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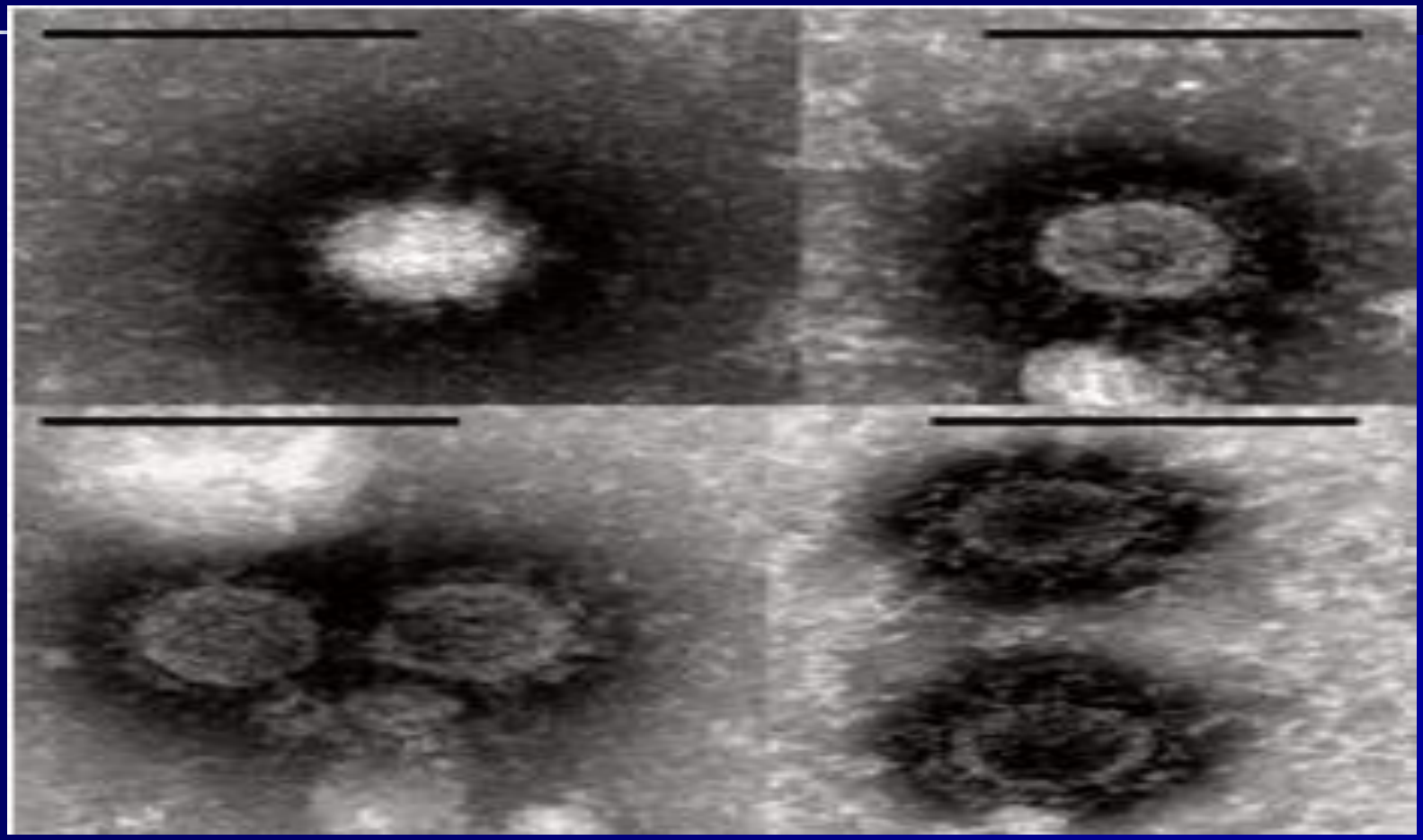
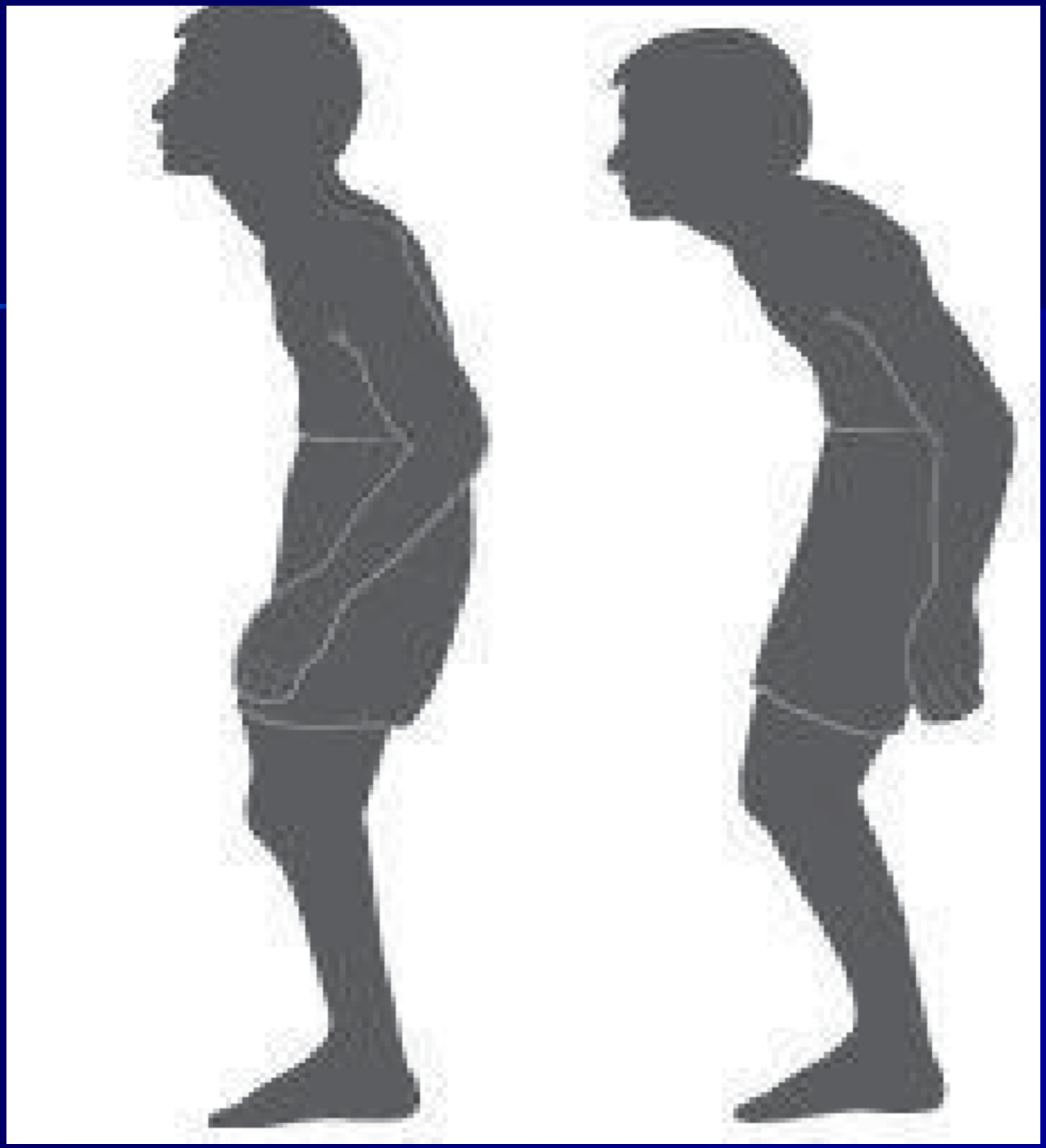
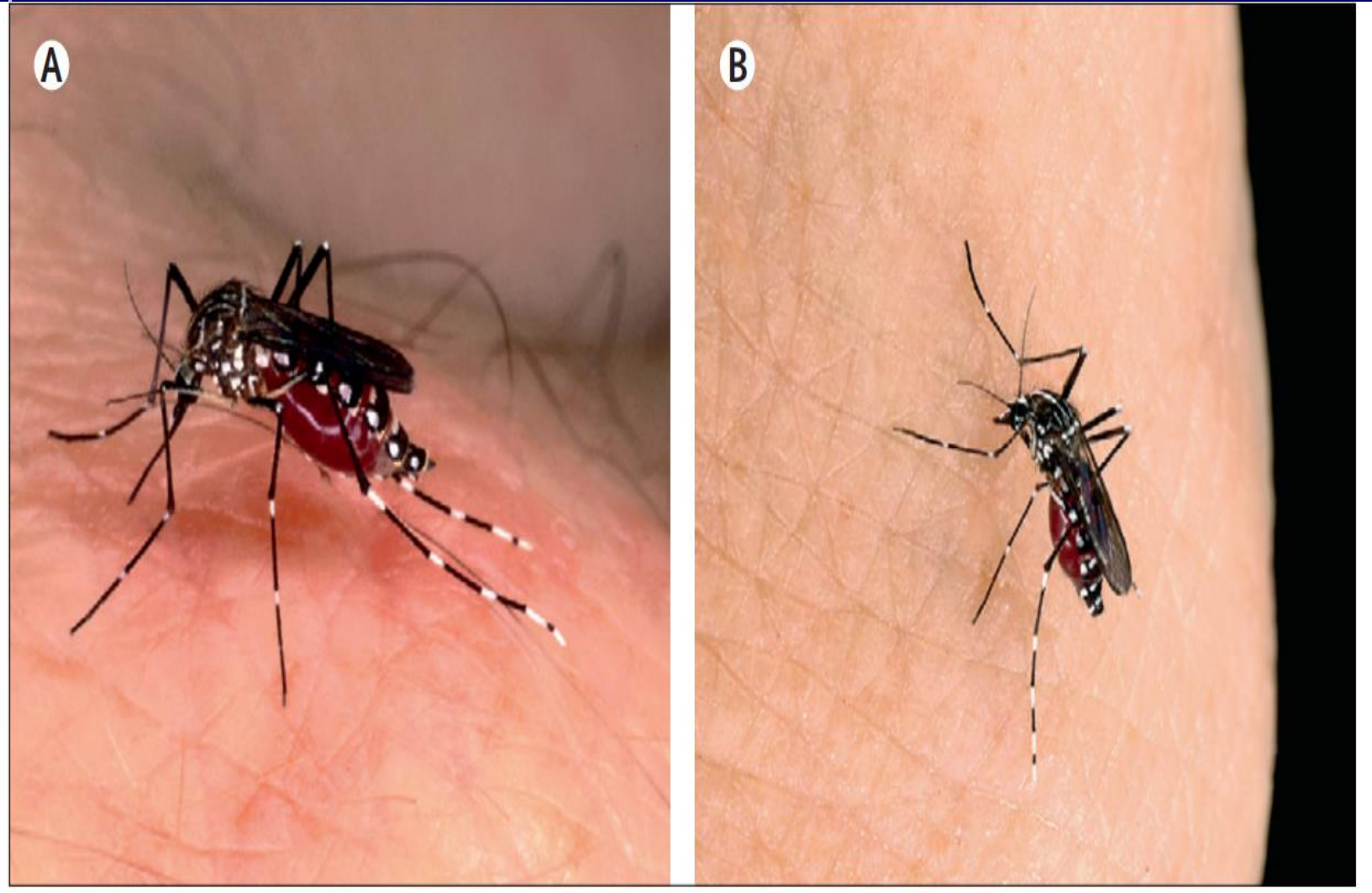
CLINICA
COMFAMILIAR


CHIKUNGUNYA



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Definición de la enfermedad:

Enfermedad febril aguda causada por el virus Chikungunya (CHIKV), transmitida por la picadura de mosquitos del genero *Aedes*. Afecta a todos los grupos de edad y ambos sexos.

- SINDROME MONONUCLEOSICO DEFINICION

Otras enfermedades a considerar en el diagnóstico diferencial:

1. Leptospirosis.
2. Malaria.
3. Enfermedades exantemáticas de la infancia.
4. Primo infección por VIH.
5. Mononucleosis infecciosa.
6. Artritis reumatoidea juvenil.
7. Artritis postinfecciosa.

- SALMONELOSIS
- TOXOPLASMOSIS
- INFECCION POR HERPES VIRUS

Tabla 1. Principales características del virus chikungunya.

Forma de transmisión	**Mecanismo principal:** Picadura de mosquitos *Aedes aegypti* o *Aedes albopictus*: ampliamente distribuidos en el país. Son los mismos vectores que transmiten dengue. **Menos frecuente:** • Transmisión transplacentaria de madre virémica al recién nacido durante el parto. Puede causar infección hasta un 50% de los recién nacidos quienes pueden presentar formas severas de la enfermedad • Falta evidencia pero puede ocurrir abortos en el 1er trimestre. El bebé no adquiere inmunidad a través de la madre • Pinchazo con aguja • Exposición en laboratorio

Reservorio	Los humanos son el reservorio principal del CHIKV durante la fase virémicas (los primeros 5 días de inicio de los síntomas).
Período de incubación	Los mosquitos adquieren el virus a partir de un huésped virémico y a los 10 días puede transmitirlo a una persona susceptible, quien iniciará los síntomas después de un período de incubación intrínseca de 3 a 7 días (rango: 1-12 días)

Tabla No. 2 – Frecuencia de los síntomas de infección aguda por CHIKV*	
Síntoma o signo	**Rango de frecuencia (% de pacientes sintomáticos)**
Fiebre	76-100
Poliartralgias	71-100
Cefalea	17-74
Mialgias	46-72
Dolor de espalda	34-50
Náusea	50-69
Vómito	4-59
Erupción (Rash)	28-77
Poliartritis	12-32
Conjuntivitis	3-56

*Tabla compilada a partir de diversos estudios.

*Tomado de OPS/OMS/CDC. Preparación y respuesta ante la eventual introducción del virus chikungunya en las Américas.

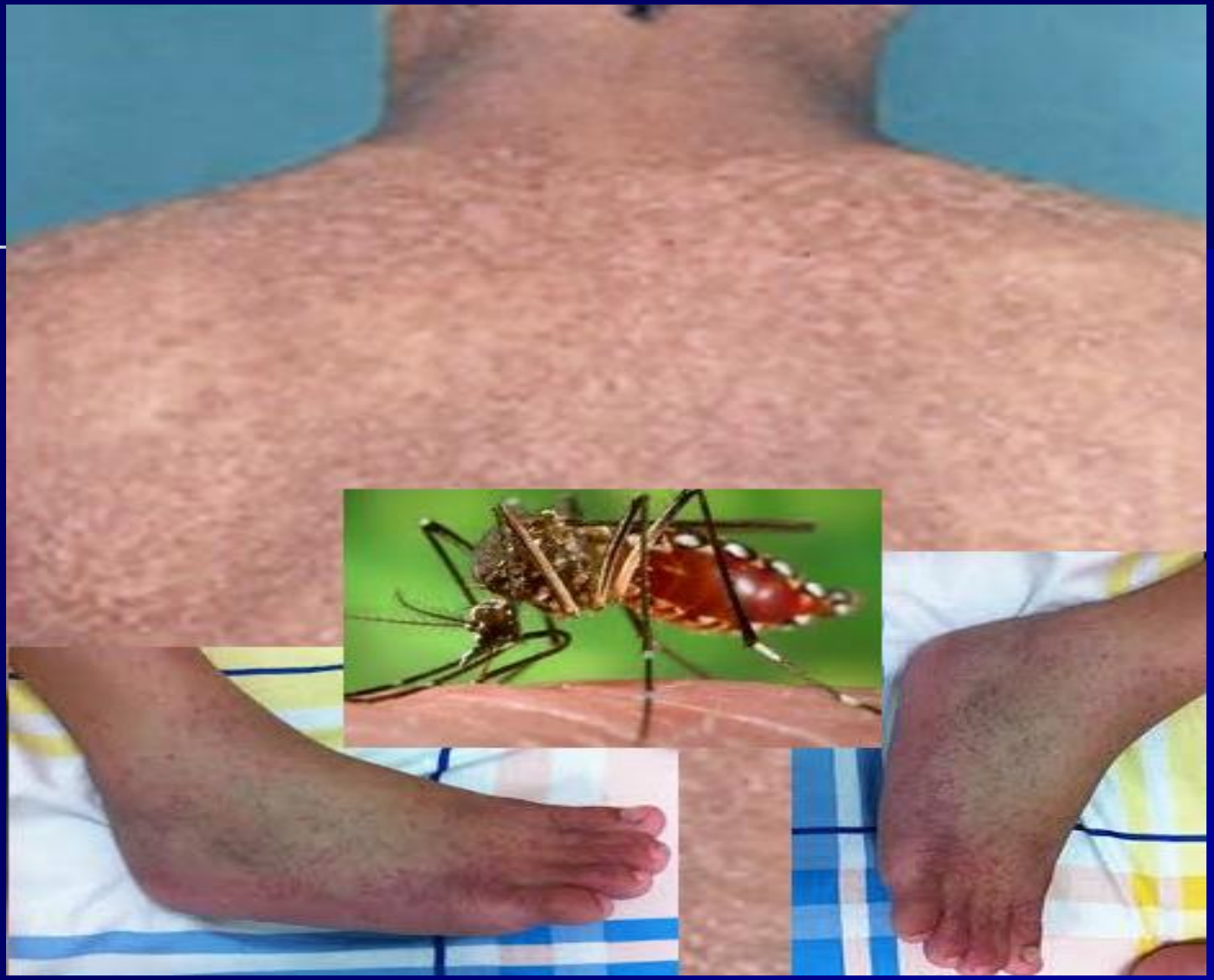

Tabla. 3. Manifestaciones clínicas atípicas de chikungunya*.

Sistema	Manifestaciones clínicas
Neurológico	Meningoencefalitis, encefalopatía, convulsiones, síndrome de Guillaín-Barré, síndrome cerebeloso, paresia, parálisis, neuropatía.
Ocular	Neuritis óptica, iridociclitis, epiescleritis, retinitis, uveitis
Cardiovascular	Miocarditis, pericarditis, insuficiencia cardíaca, arritmias, inestabilidad hemodinámica
Dermatológico	Hiperpigmentación fotosensible, úlceras intertriginosas similares a úlceras aftosas, dermatosis vesiculobulosas

Renal	Nefritis, insuficiencia renal aguda
Otros	Discrasias sangrantes, neumonía, insuficiencia respiratoria, hepatitis, pancreatitis, síndrome de secreción inadecuada de hormona antidiurética (SIADH), hipoadrenalismo

*Tomado de OPS/OMS/CDC. Preparación y respuesta ante la eventual introducción del virus chikungunya en las Américas.

- **Manifestaciones clínicas severas de la enfermedad:**

Las principales complicaciones descritas asociadas al CHIKV son las siguientes:

- Falla respiratoria
- Descompensación cardiovascular
- Meningoencefalitis
- Otros problemas del sistema nervioso central
- Hepatitis aguda
- Manifestaciones cutáneas severas (descamación y lesiones bullosas)

Tabla 4. Manifestaciones clínicas congénitas*	
Manifestaciones	**N de casos/44 (%)**
Síndrome hiperálgico	38 (86)
Erupción cutánea	23 (52)
Edemas en las extremidades	11 (25)

Meningo -encefalitis	9 (20)
Insuficiencia respiratoria	7 (16)
Descamación grave	3 (7)
Hiperpigmentación	2 (5)
Dermatosis bullosa	2 (5)

Grupos de Riesgo de severidad:

1. Neonatos (con o sin síntomas de madres virémicas) durante el parto o en los últimos 4 días antes del parto.
2. Menores de 1 año
3. Mayores de 65 años
4. Personas con comorbilidades: diabetes, hipertensión, insuficiencia renal crónica, o enfermedades cardiovasculares. Personas que viven con el VIH-SIDA, con tuberculosis, pacientes con cáncer, pacientes con enfermedades hematológicas, como la falcemia.

Signos de alarma: requiere atención médica inmediata y evaluar criterios de ingreso al nivel especializado.

1. Fiebre que persiste por más de cinco días.
2. Dolor abdominal intenso y continuo
3. Vómito persistente que no tolera la vía oral.
4. Petequias, hemorragia subcutánea, o sangrado de mucosas.
5. Alteración del estado de conciencia.
6. Mareo postural
7. Dolor articular intenso incapacitante por más de cinco días.
8. Extremidades frías.
9. Disminución en la producción de orina.

10. Sangrado por cualquier orificio.
11. Recién nacido de madres virémicas al momento del parto, con signos y síntomas.

Dengue and chikungunya infections in travelers

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Purpose of review
Dengue and chikungunya are arboviruses that have caused major outbreaks and infected travelers, and both can be associated with fever and rash. We review the recent epidemiology of dengue and chikungunya infections and discuss their clinical presentations, diagnosis, treatment, and prevention. We highlight the findings in travelers.

Recent findings
Globally dengue is one of the most common infections associated with travel, and incidence has increased in the Americas in recent years, especially in Brazil. Chikungunya has caused dramatic outbreaks in the Indian Ocean islands since 2004, and has spread to south and south-east Asia. Dengue virus and chikungunya virus also possess the potential to cause autochthonous transmission in temperate regions of developed countries due to the presence of the vector mosquito, *Aedes albopictus*. Such an outbreak (chikungunya infection) did occur in 2007 in Italy. A mutation in chikungunya virus (A226V) appears to improve virus survival in *Aedes albopictus* and also increase its virulence.

Summary
The findings assist in differentiating dengue and chikungunya from other acute febrile illnesses and from each other. The findings also illustrate potential outbreaks in nonendemic countries, important toward developing control and prevention strategies.

Keywords
alphavirus, chikungunya, dengue, flavivirus, travelers

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Introduction

Fever is a common reason for seeking medical care after travel. Because some infections in returned travelers can progress rapidly and require urgent interventions, it is important to have a working knowledge of the more common causes in fevers, especially those that are treatable and can be severe. Among 25 000 returned ill travelers seen at GeoSentinel clinics around the world between 1997 and 2006, 28% sought medical care for fever [1,2]. Dengue fever was the second most common specific infection, after malaria. Another GeoSentinel analysis showed that the spectrum of illness after travel varied depending on the place of exposure [3]. Dengue fever was the top specific etiologic agent in travelers returning from south-east Asia and among the top three diagnoses in travelers from all other regions except sub-Saharan Africa and Central America. Because of extensive overlap in the regions with risk of exposure to dengue and malaria, it is essential to always evaluate a febrile returned traveler promptly for malaria. Rarely coinfection with malaria parasites and dengue virus (DENV) has been reported.

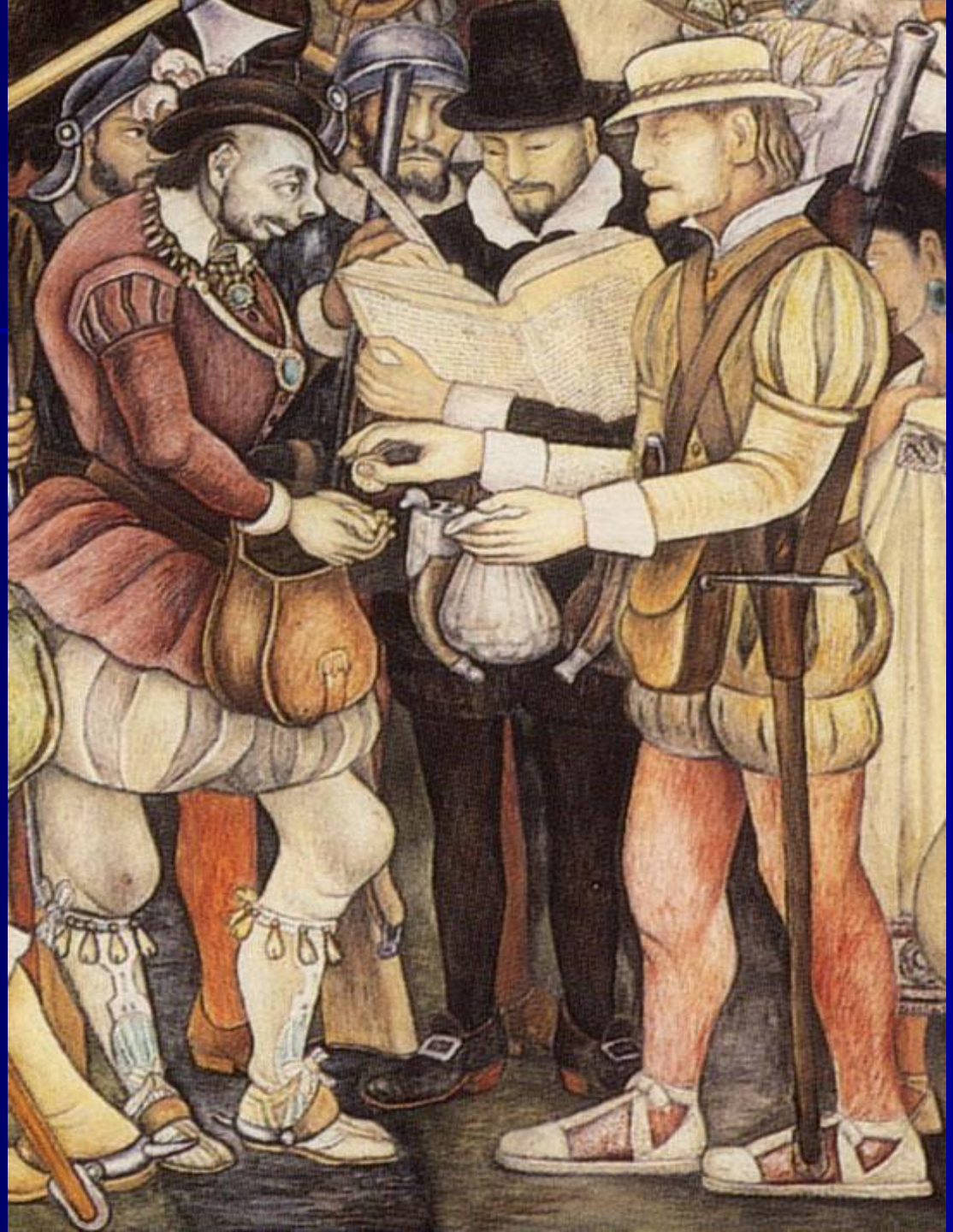
Additional infections that cause undifferentiated fever in returned travelers include rickettsial infections, enteric fever, viruses that cause mononucleosis-illnesses [Epstein–Barr virus, cytomegalovirus, and acute HIV], toxoplasmosis, and amebic liver abscesses. Common cosmopolitan infections and noninfectious diseases should also be considered in returned travelers with fever. Because of the relatively short incubation periods of dengue and chikungunya fevers, these diagnoses should be suspected only in travelers whose symptoms begin within 2 weeks of their last exposure.

The vectors

Both dengue and chikungunya viruses are transmitted to humans by the bite of an infective mosquito. Transmission by other routes (e.g. transfusion, transplacental, needlestick, or other nosocomial exposures) occurs rarely [4,5]. The most common vector for both viruses is *Aedes aegypti*, a vector that is now widely distributed in tropical and subtropical areas worldwide (Fig. 1) [6••]. Because *Aedes aegypti* can also transmit the yellow fever virus,

Tabla 5. Manifestaciones clínicas para el diagnóstico diferencial CHIKV/ Dengue*		
Características clínicas	Fiebre CHIKV	Dengue
Fiebre	+++	++
Mialgias	+	++
Altralgias	+++	+/-

Erupciones cutáneas	++	+
Discrasias hemorrágicas	+/-	++
Choque	-	+/-
Leucopenia	++	+++
Linfopenia	+++	++
Neutropenia	+	+++
Trombocitopenia	+	+++



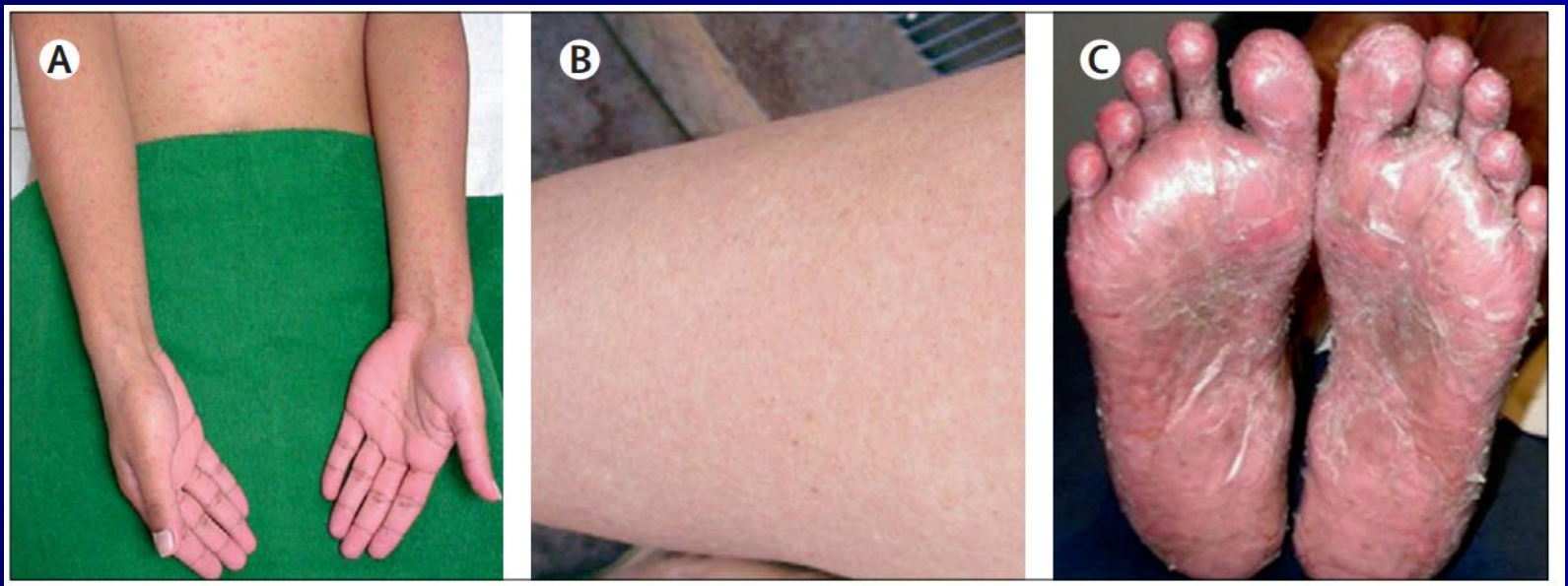
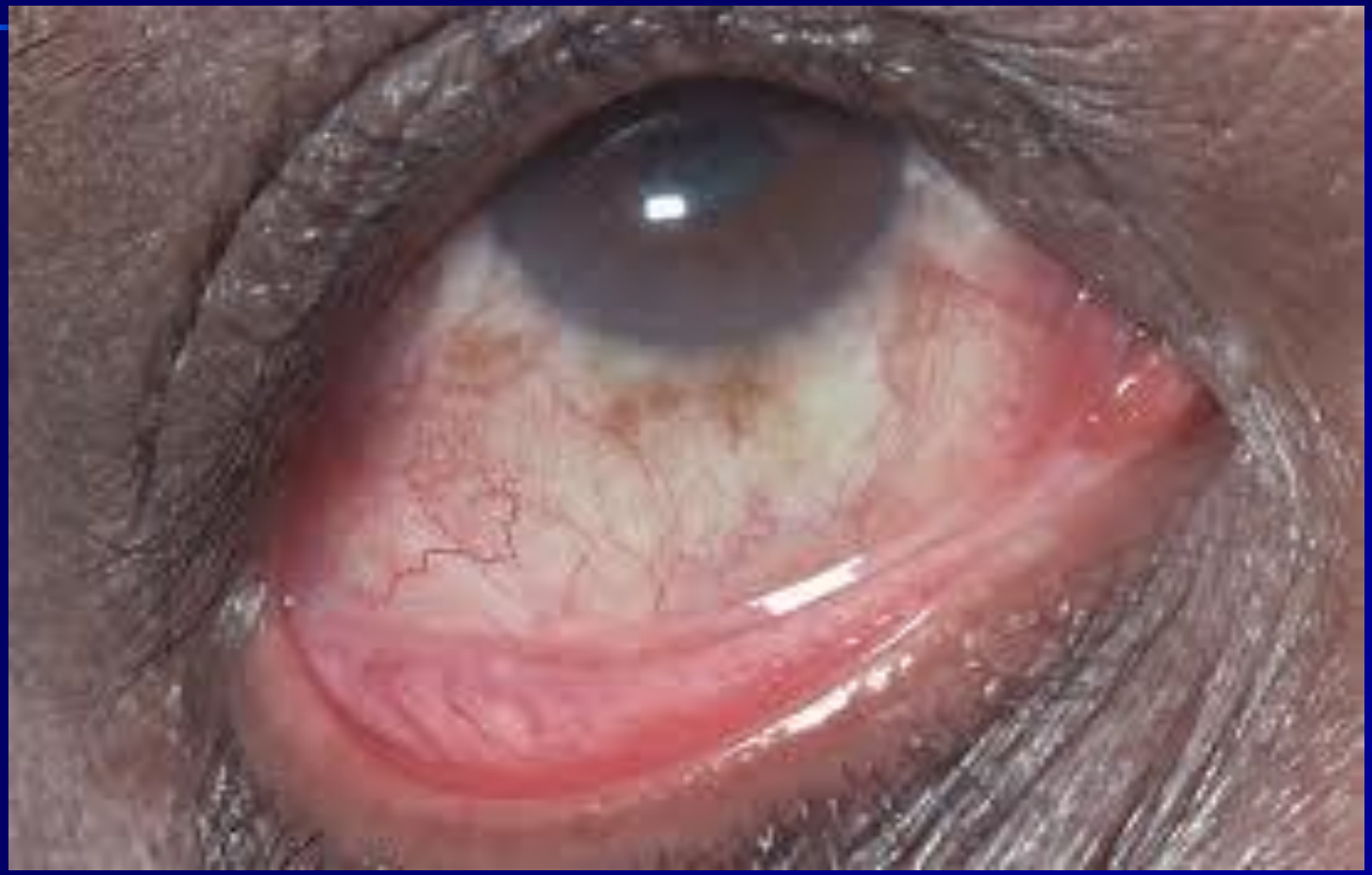
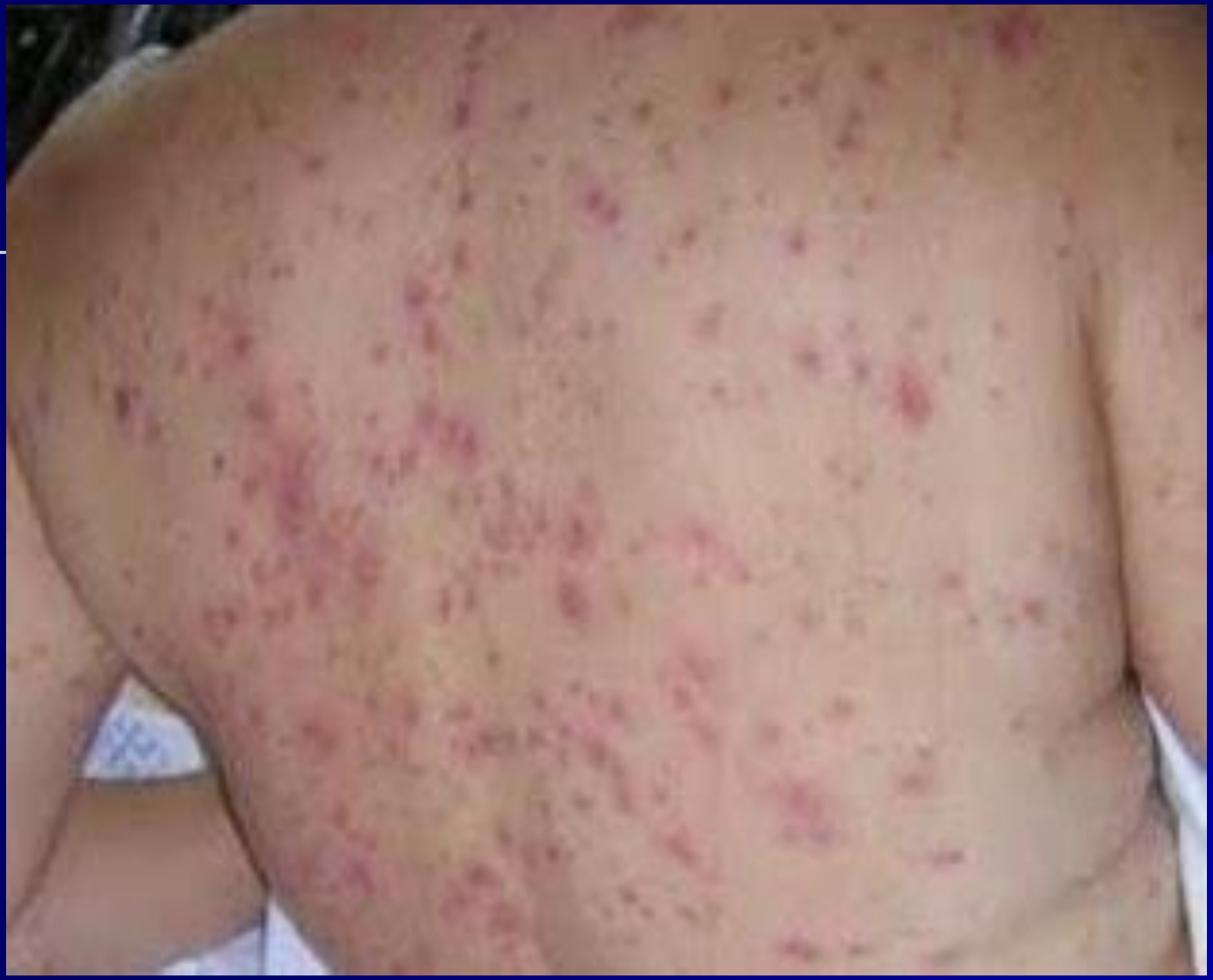
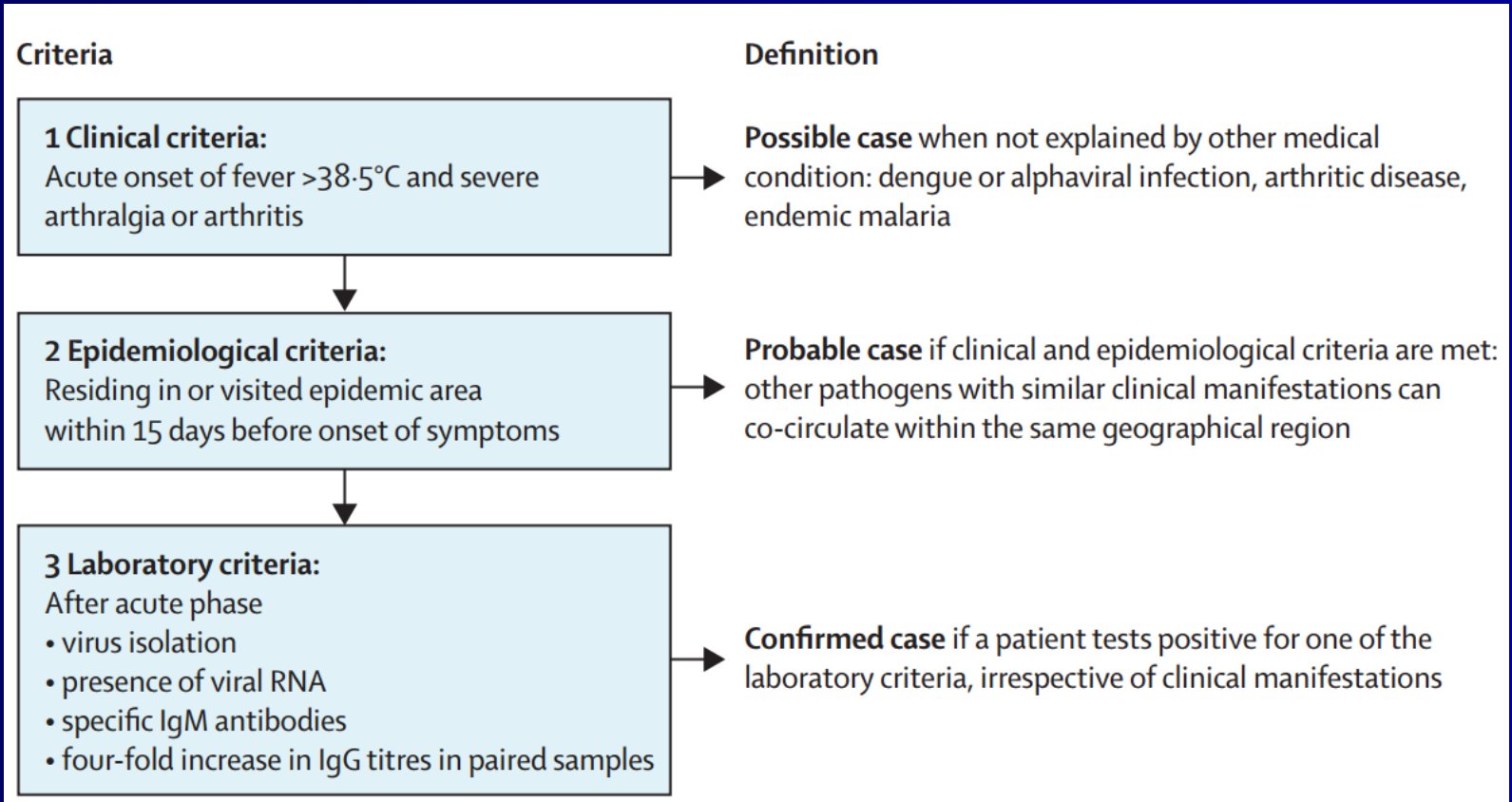


Figure 4: **Typical rashes with chikungunya virus infection**
Maculopapular rash, petechial spots and erythroderma of arms (A), legs (B), and feet (C).






Criteria
Definition
1 Clinical criteria:
Acute onset of fever >38·5°C and severe arthralgia or arthritis
Possible case when not explained by other medical condition: dengue or alphaviral infection, arthritic disease, endemic malaria
2 Epidemiological criteria:
Residing in or visited epidemic area within 15 days before onset of symptoms
Probable case if clinical and epidemiological criteria are met: other pathogens with similar clinical manifestations can co-circulate within the same geographical region
3 Laboratory criteria:
After acute phase
• virus isolation
• presence of viral RNA
• specific IgM antibodies
• four-fold increase in IgG titres in paired samples
Confirmed case if a patient tests positive for one of the laboratory criteria, irrespective of clinical manifestations

CASES

Chikungunya fever in Canada: fever and polyarthritis in a returned traveller

Kevin L. Schwartz MD, Aliyah Giga DC, Andrea K. Boggild MD

See also practice article on page 775 and at www.cmaj.ca/lookup/doi/10.1503/cmaj.140031.

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A previously healthy 28-year-old woman from Canada experienced extensive mosquito bites while visiting Mumbai, India, in September 2010. Twelve days into her trip, an acute onset of fever, chills and severe joint pain developed, primarily affecting her wrists, neck and ankles. While in India, she received treatment for presumptive malaria and was given parenteral analgesia. After three days, her fever resolved. In addition to fever and joint pain, she reported skin hyperpigmentation on the bridge of the nose. During her convalescence, there was no recurrence of fever, but she remained unable to extend and rotate her wrists, dorsiflex, plantar flex, or internally or externally rotate her ankles without substantial pain.

Two and a half months after her initial symptoms, our patient was referred to a tropical disease unit. She reported persistent joint pain with restricted range of motion in the wrists, ankles and neck with minimal relief from the nonsteroidal anti-inflammatory drug celecoxib. On physical examination, she had normal vital signs and there was no evidence of lymphadenopathy, hepatosplenomegaly or joint effusions. A complete blood count showed a hemoglobin level of 145 (normal 120–160) g/L, a platelet count of 292 (normal 150–400) $\times 10^9$/L and a leukocyte count of 7.3 (normal 3.5–12) $\times 10^9$/L with a total eosinophil count of 0.61 (normal 0.05–0.4) $\times 10^9$/L. At the top of our differential diagnosis were chikungunya fever, dengue fever and rickettsial infection. Box 1 summarizes key clinical features of chikungunya and dengue infections.[1] Serologic investigations showed an elevated titre to chikungunya immunoglobulin G (IgG) antibodies at 1:160 (positive > 1:10 by hemagglutination inhibition assay). Dengue IgG antibodies were reactive, but immunoglobulin M (IgM) was nonreactive; test results for rickettsia were nonreactive. Based on these results, rickettsial disease was excluded. The persistent arthralgia combined with a negative dengue IgM suggested false-positive (cross-reactive) dengue IgG, which can be seen after infections with, or vaccinations against, other flaviviruses, such as yellow fever, Japanese encephalitis and West Nile virus. The elevated antibody titres to chikungunya virus and the clinical course were diagnostic of chikungunya fever. Ibuprofen and physical therapy were recommended as treatment. Our patient had function-limiting arthralgia and reduced range of motion at the wrists, which slowly improved over an 18-month period. Restoration of baseline status had not been achieved by two years after the infection.

Discussion

Chikungunya is an emerging arboviral infection among travellers and one that Canadian physicians are increasingly likely to encounter.[2] Chikungunya fever is caused by the chikungunya virus, which is spread by the *Aedes aegypti* mosquito and less commonly by *A. albopictus*.[1] Chikungunya, a word from the Makonde language, means "that

KEY POINTS

- Canadian physicians are likely to encounter cases of imported chikungunya fever given the very recent emergence of this virus in the Caribbean, and while outbreaks in East Africa and Southeast Asia continue

MAJOR ARTICLE

Persistent Arthralgia Associated with Chikungunya Virus: A Study of 88 Adult Patients on Reunion Island

Gianandrea Borgherini,[1] Patrice Poubeau,[1] Annie Jossaume,[1] Arnaud Gouix,[1] Liliane Cotte,[2] Alain Michault,[3] Claude Arvin-Berod,[1] and Fabrice Paganin[1]

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Background. An outbreak of chikungunya virus infection occurred on Reunion Island during the period 2005–2006. Persistent arthralgia after chikungunya virus infection has been reported, but few studies have treated this aspect of the disease.

Methods. Adult patients with laboratory-confirmed acute chikungunya virus infection who were referred to Groupe Hospitalier Sud Reunion during the period 2005–2006 were asked to participate in the study. Patients were assessed a mean of 18 months after acute disease occurred. Assessment consisted of answering questions on a standard form, undergoing a medical examination, and being tested for the presence of IgM antibodies to chikungunya virus.

Results. Eighty-eight patients (mean age, 58.3 years; male-to-female ratio, 1.1:1.0) were included in this study. Fifty-eight patients (65.9%) had been hospitalized for acute chikungunya virus infection, and a history of arthralgia before chikungunya virus infection was reported by 39 patients (44%). Fifty-six patients (63.6%) reported persistent arthralgia related to chikungunya virus infection, and in almost one-half of the patients, the joint pain had a negative impact on everyday activities. Arthralgia was polyarticular in all cases, and pain was continuous in 31 patients (55.4%). Overall, 35 patients (39.7%) had test results positive for IgM antibodies to chikungunya virus.

Conclusions. Persistent and disabling arthralgia was a frequent concern in this cohort of patients who had experienced severe chikungunya virus infection ~18 months earlier. Further studies are needed to evaluate the prevalence of persistent arthralgia in the general population to determine the real burden of the disease.

Chikungunya virus, an arthropod-borne virus that belongs to the *Alphavirus* genus of the family Togaviridae, was first isolated in 1953 [1], during an epidemic of febrile polyarthralgia occurring in the Makonde plateau (Tanzania). Since then, chikungunya virus has been the causative agent of several infection outbreaks in Africa and Asia [2–8], where the first documented cases occurred in Thailand in 1958 [9]. The virus is transmitted to humans by mosquitoes of the genus *Aedes* (mainly *Aedes aegypti* and *Aedes albopictus*). The 2 main clinical features of acute chikungunya virus infection are fever of sudden onset and severe, often debilitating polyarthralgia. Rash and gastrointestinal symptoms are also frequent findings [10].

Since June 2004, when the first documented outbreak occurred in Lamu, Kenya, an epidemic of chikungunya virus infection has progressively spread to different countries in the Indian Ocean region [11]. On Reunion Island, where chikungunya virus infection had never been previously reported, the first cases were reported in March 2005, and their number significantly increased in December 2005 and after [12]. From March 2005 through April 2006, the surveillance system estimated that 244,000 cases of chikungunya virus infection occurred in a general population of 766,000, with an overall attack rate of 35% [12]. During the Reunion Island

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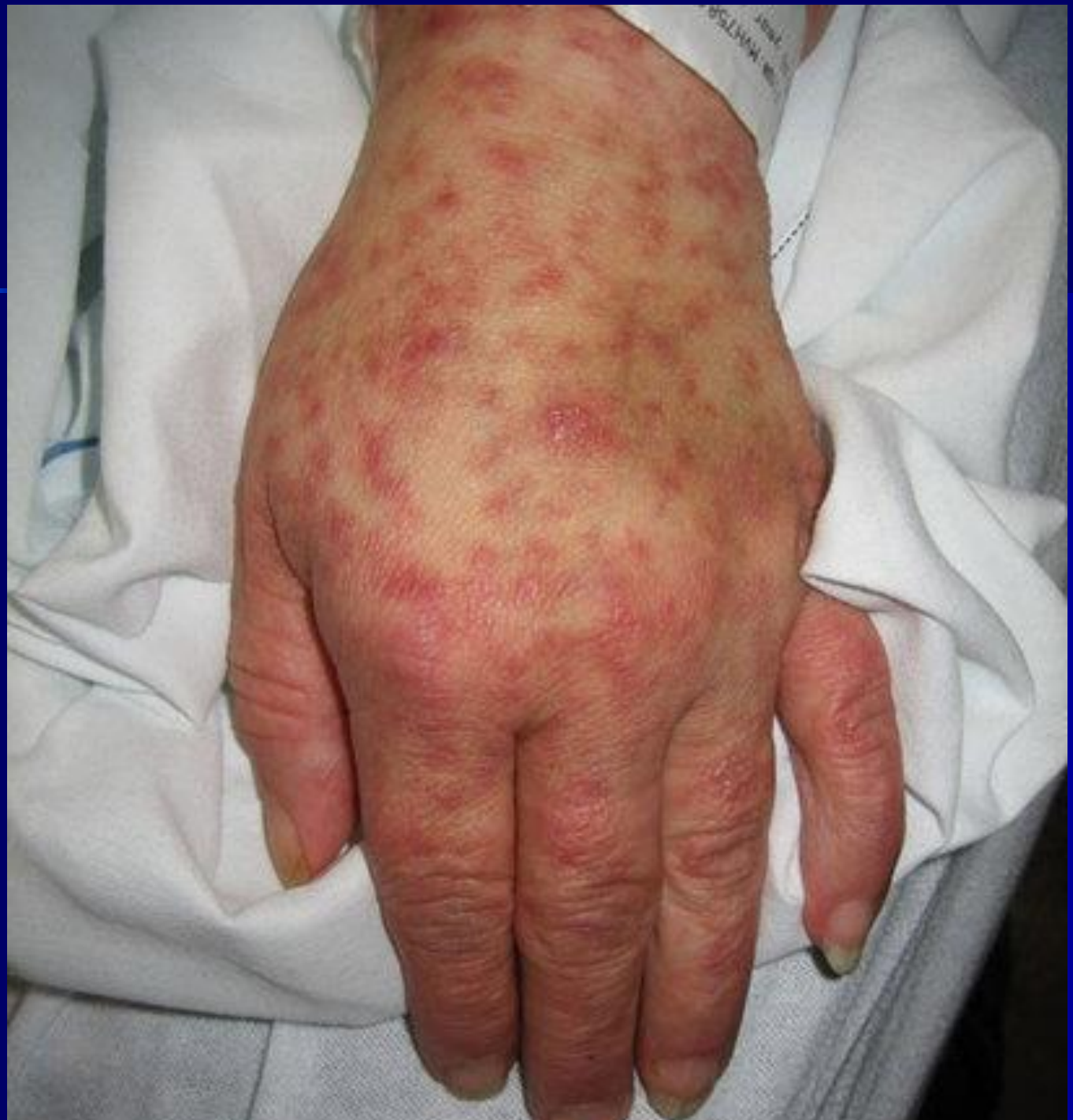
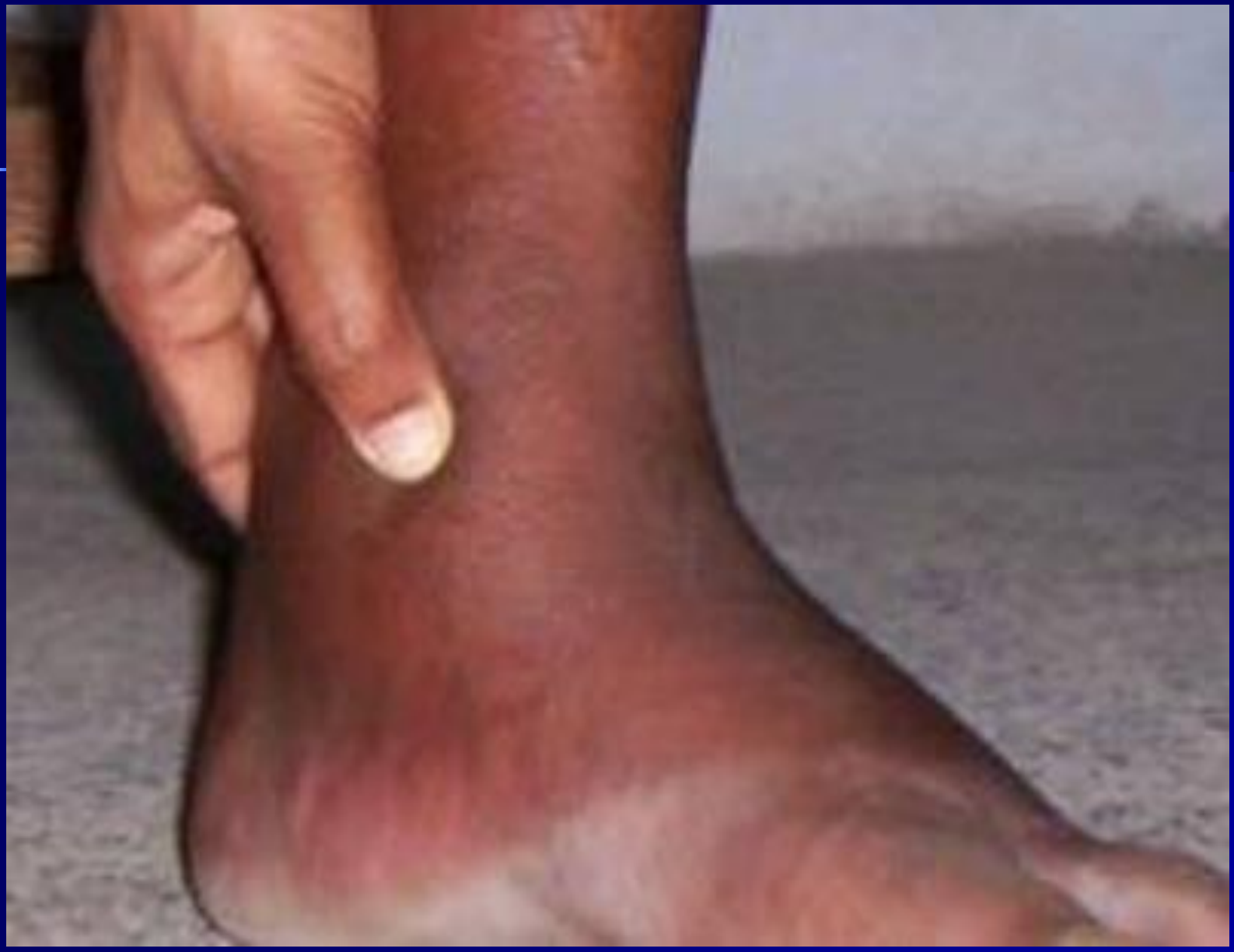
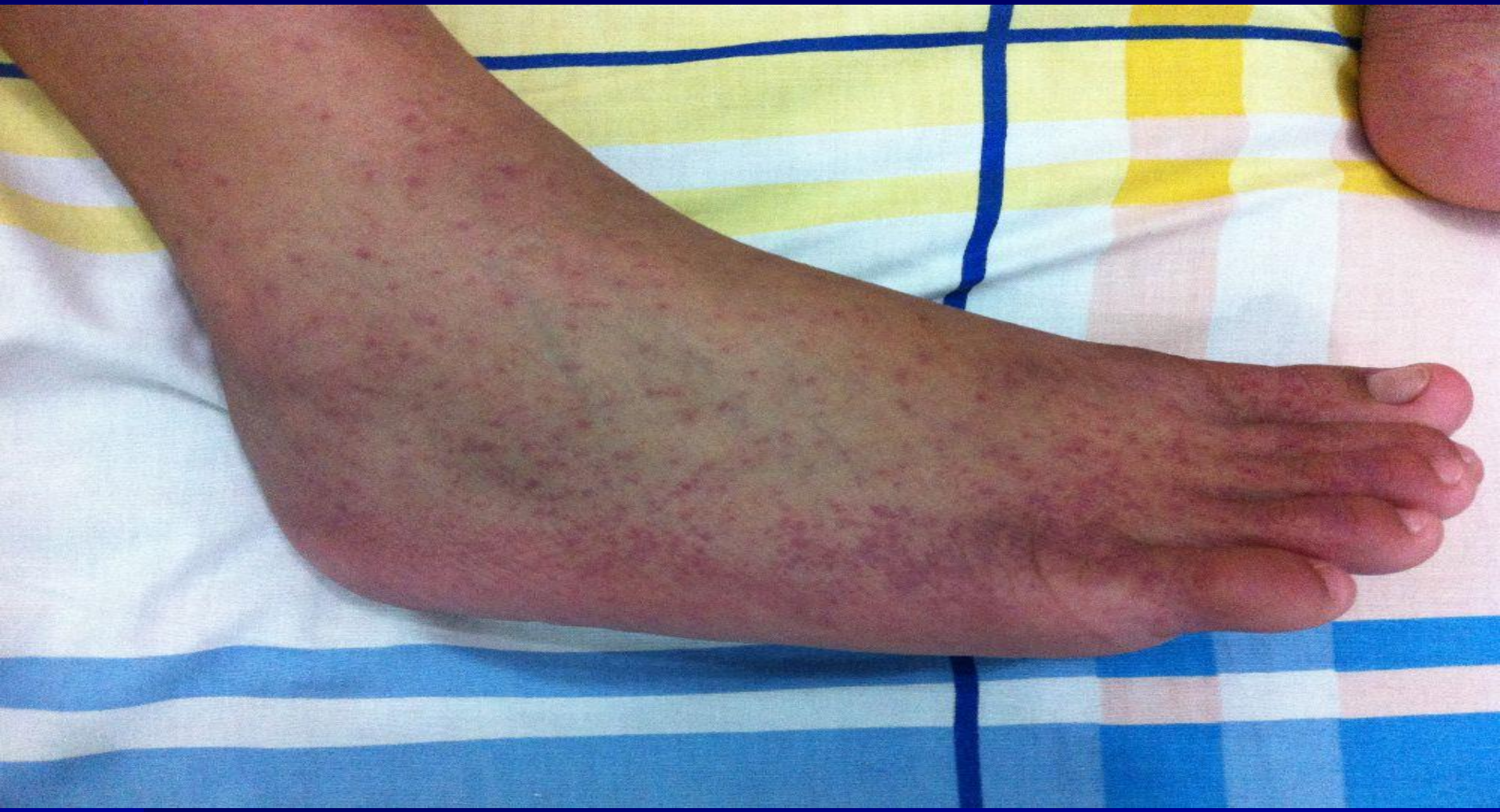






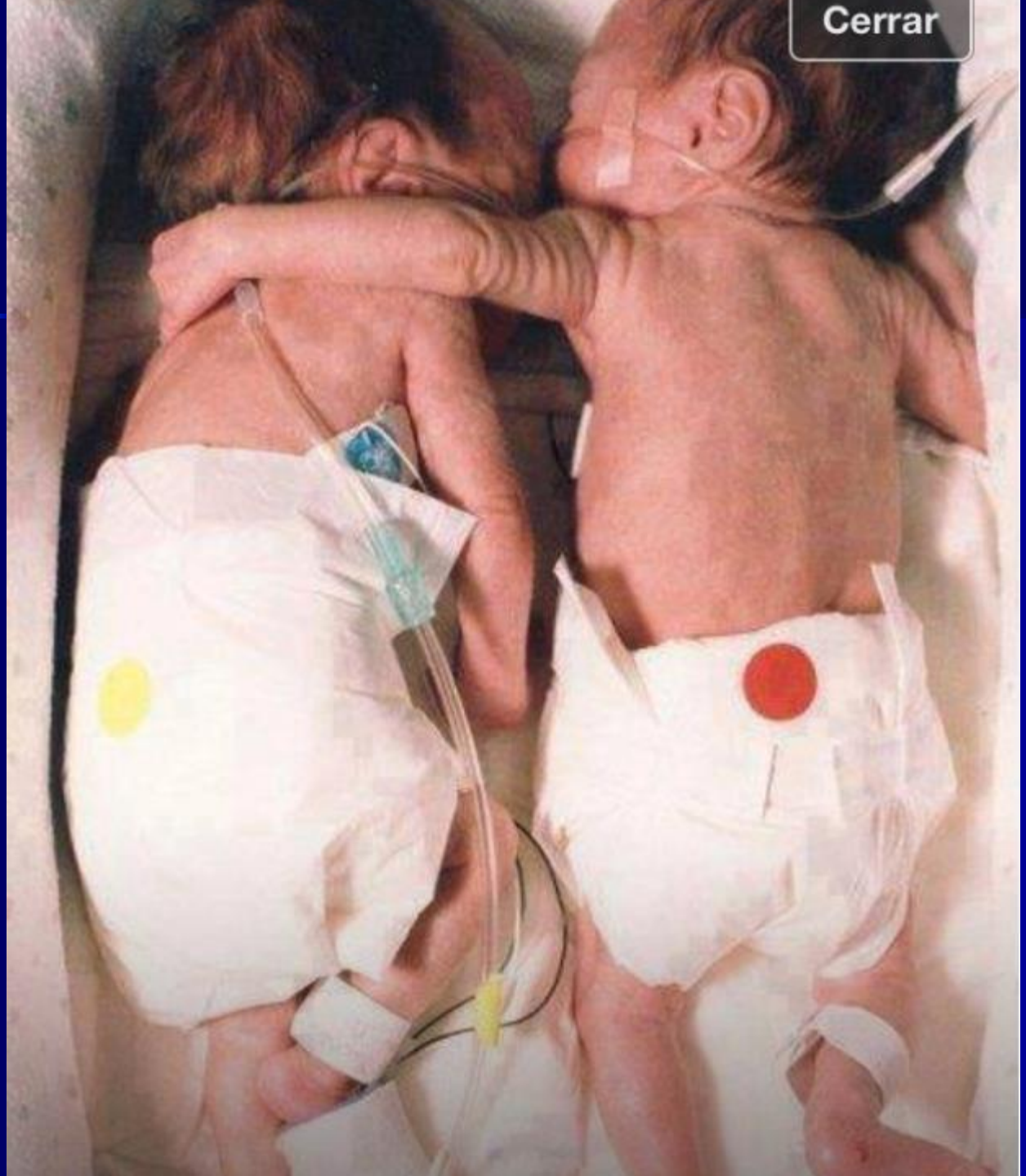
- GRUPO DE INVESTIGACION MEDICA APLICADA COMFAMILIAR RISARALDA
-

- TRATAMIENTO SINTOMATICO DE LA FIEBRE DE CHIKUNGUNYA CON HIDROXICLOROQUINA
- ENSAYO CLINICO CON DISEÑO ALEATORIO – CONTROLADO Y ENMASCARADO
- COMFAMILIAR RISARALDA – UNIVERSIDAD CES

- PLANTEAMIENTO – CUAL??

- JUSTIFICACION – CUAL ??

- OBJETIVOS
  ESTABLECER LA EFECTIVIDAD DE LA TERAPIA CON HIDROXICLOROQUINA EN EL MANEJO DEL PACIENTE CON INFECCION POR EL VIRUS DEL CHIKUNGUNYA EVALUANDO EL COMPONENTE SINTOMATICO ARTICULAR TRAS 2 AÑOS DE SEGUIMIENTO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