

Black Pages on the History of Biological Weapons

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Abstract

The actual outbreak of SARSCoV2 is making clear that our world is not prepared for an unknown natural microorganism. So, are we prepared for a biological weapons attack? We review some historic episodes that show the governments are, sometimes, the origin of very difficult outbreaks, in their alleged search for an adequate preparedness. We talk about SARS and ebola, among other diseases.

Keywords: Outbreak; Smallpox; SARS; Biological weapons

Introduction

The actual corona virus outbreak is turning our world upside down. There has been other difficult pandemics through history, but is something special, because we are located right in the middle of it. Let's try to relate it to some thoughts associated with biological weapons, and, above everything, let's try to learn something useful for future generations can live in peace and with better control of any kind of pandemics [1].

The Histories

Throughout history we find several examples that, by breaking the balance of coexistence between microorganisms and humans, leads to serious consequences for the human race. In the year 400 a. C., some archers introduced the tips of their arrows in blood or excrement of bodies in a state of decomposition, before launching them. The plague epidemics in Europe, Asia and North Africa, caused by *Yersinia pestis*, had a great impact on the history of mankind [2]. One of them started in Egypt in 541 BC and ended with approximately 60% of the populations in North Africa, Europe and in Central and South Asia.

There is evidence that points to the presence of epidemics from ancient Greece and Egypt, which found, among other diseases, smallpox, leprosy, tuberculosis and diphtheria. Smallpox, for example, disfigured the face of Ramses V around 1157 BC. C as seen in his mummy. In the year 430 a. C. Athens was extremely powerful and faced Sparta and its Peloponnese allies. In Athens there

were more than 200,000 people, among the normal inhabitants and those who came from the nearby fields fleeing the advance of the Spartans [3]. Thucydides, chronicler of the time, tells us that the city was attacked by a plague that began in Ethiopia and spread through Egypt and Libya, arriving by ship to Greece. Fever, sneezing, runny nose, bloody tongue and throat were the first symptoms, followed by vomiting diarrhea and cough. The points of body irritation became ulcers, so the use of clothing and contact with the sheets became impossible to tolerate. People wandered in search of water to quench their thirst and died in the streets, temples or wells they fell in when they looked for water. Even birds and scavengers fell dead after feeding on infected corpses. Pericles, who was in command of his fleet, died along with more than 1000 of his 4000 soldiers. The worst part lasted two years and ended with the third part of the Athenians. Finally, Athens surrendered in 404 a. C., largely as a result of the disease. The symptoms of this condition do not adjust to any disease that is known in the present; it has been proposed that measles, scarlet fever, smallpox, typhoid fever, influenza aggravated by staphylococcal complications or that it was definitely an already extinct disease could have been treated. The truth is that we are not able to clear the mystery, but it is clear that the presence of infectious and contagious diseases has accompanied man for several centuries. Smallpox had a decisive influence on the history of mankind. It spread during the Arab expansion, during the crusades and had a lot to do with the colonization of America. This condition was unknown in the new

continent until the Europeans brought it; thus, Cortés was defeated in the sad night, but in the following year smallpox disintegrated the Aztecs, killing more than 20% of the population [4]. Something similar happened in the United States: around 1633 in Plymouth, Massachusetts, the disease spread, mainly because colonizers distributed blankets among the indigenous population that had been in contact with people infected with smallpox. It was certainly not the only incident; the most serious of those who records history happened in 1763 when the Delaware Indians besieged Fort Pitt and William Trent presented the representatives of the Indians, in supposed peace talks, two blankets and a handkerchief infected with smallpox, obtained from the hospital from Pittsburgh. This fact is much debated among American historians, but apparently there is correspondence between two high-ranking soldiers, Jeffrey Amherst and Henry Bouquet, who affirm it. Of course, more than 250 years away, it is not possible to corroborate the story [5].

Since the first outbreak of avian influenza, which began in China (although also attributed to Vietnam) in 2003, this condition was identified in more than 26 different countries and has led to the implementation of health campaigns around the world. From that year onwards the number has apparently been reduced, but the disease is still present and threatening, according to data from the World Health Organization (WHO) and its danger lies in the high mortality rate, which is located above of 50%. A table published by the WHO indicates that of a total of 573 cases that have been reported, 336 have been fatal, resulting in 58.6% fatalities, but that varies from country to country [6]. For example, in Indonesia, 184 confirmed cases were submitted, which is a low number, but 152 of those cases have proved fatal, that is, there was an 82.6% death of patients. Fortunately, in 2019 it appears to be under control, but there is always a risk towards a dangerous mutation. Almost simultaneously there was the appearance of another respiratory disease, Severe Acute Respiratory Syndrome (SARS), which initially presented more than 8,000 cases of infection only in 2003 and a chronological description of the same WHO indicates data alarmingly accurate. In the chronology it can be read, for example, that on February 10th, 2003, more than 100 deaths from a strange contagious condition in Guangdong Province were reported to WHO in an email in just one week [7]. The next day the Ministry of Health of China reported an outbreak of acute respiratory syndrome in that same province, with 300 cases of infection but only 5 deaths. The WHO itself considers this disease as the first pandemic of the 21st century. These data pretend to show that our coexistence with pathogenic microorganisms is a problematic one, that evolves to worse when man handles these pathogens to use them as weapons.

The United States Army Medical Institute for Infectious Disease Research (USAMRIID) conducts research work primarily on highly contagious diseases and some of them belong to the category of those against which no defense is publicly known, for

example, Ebola, which has a 95% mortality. Most of this work is carried out in facilities classified as bio-safety level 4, that is, the maximum level of care, with high efficiency air filters, disinfection and decontamination systems both at the entrance and at the exit of the facilities of this level. Among the type of microorganisms that are stored in these facilities are several others, in addition to the aforementioned Ebola (of which they have at least five different variants), the Bolivian hemorrhagic fever virus, Venezuelan equine encephalitis virus, Nipah virus, Hendra virus, Lassa virus. Some of these causes those who become infected with them to bleed through all the holes in the body and, sometimes, even through the skin [8].

The justification about the army's work with the Ebola virus is that it is said that in the extinct Soviet Union it was experimented with an aerosol to spread that virus by air; The known form of infection is through direct contact with the blood or secretions of infected patients, including sweat. So, at least the public statement of the USAMRIID is that they study how to produce a vaccine that helps people in case of an attack against their population using those viruses. One might ask what progress they have made and, if the vaccine is already ready, why they have not made it available to the world population, when, to mention only one case, in 2007 there were 264 cases reported in the Democratic Republic of the Congo and Between December 2008 and February 2009 there were another in the same country. In addition, it is possible to imagine that in order to know how the virus behaves if it spreads by air, they have had to put it in the conditions of a weapon of that kind or, worse, it has been genetically manipulated to increase its infectious capacity when distributed by air and thus be able to take precautionary measures [9]. And as the results of their investigations are not published, they become military secrets. To design the shield, you have to make the sword that you are going to face, but this knowledge is kept out of reach of the scientific community and, of course, of public opinion. We must clarify, however, that the prevailing security conditions at the USAMRIID facilities, in Fort Derrick, Maryland, one hour from Washington DC have allowed that to date no one has been released, either by accident or by intentional action, any of the dangerous viruses that are stored there.

More recent outbreaks involve ebola virus as a big problema, that grows and reduces in size and in countries affected by it, staying mainly in Africa; however, there are some efforts to use it as a weapon. And we cannot evaluate what comes out of the COVID-19 epidemics that is turning our world upside down in this 2020 but remember that Trump accuses China for the creation and spreading of this virus [10].

Conclusion

So, as we can see, there's a series of black pages involving microorganisms and biological weapons episodes, related to

governments supposedly engaged with biological weapons proscriptio. There are many other stories, as why the development of a functional vaccine is taking so much time, but that's another story

Conflict of Interest

There is not any known conflict of interest regarding this contribution.

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