ASDP 62nd Annual Meeting

#ASDP25

November 6-9, 2025

Hilton Baltimore Inner Harbor **Baltimore, MD, USA**

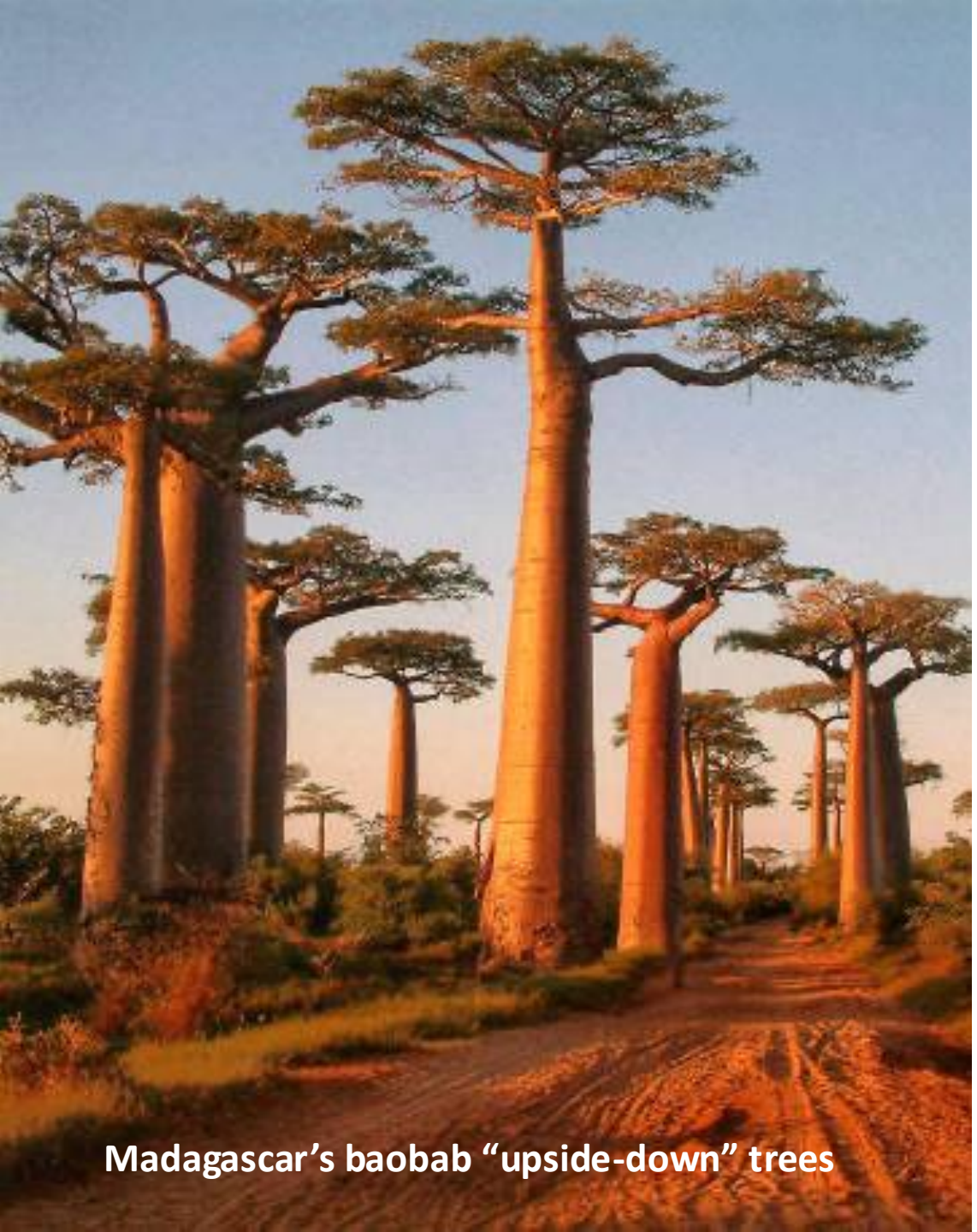
HISTOPATHOLOGIC FEATURES OF CHIKUNGUNYA VIRUS INFECTION: A CASE REPORT OF A RETURNING INTERNATIONAL TRAVELER IN NORTH CAROLINA

Jarvis Williams, MD; Jennifer Crimmins, MD; Michelle Schneider, MB BCh BAO

Duke University Medical Center

DukeHealth

I do not have any relevant financial relationships to disclose.



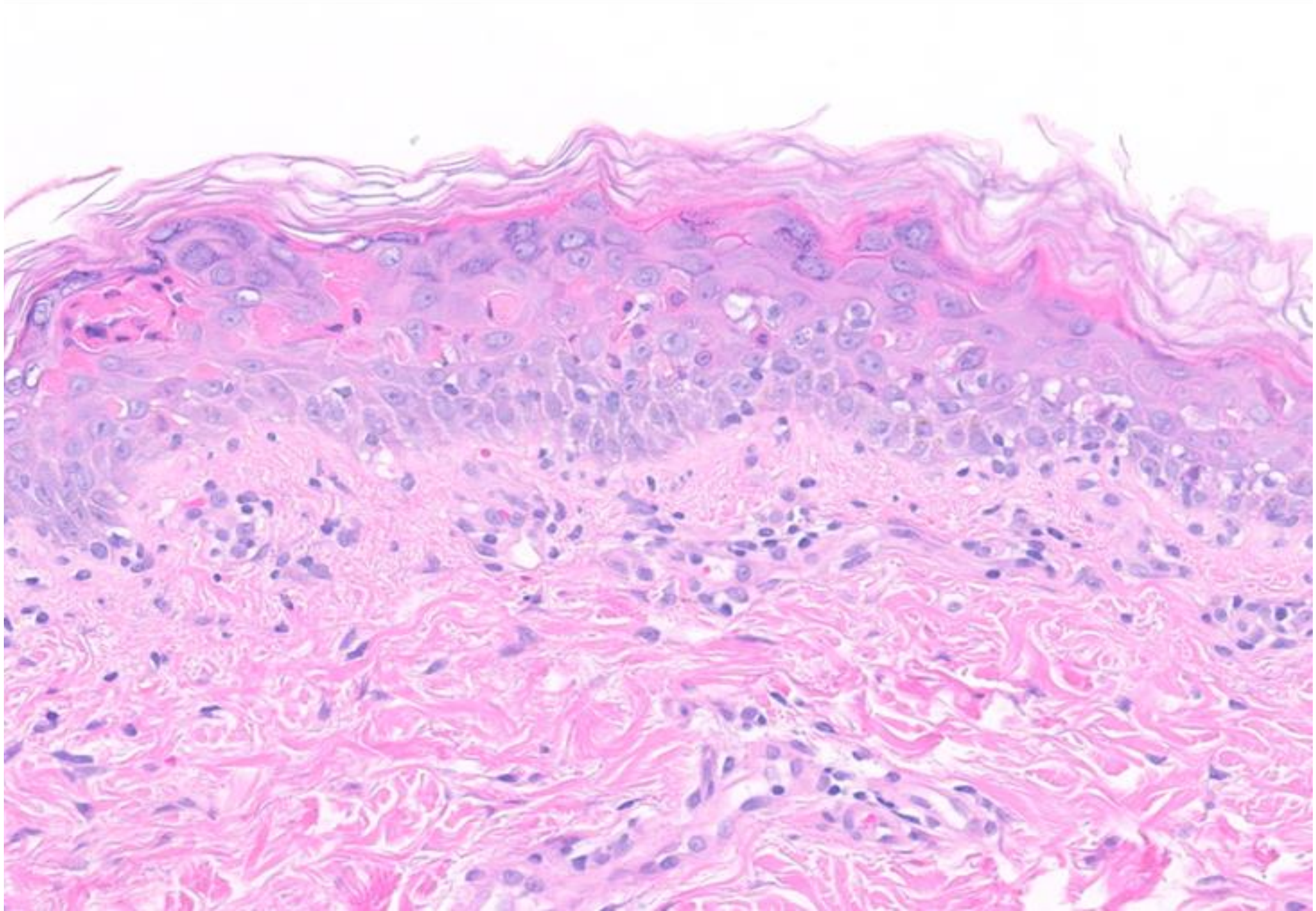
Madagascar's baobab "upside-down" trees

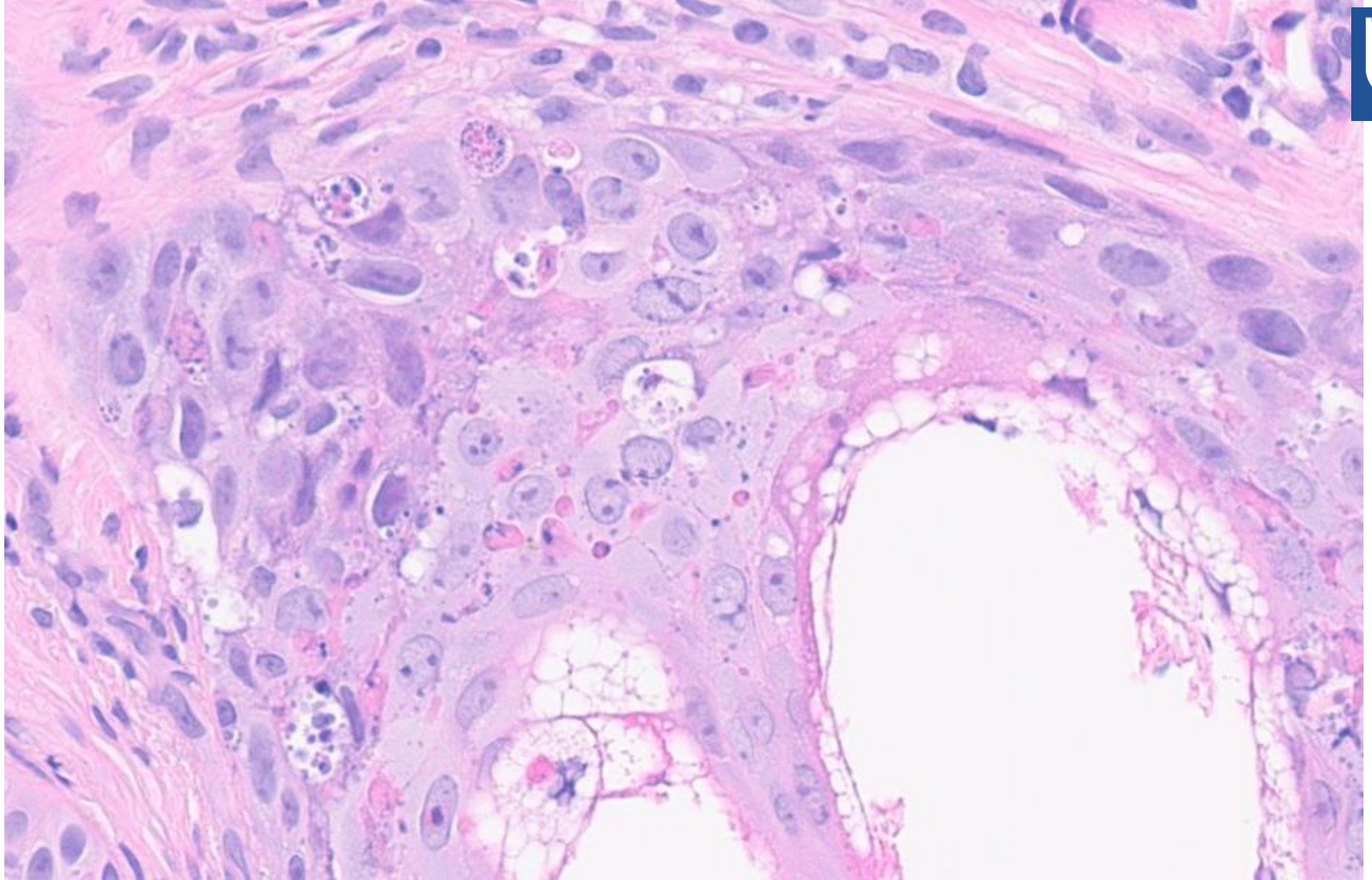
Case Presentation

- A 33-year-old woman presented with a rapidly progressive pruritic rash on extremities and trunk during a trip to Madagascar
- Denied fever but experienced polyarthralgia
- Noted recent mosquito bite
- Travelled onward to Europe and received prednisone taper
- Presented to Duke approximately 4 weeks after the initial symptom onset

Duke LEMUR CENTER

Physical Exam





Mayo Test Results

See Comments !

Comment:

Test	Result	Flag	Unit	RefValue
Chikungunya IgM and IgG, Ab, S				
Chikungunya IgM, Ab, S	Positive	AB		Negative
Chikungunya IgG, Ab, S	Positive	AB		Negative

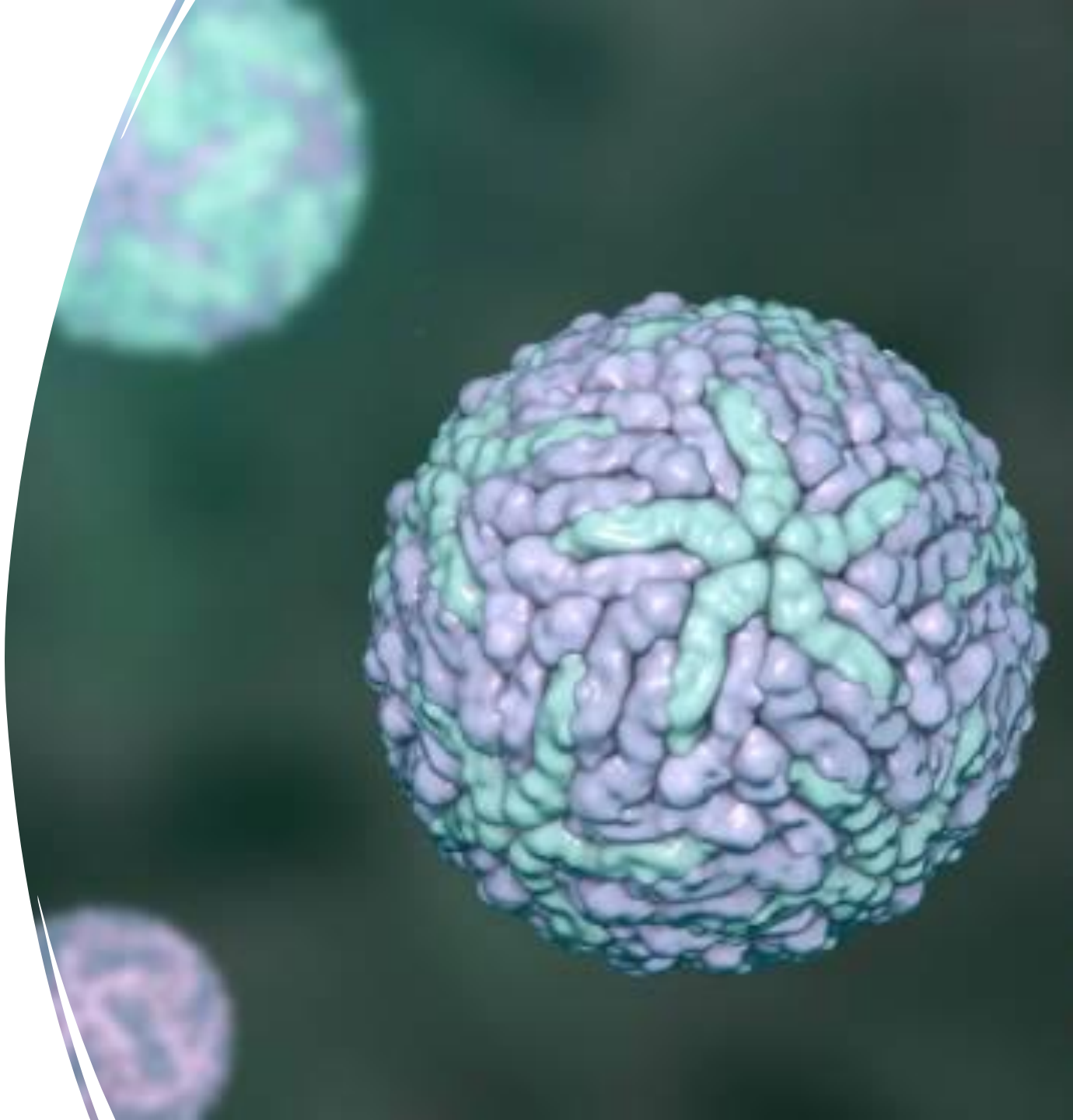
IgM and IgG antibodies to Chikungunya virus
detected, suggesting recent or past infection.
IgM antibodies to Chikungunya virus may remain
detectable for 3-4 months post infection.
Reactivity in the Chikungunya IgM and/or IgG ELISAs may
represent infection by other alpha viruses. In North
America, sera from patients with Eastern Equine
Encephalitis virus infection may be reactive in the
Chikungunya ELISA. SEMI-URGENT RESULT

----------ADDITIONAL INFORMATION----------
This test was developed and its performance characteristics
determined by Mayo Clinic in a manner consistent with
CLIA requirements. This test has not been cleared or
approved by the U.S. Food and Drug Administration.

Test Performed by:
Mayo Clinic Laboratories - Rochester Superior Drive
3050 Superior Drive NW, Rochester, MN 55905
Lab Director: Nikola A. Baumann Ph.D.; CLIA# 24D1040592

What is Chikungunya?

- Chikungunya is an acute febrile viral illness caused by the *Chikungunya virus (CHIKV)*, an RNA virus of the genus a*lphavirus*, family *Togaviridae*
- Chikungunya is derived from the Kimakonde language meaning “that which bends up” — referring to the stooped posture due to severe joint pain

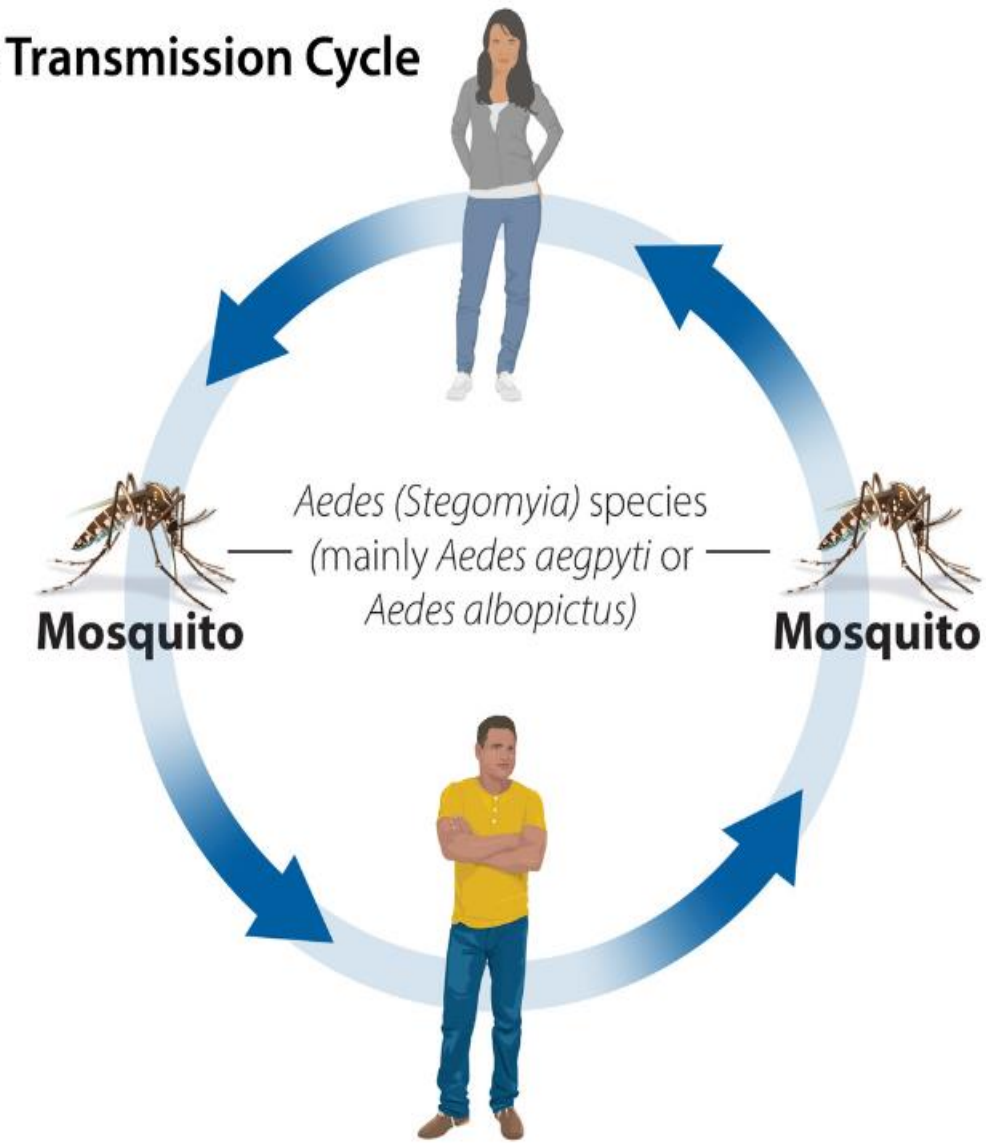


Epidemiology

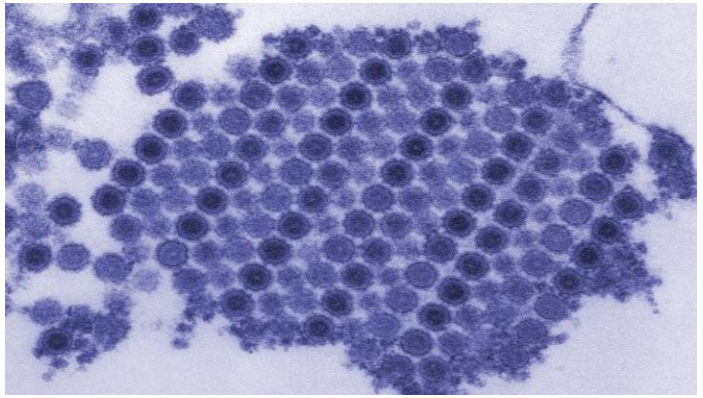
- **First identified:** Tanzania, 1952
- **Re-emergence:** 2004
- **Regions affected:** widespread outbreaks across Africa, Asia, and the Americas, with millions of cases reported globally
- **Vectors:** Day-biting *Aedes* mosquitoes
  - *Aedes aegypti*
  - *Aedes albopictus*
- **Risk factors:** Tropical/subtropical climates, poor mosquito control, urbanization

Transmission

- Transmitted to humans through the bite of infected mosquitoes
- Less common forms of transmission:
  - Blood transfusion
  - Handling blood in the laboratory
  - Drawing blood from an infected individual
  - In utero: rare, 2nd trimester
  - Intrapartum
- No reports of CHIKV detected in breastmilk in infected women



Pathogenesis

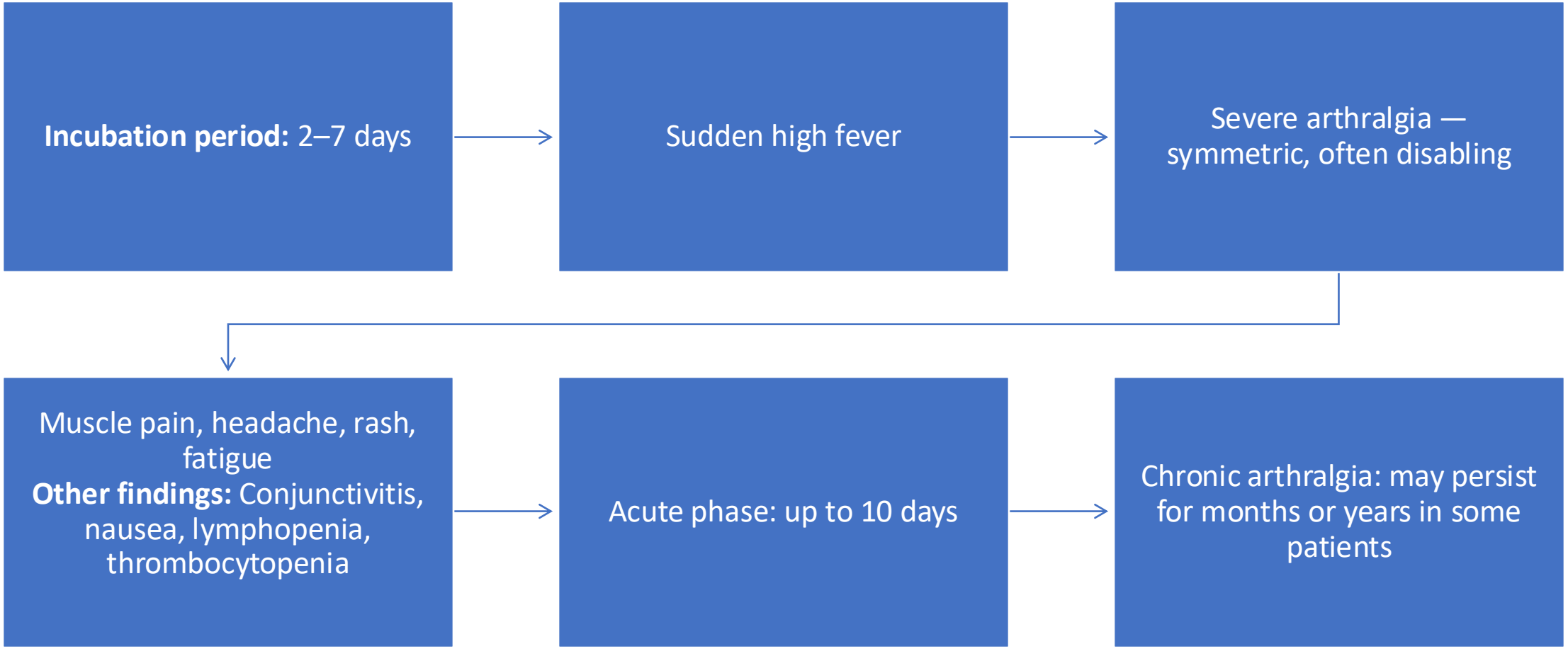


Virus entry: Through mosquito bite → replication in skin fibroblasts and macrophages

Spread: Via bloodstream to joints, muscles, and other tissues

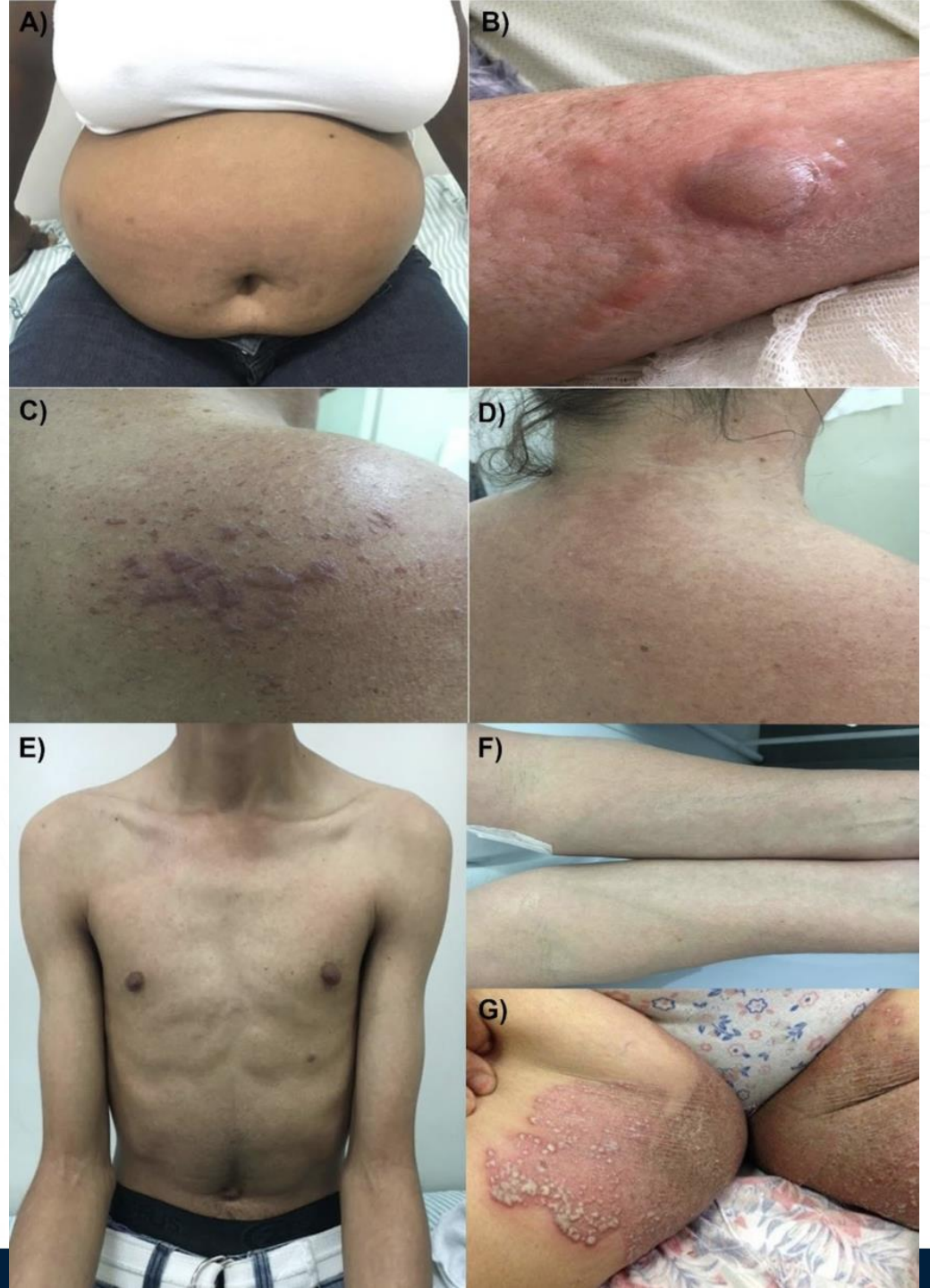
Immune response: Strong inflammatory reaction leads to joint pain and swelling

Clinical Features



Chikungunya virus infection in the skin: histopathology and cutaneous immunological response

- Cutaneous manifestations occur in up to 75% of patients
- Most commonly as a morbilliform or maculopapular eruption
- Diverse morphologies such as vesiculobullous, hyperpigmented, and lichenoid lesions have been described

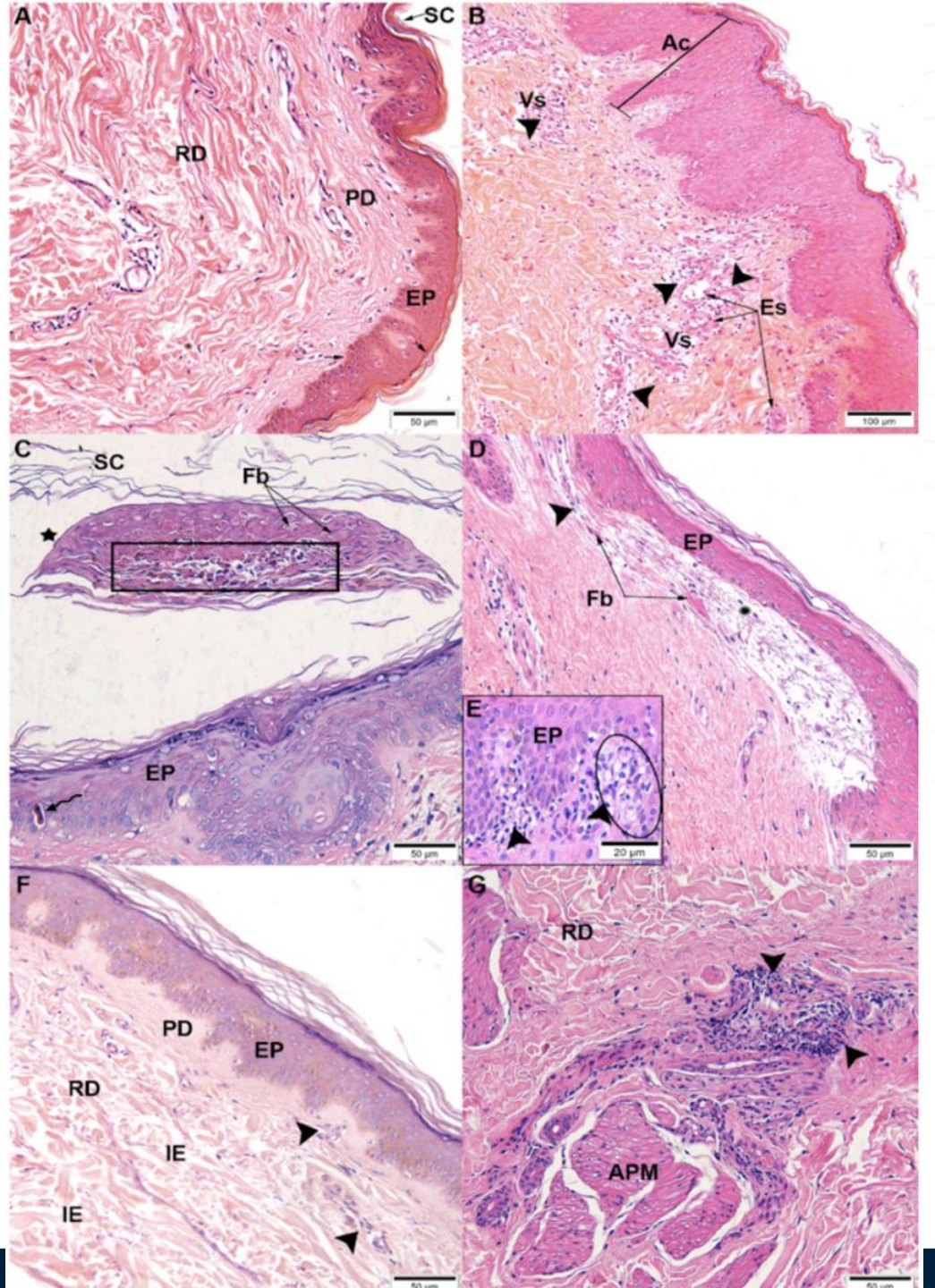


Front Microbiol. 2025 Jan 28:16:1497354.

Chikungunya virus infection in the skin: histopathology and cutaneous immunological response

- Reported histologic findings vary reflecting clinical variability

Histopathological findings	(N/T)
Vasocongestion	1/9
Presence of melanophages	3/9
Acanthosis	2/9
Intracorneal vesicle	1/9
Subepidermal lesion	1/9
Fibrin	2/9
Solar elastosis	2/9
Extravasation of red blood cells in the interstitium	1/9
Hyperkeratosis	2/9
Infiltrated near the nervous thread	1/9
Interface dermatitis	3/9
Perianexial infiltrate	2/9
Perivascular inflammatory infiltrate	8/9
Blood capillary ectasia	6/9
Spongiosis	2/9
Interstitial edema	8/9
Endothelial edema	5/9
Basal vacuolation	3/9
Apoptotic keratinocytes	2/9



Front Microbiol. 2025 Jan 28:16:1497354.

Diagnosis

- **Clinical suspicion:** Based on symptoms and travel history
- **Laboratory confirmation:**
  - RT-PCR (early phase, first 5 days)
  - IgM and IgG serology (after 5–7 days)
  - CBC: leukopenia, mild thrombocytopenia

Management

- **No specific antiviral treatment**
- **Supportive care:**
  - Rest and hydration
  - Analgesics and antipyretics (avoid NSAIDs until dengue excluded)
  - Physiotherapy for persistent joint pain
- **Chronic phase:** May require anti-inflammatory or disease-modifying agents

Prevention and Control

Vector control:

Eliminate mosquito breeding sites (standing water)

Use insect repellents, bed nets, and window screens

Community education: Awareness about mosquito life cycle

Vaccinations—

2 available in USA

Live-attenuated (IXCHIQ)

Virus-like particle (VIMKUNYA)

Take Home Points

- In the context of increased global mobility, exposure to pathogenic viruses originating from non-endemic regions has become increasingly possible
- This case highlights key epidermal and adnexal changes associated with acute chikungunya virus infection and expands the histologic spectrum with involvement of the sebaceous gland
- Familiarity with the histologic features will ensure appropriate testing is initiated
- Vaccination can be considered if travelling to an endemic region


Thank you!