

# VITAMIN A DEFICIENCY

## VITAMIN A DEFICIENCY

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- **Vitamin A deficiency** is a lack of vitamin A in humans. It is common in developing countries but rarely seen in developed countries
- Night blindness is one of the first signs of vitamin A deficiency .
- Night blindness is the difficulty for the eyes to adjust to dim light. Affected individuals are unable to distinguish images in low levels of illumination. People with night blindness have poor vision in the darkness, but see normally when adequate light is present.

# ***Xerophthalmia Vernacular Terms***

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<b>Matang Manok</b>	Chicken Eyes	Tagalog
<b>Mata Ayam</b>	Chicken Eyes	Indonesian
<b>Khwak Moan</b>	Dusk Blindness	Khmer
<b>Gred Gradei</b>	<del>Scaly as Fish</del>	<del>Thai</del>
<b>Mager Aagh</b>	Fish Scales	Bengali
<b>Korapothu</b>	Scaly	Singhalese

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## **VITAMIN A DEFICIENCY**

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- **Ocular manifestation: Xerophthalmia**

The eye fails to produce tears that leads to conjunctival dryness and damage

“Dry eye”.

Blindness may result since plays role in phototransduction

- **Phototransduction**

Is a process by which light is converted into electrical signals in the cells of the retina of the



# Xerophthalmia

## Xerophthalmia Classification

XN	Night Blindness
X1A	Conjunctival Xerosis
X1B	Bitot's Spot with Conjunctival Xerosis
X2	Corneal Xerosis
X3A	Corneal Xerosis with ulceration
X3B	Keratomalacia
XF	Xerophthalmic Fundus
XS	Corneal scars from Xerophthalmia

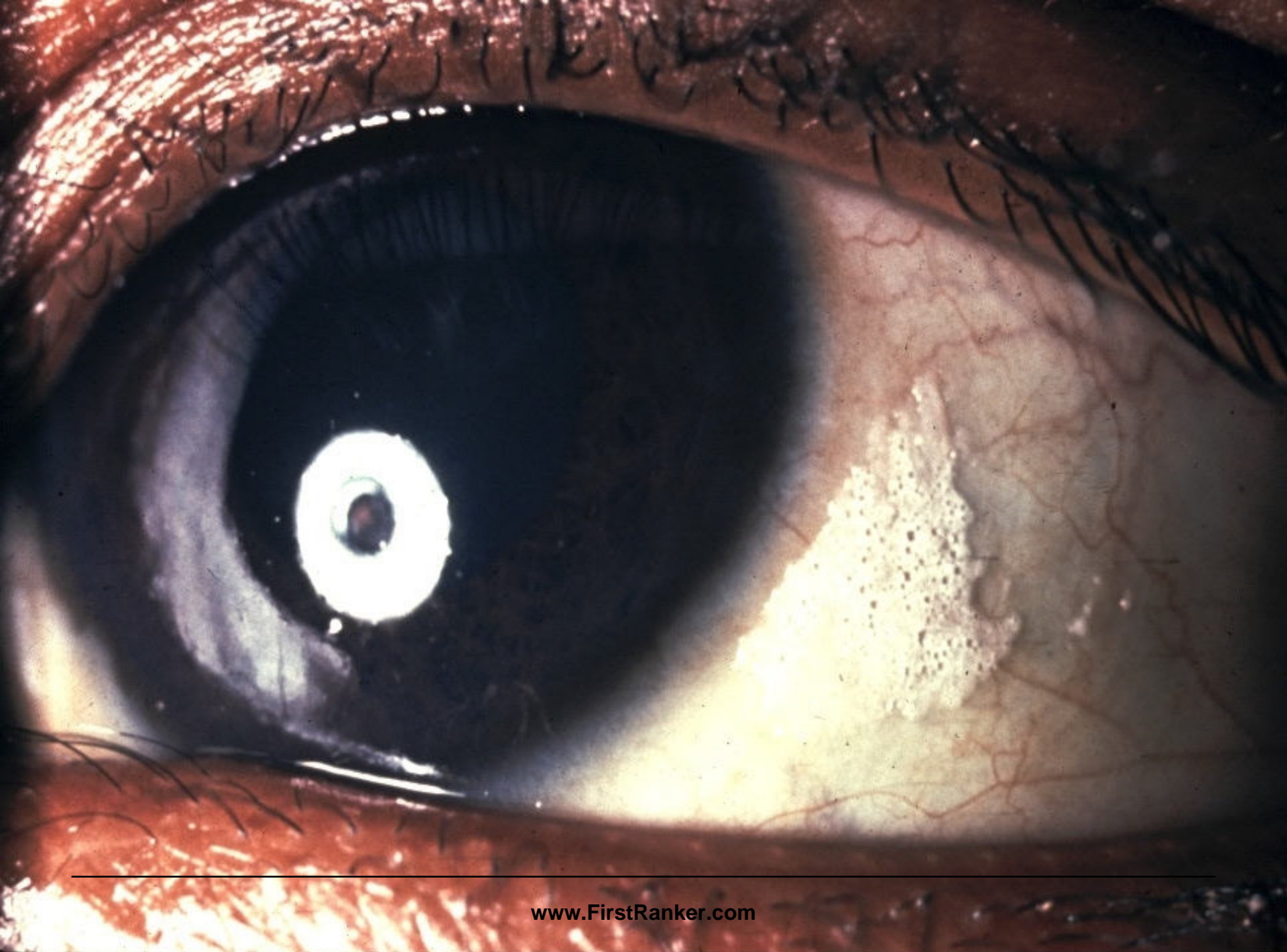




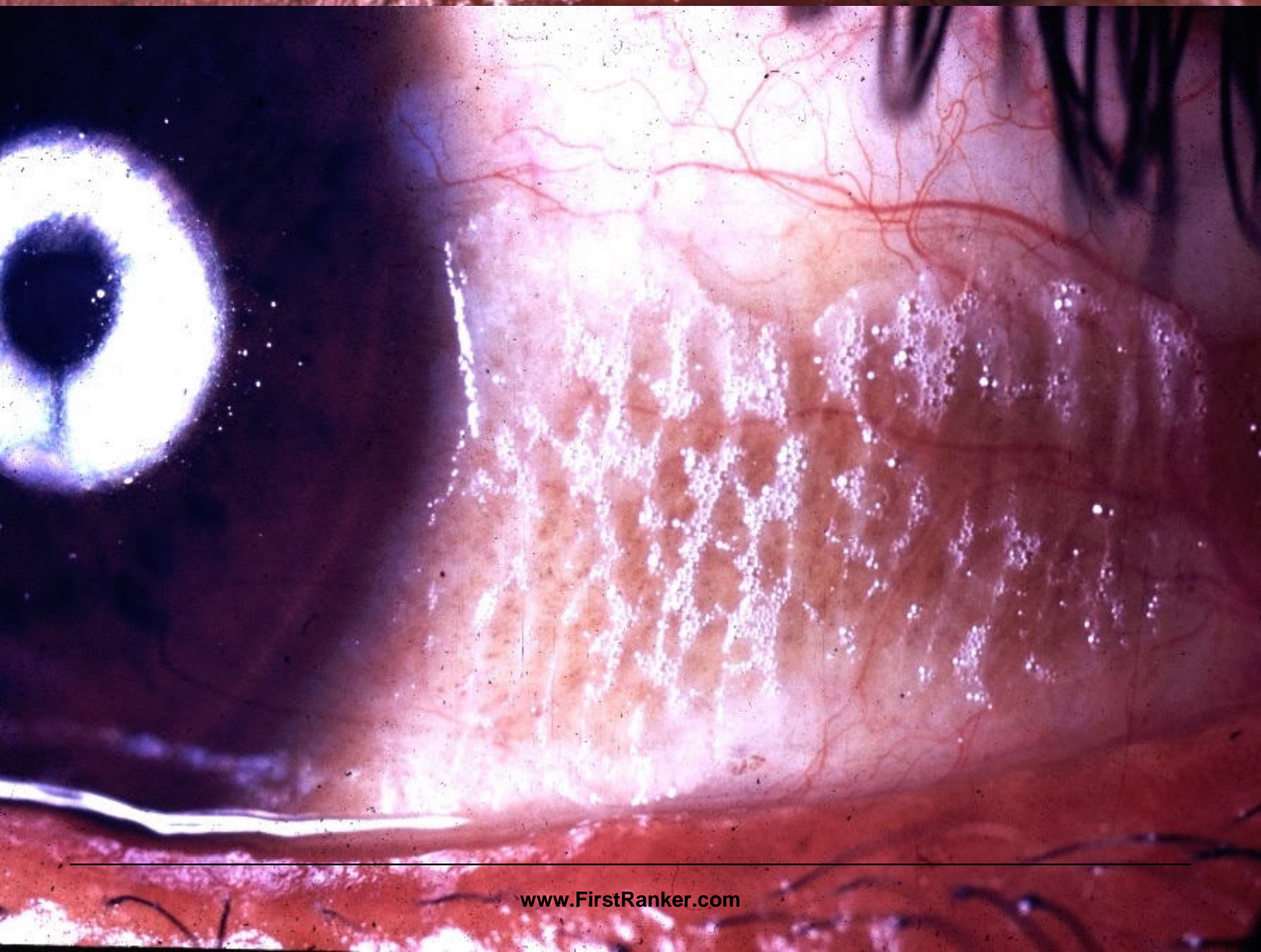
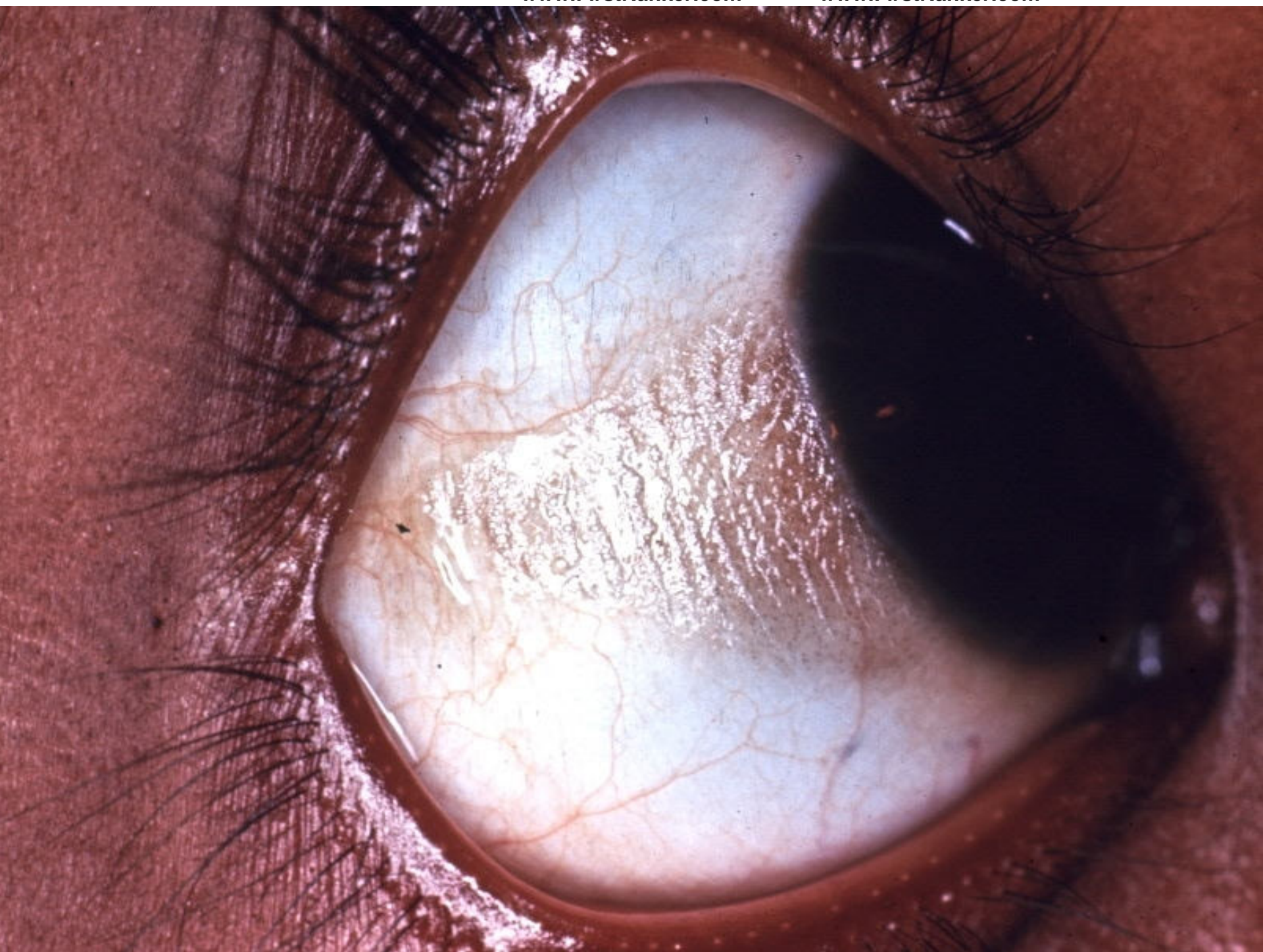


# BITOTS SPOTS

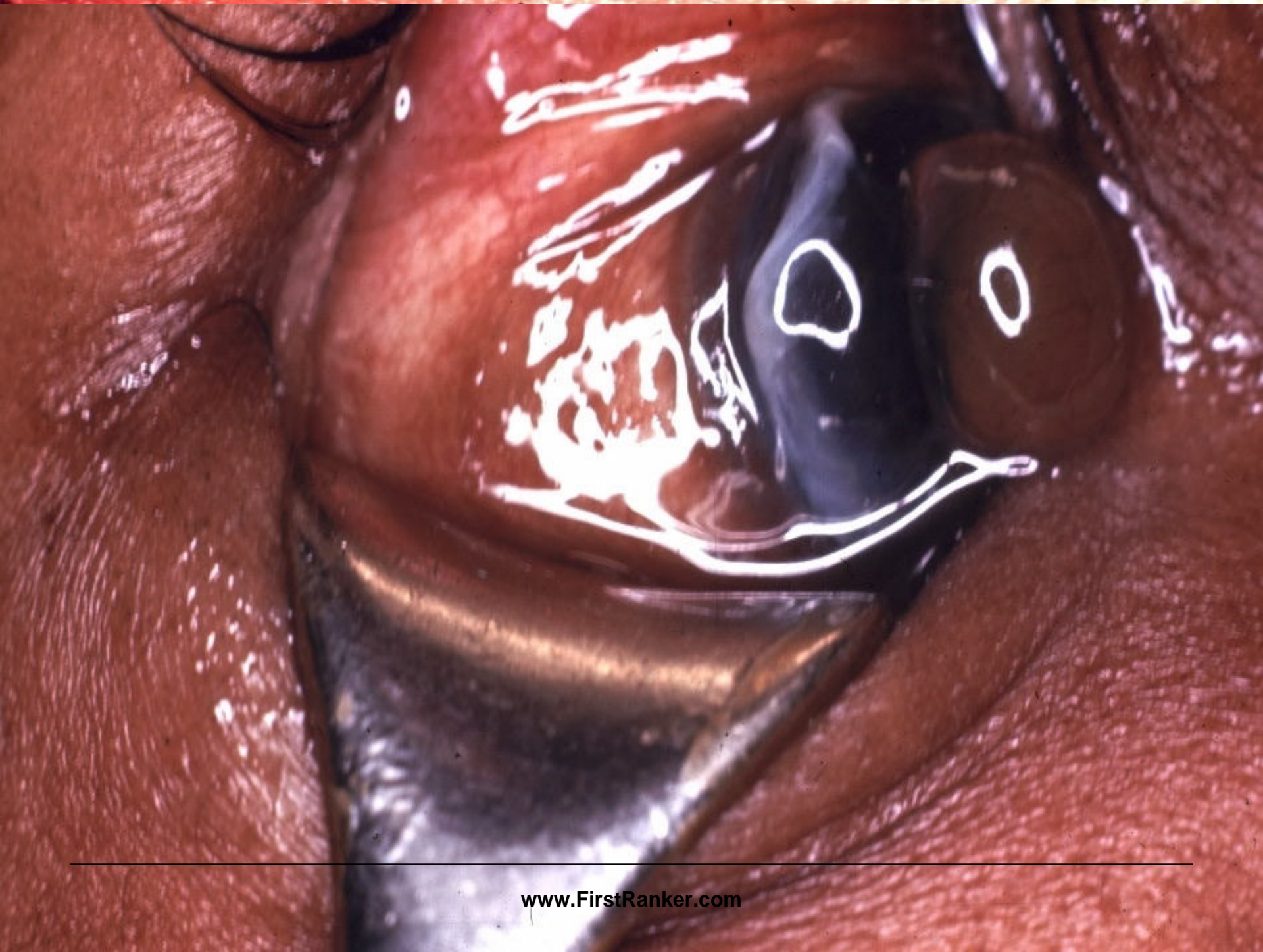
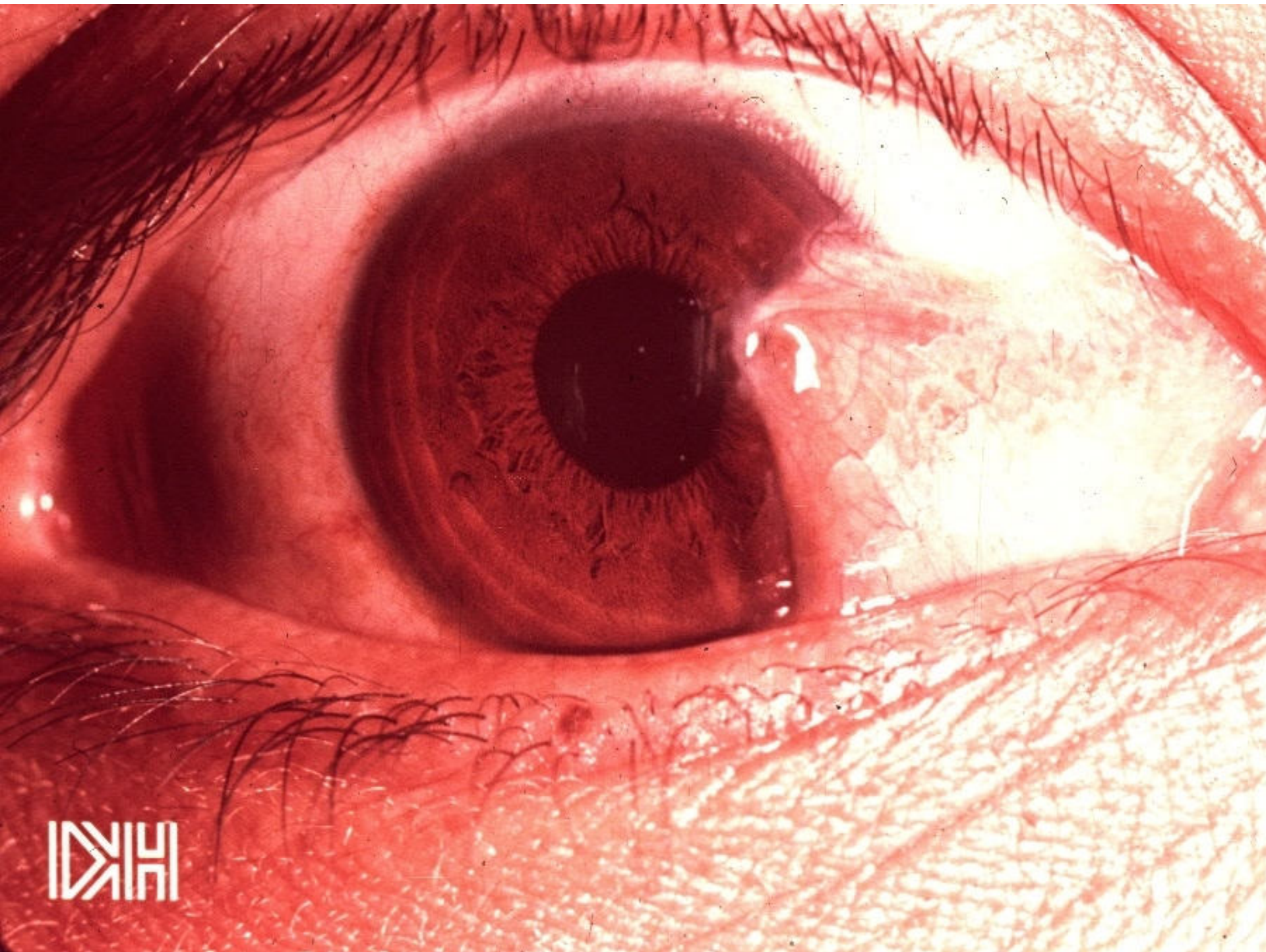
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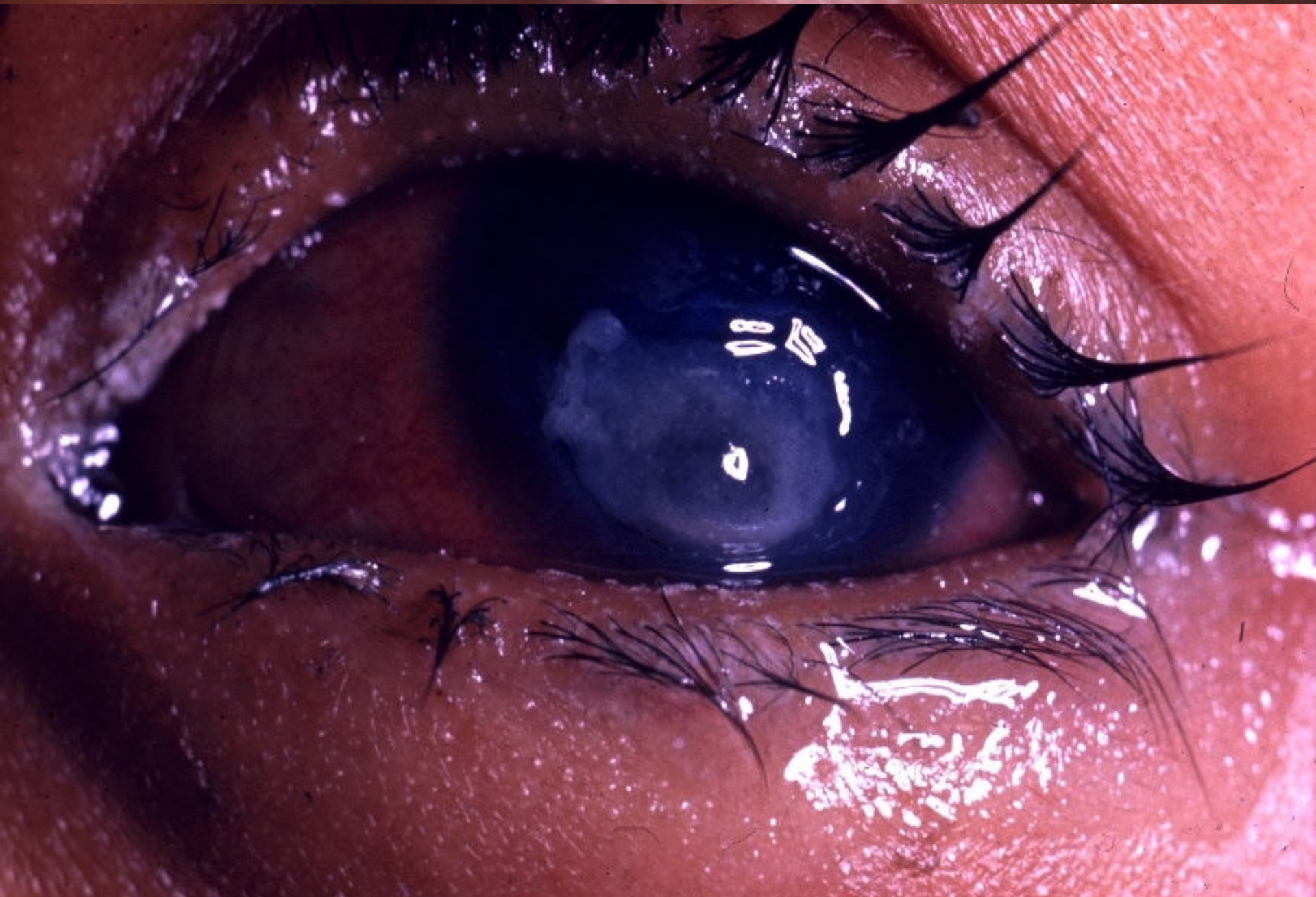




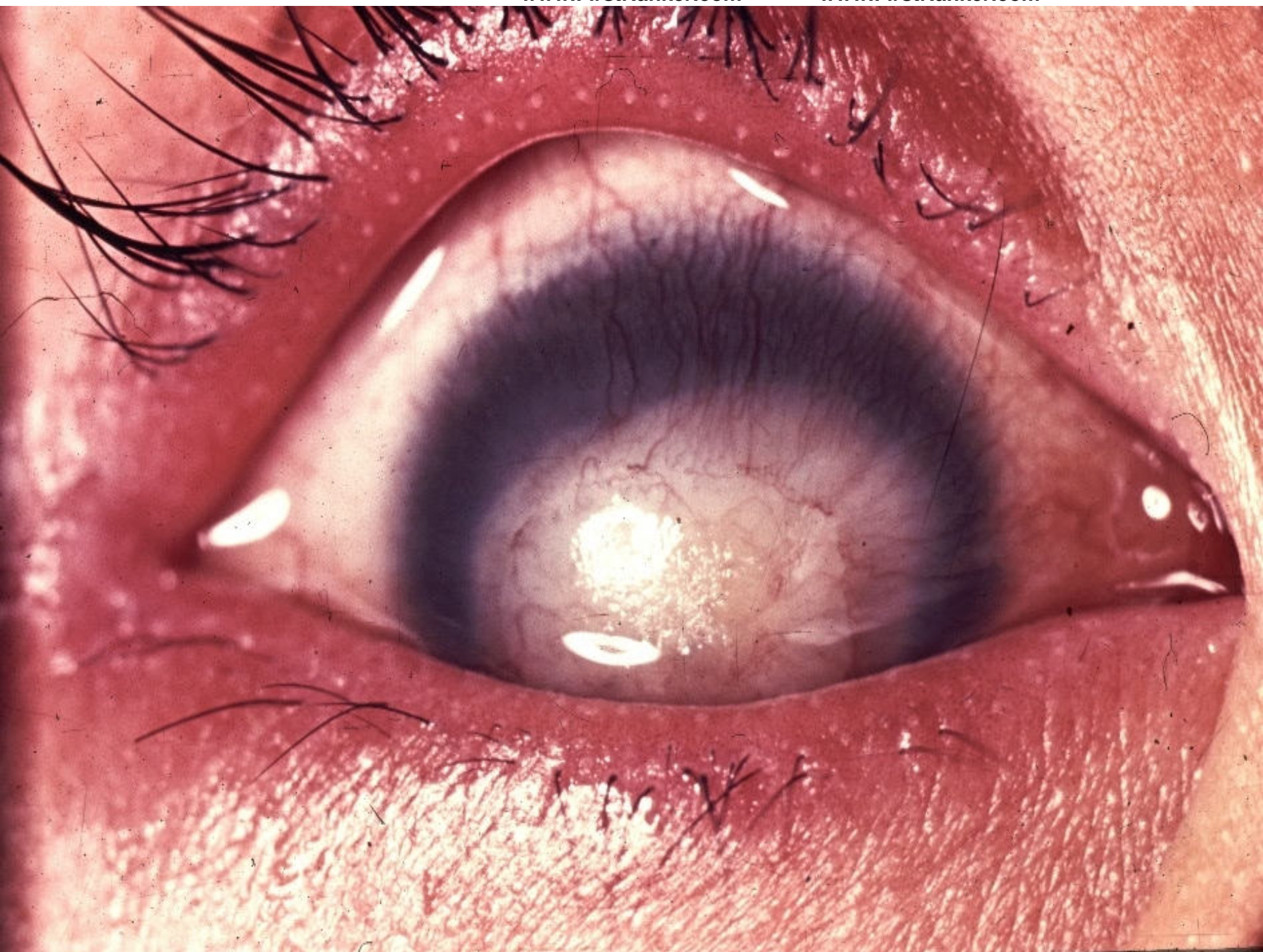
















## CORNEAL OPACITIES

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# Treatment Schedule (orally)

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## Immediately on diagnosis:

<6 months	50, 000 IU
6 months-12 months	100, 000 IU
> 12 months	200, 000 IU

Next day	Same age-specific dose
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At least two weeks later	Same age-specific dose
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## VITAMIN A DEFICIENCY

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- Vitamin A deficiency also diminishes the ability to fight infections. In countries where children are not immunized , infectious disease like measles have higher fatality rates.
  - Even mild, subclinical deficiency can also be a problem, as it may
    - Increase children's risk of developing respiratory and diarrheal infections
    - Decrease growth rate
    - Slow bone development
    - Decrease probability of survival from serious illness.



## CAUSES OF VITAMIN A DEFICIENCY

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- The major cause is diets which include few animal sources of pre-formed vitamin A .
- Breast milk of a lactating mother with vitamin A deficiency contains little vitamin A ,which provides a breast-fed child with too little vitamin A.



## CAUSES OF VITAMIN A DEFICIENCY

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- **In addition to dietary problems, there are other causes of vitamin A deficiency**
  - Iron deficiency can affect vitamin A uptake.
  - Excess alcohol consumption can deplete vitamin A
  - A stressed liver may be more susceptible to vitamin A toxicity.





A Rwandan refugee child receives a Vitamin A drop, as others wait their turn, at the Ndosho camp for unaccompanied children near the town of Goma in Zaire.





# HYPERVITAMINOSIS A

- **Hypervitaminosis A** refers to the effects of excessive vitamin A (specifically retinoid) intake
- Hypervitaminosis A occurs when the maximum limit for liver stores of retinoids is exceeded.
- The excess vitamin A enters the circulation causing systemic toxicity.
- **Betacarotene** (is an organic compound which is a strongly-coloured red-orange pigment abundant in plants and fruits.  $\beta$ -Carotene is also the substance in carrots that colours them orange) a precursor of vitamin A, is selectively converted into retinoids, so it does not cause toxicity.

## Prevention 1: Periodic oral supplementation

### Infants <6 months

Non-breast-fed infants,  
breast-fed infants whose mothers have  
not received supplemental vitamin A

50,000 IU

### Infants 6–12 months

Every 4–6 months

100,000 IU

### Children >12 months

Every 4–6 months

200,000 IU

### Mothers

Within 8 weeks of delivery

200,000 IU





# HYPERVITAMINOSIS A

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- Signs of acute toxicity include
  - Nausea
  - Vomiting
  - Headache
  - Dizziness
  - Blurred vision
  - Loss of muscular coordination



## Hypervitaminosis A

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### Other effects

- Birth defects
- Liver problems
- Skin discoloration
- Hair loss
- Excessive skin dryness
- **Angular cheilitis** is an inflammatory lesion at the labial corner of the mouth, and often occurs bilaterally. The condition manifests as deep cracks or splits. In severe cases, the splits can bleed when the mouth is opened and shallow ulcers or a crust may form.