Oroya Fever and Daniel Carrion - A Fatal Quest

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Oroya fever – Bartonellosis or Carrion’s disease is endemic to the Andes Mountains of South America, especially in Peru 500 to 3000 meters above sea level. The organism is transmitted by the bite of sand fly. In acute phase it presents as a febrile illness with myalgias and delirium. In untreated cases death rate is up to 40%. Patients that survive the acute phase, develop a crop of nodular skin lesions-Verruga peruana usually, on face and trunk, 4-6 wks. later.

Verruga peruana was known and described since ancient times. There are pre-Columbian ceramic figures (haucas) of individuals with abundant lesions resembling the condition. However, the relation between Bartonellosis with Verruca peruana was not known for long. The disease gained recognition as a public health problem when the ambitious engineering project in Peru in the 1870 brought a large number of susceptible persons into contact with the sand fly vector. The trans-Andean Railway was built to connect the silver rich mining town of high Andes with the seaport of Callao. Oroya fever struck the railroad workers near the mining town of La Oroya, killing an estimated 4000-7000 people and hence the name.

Daniel A Carrion (1857-85) was a young modest, mestizo (mixed race) student, born in Cerro de Peru. He entered the medical school at the Universidad Mayor the San Marcos. He got interested in Oroya fever and studied Verruga peruana over 3 years. As a 6th year medical student from Peruvian San Fernando medicine faculty, he was determined to find the cause of Oroya fever and ascertain its relation to Verruga-peruana. He decided to inoculate himself with the sample obtained from the patient with verrucous skin lesions and carried it out with the help of fellow physician. Daniel was well aware that he was taking a significant risk. He kept a diary in which he recorded the natural evolution of the disease; he suffered myalgias, arthralgias, fever, severe anaemia and jaundice. When he was too weak to his job classmate assumed the job, writing his observations until he perished from the disease, 21 days after the onset of the illness. After his death Carrion was considered martyr of Peruvian Medicine and contributed to the prestige of Peruvian physicians.

In 1909, another Peruvian physician, Alberto Barton, the son of British immigrant described the organism causing Oroya fever, after observing foreign bodies within the erythrocytes of diseased patients. The organism was named Bartonella bacilliformis in his honor. It remained for Hideo Noguchi from Rockefeller Institute, to grow pure culture of the organism. Charles Townsend, hired by Peruvian government, identified the transmitting vector, initially named phlebotomus verrucatum and later Lutzonia verrucatum.

Account of Oroya fever illustrates two recurring themes in Medical History, one being the self sacrifice of physicians and scientists, to further medical knowledge and second is, that progress in infectious disease often occurs when economic forces puts a new population into contact with the disease. Many breakthroughs in infectious and tropical diseases took place during the acquisitions of colonies, mainly by the European countries.