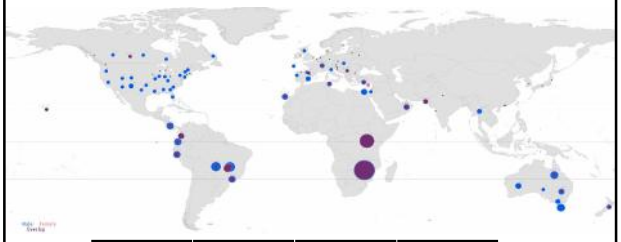
UV

HPV

Xeroderma pigmentosusm

albinism

Worldwide incidence of OSSN



Region	Male	Female	P-value
Africa	1.38	1.18	0.853
C & S America	0.48	0.21	0.005
Oceania	0.28	0.05	0.002
Asia	0.08	0.05	0.416
N America	0.08	0.00	<0.001
Europe	0.05	0.01	0.033

Cases/yr/100,000 pop

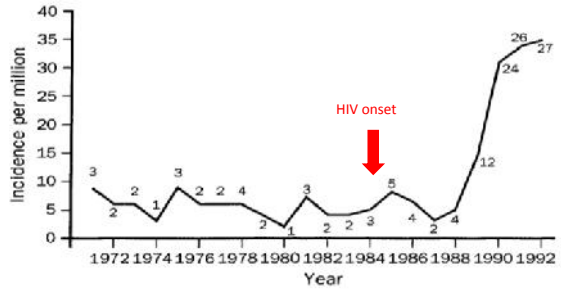


Figure 1: **Annual incidence rates of conjunctival squamous-cell carcinoma of eye in Kampala district**
Number of cases shown.

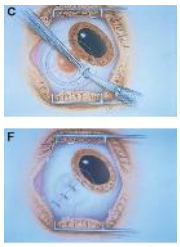
Ateenyi-Agaba, Lancet. 1995;345(8951):695-696.

Worldwide prevalence of HPV in participants with normal pap smears

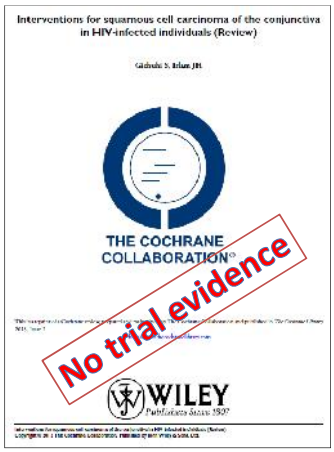
Extensive SCC in albinism

Treatment methods in use

- Surgical excision is the mainstay of treatment
- ± adjunct therapy
  - cryotherapy
  - chemotherapy (MMC, 5-FU)
  - immune therapy (interferon α 2b)
  - retinoic acid
  - radiotherapy
- Defect closure
  - primary closure
  - conjunctival autograft
  - amniotic membrane transplants
- Exenteration –orbital disease
- Radiotherapy



Shields 2004



*the addition is mine

Kaposi's sarcoma

- Vascular, slow-growing tumour of low malignancy
- Affects patients with AIDS
- Incidence seems to have reduced with ART

Comm Eye Health Vol. 16 No. 47 2003 pp 33-34