

Yellow Fever: Medicine in the Western Hemisphere

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C O N N E X I O N S

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Chapter 1

Introduction to Yellow Fever¹

1.1 Introduction to Yellow Fever

Yellow fever is an infectious disease transmitted to humans from monkeys through the bite of infected *Aedes aegypti* mosquitoes. This disease cannot be transmitted from person to person. Once a person contracts this virus, they have 5-25% chance of becoming ill, depending on the strength of each individual's immune system. Yellow fever was known as yellow jack, saffron scourge, sylvatic yellow fever, urban yellow fever, *vómito negro* (black vomit- *vómito prieto*), totaling more than 150 names.

Yellow Fever Patient's Clinical Chart

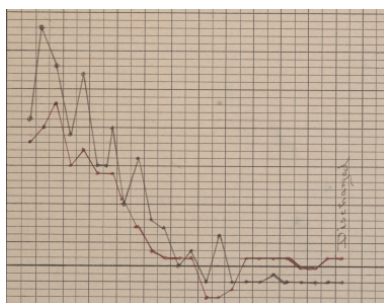


Figure 1.1: This clinical chart² tracks Charles Raymond, yellow fever patient's health progress, his pulse and temperature were recorded over a period of several days until he was discharged. He was treated by Dr. Paul Osterhaut in Bocas del Toro, Panama

Symptoms

Yellow fever presents itself through a variety of symptoms including chills, fever, weakness, nausea, decreased urination, delirium, muscle and lower back aches, irritability, and restlessness, seizures, vomiting, and can lead to a coma. Symptoms usually occur 3-6 days after infection; the fever lasts between 3-4 days and is followed by remission and a second febrile phase, which is the most dangerous, affecting internal organs such as liver and kidneys, causing jaundice and hemorrhages in the digestive tract. This in turn causes the yellow coloration of the skin and white of the eyes and of vomiting a black substance.

¹This content is available online at <<http://cnx.org/content/m34414/1.12/>>.

²See the file at <<http://cnx.org/content/m34414/latest/http://hdl.handle.net/1911/27342>>

The Symptoms of a Yellow Fever Patient

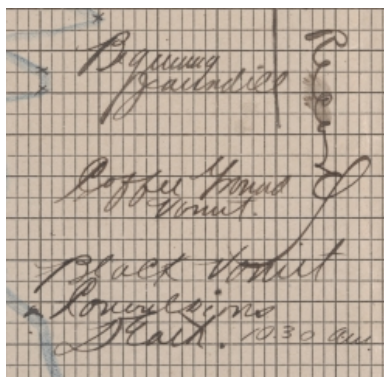


Figure 1.2: This chart³ tracks Vaughan Philpott's health progress from the first to the sixth day of his treatment for yellow fever starting on February 15, 1906 in Bocas del Toro, Panama. The patient was pronounced dead on the sixth day by Dr. Paul Osterhaut.

Treatment and Quarantine

During the 19th century, it was a common belief that the firing of a cannon disrupted air particles, creating large amounts of air turbulence that could destroy the unknown agent that caused yellow fever. Along with this procedure, a common treatment for yellow fever was fumigation and burning sulfur in the patients' room. This treatment actually caused patients to cough consistently and even choke because of the sulfuric fumes. Following the smoking of sulfur, the physician continued treatment by using a lancet to bleed the patient so rapidly they usually fainted. This treatment was known as "syncopal bleeding". Afterward, the patient was encouraged to take large doses of calomel, which is toxic and causes people to salivate continuously and suffer from uncontrollable diarrhea. Alongside the toxic calomel, the patients were given cinchona bark, an anti-malarial agent, which actually caused intense stomach irritation and bouts of vomiting. To reduce this harsh effect, doctors applied poultices to the skin on the abdominal area which oftentimes caused blistering of the skin (VanItallie 329). Following this harsh treatment, patients' temperature oftentimes returned to normal for a few days during remission and later rose again during the third phase. The patients soon began suffering from jaundice and vomited a black substance resembling ground coffee. They also bled from the mouth, nose, and eyes, due to the inflammation of the liver. After this level of illness, the patient usually fell into a coma, often resulting in death. The harsh treatments were replaced with more soothing procedures towards the end of the 19th century. New remedies consisted of hot mustard foot baths, bed rest, crushed ice and lemonade, cool sponging, and gentle nursing care (VanItallie 332).

³See the file at <<http://cnx.org/content/m34414/latest/http://hdl.handle.net/1911/26577>>

Isolated Patient



Figure 1.3: This image shows a doctor treating a yellow fever patient, the uncertainty is present in the spectators' faces.

Quarantines were very common during this time, which along with improved sewage and drainage facilities, helped keep the disease controlled. A simple rumor of the presence of the disease caused massive blockades against the infected city. Quarantine laws were also passed to prevent ships carrying infected persons or people coming from cities which had an outbreak from landing in ports that were not infected. Congress created the National Board of Health in 1879 to establish a national quarantine system.

Isolated Patient

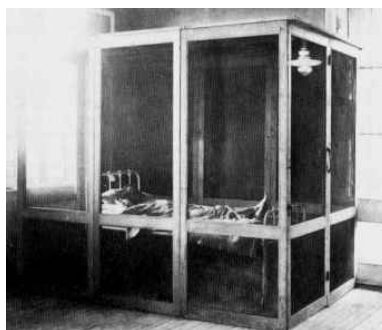


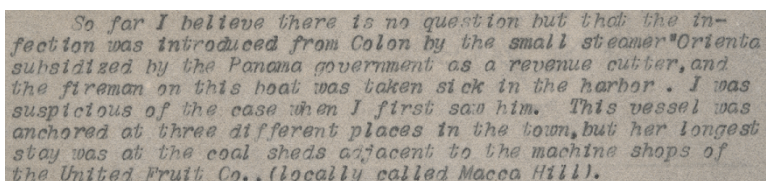
Figure 1.4: A patient is isolated in a specially made quarantine room.

Outbreaks

There have been several major pandemics and epidemic of yellow fever throughout the world. Historical records indicate that yellow fever affected Europe after the Roman Empire collapsed. In the 1760s a pandemic outbreak in Cuba killed thousands of English and American troops. At that same time in Philadelphia, the largest outbreak in the United States was taking place, killing ten percent of the total population of Philadelphia. Napoleon also lost half of his 40,000-troop army to the disease in 1802 in Haiti. This disease took the lives of many early American settlers and also deterred the French from constructing the Panama Canal when this area suffered from an epidemic in 1904. The last epidemic of yellow fever in North America occurred in New Orleans in 1905 but this disease continues to kill an estimated 30,000 people annually in Africa and South America.

The disease was especially prominent in port cities starting as early as the 1690s. It struck at ports from Boston all the way to New Orleans and the Gulf of Mexico. Philadelphia, New York, Galveston, and Brownsville were some of the cities that were often times affected due to the appearance of mosquitoes in those areas. The disease usually destroyed between 5 to 10 percent of the population of cities which suffered from outbreaks, but this statistic increased to up to 20% mortality rate during major outbreaks.

Letter to Surgeon-General in Washington, D.C.



So far I believe there is no question but that the infection was introduced from Colon by the small steamer "Oriente" subsidized by the Panama government as a revenue cutter, and the fireman on this boat was taken sick in the harbor. I was suspicious of the case when I first saw him. This vessel was anchored at three different places in the town, but her longest stay was at the coal sheds adjacent to the machine shops of the United Fruit Co., (locally called Macca Hill).

Figure 1.5: This excerpt is from a letter from Dr. Osterhout to the Surgeon-General⁴, in Washington D.C., regarding the second Yellow Fever victim case in Bocas del Toro, Panama. August 23, 1905.

During the 1850s, a series of epidemics struck every city along the coast from Norfolk, Virginia all the way down to Brownsville, Texas. New Orleans, St. Augustine, and Jacksonville were some of the North American cities that were affected by yellow fever epidemics. During the 1853 New Orleans epidemic, more than 3,000 cases occurred. It lasted four months and resulted in about 1800 deaths. During this decade, New Orleans lost almost 20,000 people due to four different epidemic outbreaks. Following that time period, the incidences decreased until the reappearance of one final outbreak in 1905 in New Orleans. This was the last major outbreak, which was successfully terminated with the help of effective mosquito control (Duffy 688).

⁴See the file at <<http://cnx.org/content/m34414/latest/http://hdl.handle.net/1911/22037>>

Major Outbreaks in the U.S.



Figure 1.6: This map pinpoints some of the major yellow fever epidemics in different cities in the United States

Further Reading

For access to more documents on yellow fever, search ‘Our Americas’ Archive Partnership⁵ (a digital collaboration on the Americas) or click on the supplemental links in the upper right hand corner of this module for Kezia Payne DePelchin, Paul Osterhout, or the different variations of yellow fever (such as vómito) mentioned earlier.

Sources

Duffy, John. “Yellow Fever in the Continental United States during the Nineteenth Century.” *Bulletin of the New York Academy of Medicine* (1968) 44.6: 687-701. Print. 11 Mar. 2010.

VanItallie, Theodore B. “Yellow Fever, the Doctors, and their Victims in the 19th Century South.” *Florida Historical Quarterly* (1995) 74: 329-33. Web. 11 Mar. 2010.

⁵See the file at <<http://cnx.org/content/m34414/latest/http://oaap.rice.edu/>>

Chapter 2

El vómito negro: Una introducción¹

2.1 El vómito negro (fiebre amarilla): Una introducción

Este módulo es una traducción de: Lorena Villarreal, "Introduction to Yellow Fever," Connexions, May 31, 2011, <http://cnx.org/content/m34414/1.9/2>.

El vómito negro es una enfermedad contagiosa que se transmite de monos a humanos por la picadura del zancudo *Aedes aegypti* infectado. Esta enfermedad no se puede transmitir de persona a persona. Una vez que la persona contrae este virus, tienen un 5-25% probabilidad de enfermarse, dependiendo de su sistema inmunológico individual. El vómito negro también fue conocido como el vómito prieto, la fiebre amarilla, el vómito, la Plaga Americana, *yellow fever*, etc. con un total de más de 150 nombres (en inglés y en español).

Hoja médica de un paciente con el vómito negro

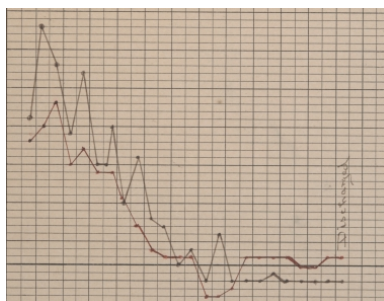


Figure 2.1: Esta hoja médica³ traza el progreso de la salud del paciente, Charles Raymond. Su pulso y temperatura fueron anotados a través de un periodo de varios días hasta que lo dieron de alta. El Dr. Paul Osterhaut le brindó tratamiento en Bocas del Toro, Panamá.

Síntomas

El vómito negro se presenta a través de varios síntomas, incluyendo: escalofríos, calentura, náusea, menos orina, delirio, dolores musculares y dolores de espalda, irritabilidad e inquietud, ataques cerebrales, vómito, y hasta se puede caer en coma. Por lo general, los síntomas ocurren 3-6 días después del contagio; la fiebre dura entre 3-4 días y se sigue por remisión y una fase secundaria de fiebre, que es más peligrosa porque afecta

¹This content is available online at <http://cnx.org/content/m38503/1.2/>.

²See the file at <http://cnx.org/content/m38503/latest/http://cnx.org/content/m34414/1.9/>

³See the file at <http://cnx.org/content/m38503/latest/http://hdl.handle.net/1911/27342>

los órganos internos, como el hígado y los riñones, causando ictericia y hemorragias en el tracto digestivo. Esto, a su vez, causa el tinte amarillo de la piel y los ojos y el vómito de una sustancia negra.

Síntomas de un paciente

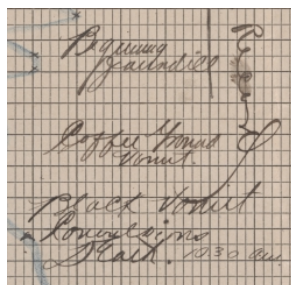


Figure 2.2: Esta hoja médica⁴ traza el progreso de la salud de Vaughan Philpott durante 6 días de tratamiento para vómito negro empezando el 15 de febrero 1906 en Bocas del Toro, Panamá. El paciente fue declarado muerto el sexto día por el Dr. Paul Osterhaut.

Tratamiento y cuarentena

Durante el siglo XIX, era una creencia común que al disparar un cañón se alteraban las partículas de aire, creando grandes cantidades de turbulencia de aire que podrían destruir al agente desconocido que causaba el vómito negro. Junto con este procedimiento, un tratamiento común para el vómito negro era fumigar y quemar sufre en el cuarto del paciente. Después de quemar el sufre, el médico continuaba el tratamiento, usando una lanceta para desangrar el paciente tan rápido que generalmente se desmayaban. Después, al paciente se le daba una dosis alta de calomelanos, un compuesto tóxico que causa un exceso continuo de saliva en el paciente y diarrea incontrolable. Además de los calomelanos tóxicos, se les daba cortezas de cinchona a los pacientes, un agente anti-malaria, que causaba vómito e irritación intensa del estómago. Para reducir este efecto violento, los médicos aplicaban cataplasmas en la piel del área abdominal, que generalmente causaba ampollas (VanItallie 329). Después de este tratamiento violento, la temperatura del paciente regresaba a normal por pocos días durante la remisión y después subía de nuevo durante la tercera fase. Luego, los pacientes empezaban a padecer ictericia y vomitaban una sustancia negra que se parecía a posos de café. También sangraban de la boca, nariz y ojos, a causa de una inflamación del hígado. Después de este nivel de la enfermedad, el paciente casi siempre caía en coma, resultando en la muerte. Los tratamientos violentos fueron reemplazados por procedimientos más moderados hacia los finales del siglo XIX. Remedios nuevos incluían baños de mostaza caliente de los pies, repaso en cama, hielo picado y limonada, gorroneo con agua fresca, y un cuidado moderado (VanItallie 332).

⁴See the file at <<http://cnx.org/content/m38503/latest/http://hdl.handle.net/1911/26577>>

Paciente aislado



Figure 2.3: Esta imagen muestra un doctor con un paciente con vómito negro, la incertidumbre se manifiesta a través de las caras de los espectadores.

Las cuarentenas eran muy comunes en ese tiempo y, junto con mejores sistemas de alcantarillado y desagüe, ayudaron a controlar la enfermedad. Un rumor sencillo de la presencia de la enfermedad resultaba en bloqueos masivos de la ciudad contagiada. Leyes de cuarentena fueron aprobadas que prevenían que barcos llevando gente contagiada o gente de ciudades con brotes desembarcaran en puertos no infectados. El Congreso estadounidense creó el consejo nacional de la salud, *National Board of Health*, en 1879 para establecer un sistema nacional de cuarentena.

Paciente aislado

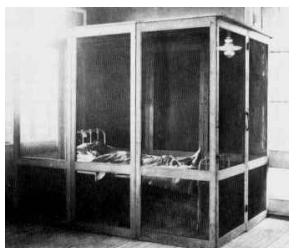


Figure 2.4: Un paciente aislado en un cuarto especial de cuarentena.

Brotes

Ha habido varios brotes grandes de vómito negro en el mundo. Expedientes históricos indican que el vómito negro afectó a Europa después de la caída del Imperio romano. En 1760, un brote en Cuba mató a miles de tropas inglesas y americanas. Al mismo tiempo, el brote más grande de los EEUU ocurrió en Filadelfia y mató a diez por ciento de la población de esta ciudad. Napoleón perdió la mitad de su fuerza armada, compuesta de 40,000 tropas, a causa de la enfermedad en 1802 en Haití. Muchos pioneros estadounidenses tempranos murieron a causa de esta enfermedad. Y los franceses decidieron no construir el canal de Panamá durante el brote de 1904 en el área. El último brote de vómito negro en América del norte ocurrió en Nueva Orleans en 1905, pero la enfermedad sigue matando a aproximadamente 30,000 personas por año en África y América del sur.

La enfermedad fue especialmente prominente en puertos desde los años 1690. Brotes ocurrieron desde Boston a Nueva Orleans y el Golfo de México. Filadelfia, Nueva York, Galveston, y Brownsville eran algunas ciudades que fueron afectadas a causa de los zancudos en el área. Generalmente, la enfermedad destruía entre 5 a 10 por ciento de la población de las ciudades con brotes, pero esta estadística subió a un índice de

mortalidad de 20% durante brotes significantes.

Brote en Veracruz, México

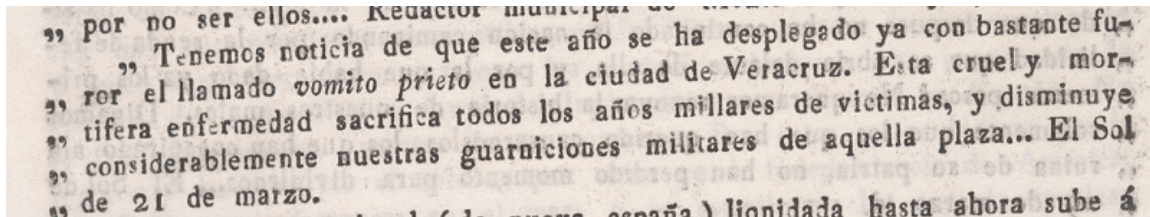


Figure 2.5: Página 66 de la Gaceta del Gobierno Supremo de Guatemala⁵, Num. 9. (Mayo 7. de 1824.) que menciona un brote del vómito en Veracruz

Durante los años 1850, una serie de brotes ocurrió en todas las ciudades a lo largo de la costa, desde Norfolk, Virginia hasta Brownsville, Texas. Nueva Orleans, St. Augustine y Jacksonville eran algunas de las ciudades Norteamericanas que fueron afectadas por los brotes del vómito negro. Durante la epidemia de 1853 en Nueva Orleans, ocurrieron más de 3,000 casos. Duró cuatro meses y resultó en aproximadamente 1800 muertes. Durante esta década, Nueva Orleans perdió casi 20,000 personas por causa de cuatro brotes diferentes. Después de este periodo, los incidentes bajaron hasta la reaparición de un brote final en 1905 en Nueva Orleans. Este era el último brote significativo, que fue controlado con la ayuda de control efectivo de los zancudos. (Duffy 688).

Brotes graves en los EEUU



Figure 2.6: Brotes significantes en los EEUU

Lectura complementaria

Para leer más sobre el vómito negro, haz clic en los enlaces suplementarios a la derecha o visita: ‘Our

⁵See the file at <<http://cnx.org/content/m38503/latest/http://hdl.handle.net/1911/27071>>

Americas' Archive Partnership⁶ (una colaboración digital sobre las Américas) y haz una búsqueda con las diferentes variaciones de **vómito negro** (e.j. vómito, vómito prieto, fiebre amarilla, *yellow fever*). Nombres claves que se pueden buscar incluyen: Kezia Payne DePelchin y Paul Osterhout.

Bibliografía

Duffy, John. "Yellow Fever in the Continental United States during the Nineteenth Century." *Bulletin of the New York Academy of Medicine* (1968) 44.6: 687-701. 11 Mar. 2010.

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⁶See the file at <<http://cnx.org/content/m38503/latest/http://oaap.rice.edu/>>

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