

HEALTH AND DISEASES IN THE IBERIAN PENINSULA DURING THE XIII CENTURY

INTRODUCTION

During the full and late Middle Ages (XI to XIII centuries) diseases were considered a divine punishment for the sins committed, coming to identify the patient with the sinner. On many occasions, sick people, especially those belonging to the lower classes of society, were marginalized and discriminated against. Of course, this segregation was not identical in all areas of Spain, nor did it always reach the same intensity.

In Christian Europe, the Church's ban on autopsies paralyzed the progress of little knowledge of anatomy and medicine. It happened the same in Muslim Al-Andalus. At the end of the XII century dissection began to be practiced, but around 1300 a papal edict prohibited "tearing corpses apart and boiling them". Both the disease and the practice of medicine were closely linked to superstitions and treatments without scientific evidence, using amulets to prevent or combat certain diseases. Astrology, witches and sorcerers were common during this period as well.

The situation of medicine in Al-Andalus, however, was different. Medicine during Al-Andalus was very rich and elaborate. Great advances were made in surgery, disease prevention, ophthalmology or otorhinolaryngology. These advances would influence the development of medicine throughout the European continent. Nevertheless, hygiene measures and knowledge of many infectious diseases were still very poor.

Cataract Operation from a Muslim Medicine Manual. XIV century



The 12th century represents the culmination of Arab medicine in Al Andalus with names such as Maimonides, Averroes and the Sevillian Avenzoar. As of the 13th century, medicine began to decline in Al-Andalus, although there would still be important names. Ibn Al Baytar, born in Malaga and educated in Seville, was a botanist and author of a work that was a reference throughout Europe and the Muslim world for centuries, in which he compiled 14,000 medicinal products of animal, plant and animal origin.

MOST COMMON DISEASES DURING XIII CENTURY IN SEVILLE

1. LEPROSY

Leprosy is a long term infection by the bacteria *Mycobacterium leprae* or *Mycobacterium lepromatosis*. Infection can lead to damage of the nerves, respiratory system, skin, and eyes. This nerve damage may result in a lack of ability to feel pain, which can lead to the loss of parts of a person's extremities from repeated injuries or infection through unnoticed wounds. An infected person may also experience muscle weakness and poor eyesight. Leprosy symptoms may begin within one year, but, for some people, symptoms may take 20 years or more to occur. Leprosy is spread between people, although extensive contact is necessary. In the XIII century it affected 4% of the European population and generated radical segregation, since the patient was separated from the community. Once it was confirmed that the patient suffered from leprosy, a mass for the dead was said to him, since he was considered a living dead. Lepers lost all their civil rights and their property passed to the reception hospital or leprosarium. The severity with which the Church and society treated leprosy patients was not based so much on the fear of contagion as on the belief that leprosy was a divine punishment and that it transformed the infected into evil beings. There was no treatment for this disease. Some patients could spend up to 30 years suffering from the symptoms of the disease, each time more serious, until they died.

2. SAN ANTONIO'S FIRE

Produced by excess and intoxication with ergotine, a substance secreted by the fungus *Claviceps purpurea*, which grows on rye in poor condition, so it mainly affected the lower classes. It usually appears in autumn, after hot and humid summers, which favor the appearance of the fungus. The affected felt as if a fire was burning inside him until he went crazy with pain. It also produced hallucinations and vasoconstriction of the arteries that could cause the appearance of gangrene in the extremities, even causing their loss in the most serious cases. Often used to cause death. The treatment of the disease was provided by the religious order of the Augustinians of San Antón. The remedy consisted of the religious touching and praying with their cane to the sick, who made pilgrimages to the monastery of this order. The stay was accompanied by a change of diet, where they changed rye for wheat. The sick improved in this way but it was due to the change in diet that helped fight the disease and the prayers of the monks. Another remedy consisted of the pilgrimage to Santiago de Compostela.

3. SAINT VITU'S DANCE

It owes its name to the fact that those affected invoked San Vito to rid them of the strange evil. It is a set of nervous diseases, mostly of genetic origin, that attacks certain parts of the central nervous system. The main symptom is the appearance of involuntary, rapid, disorderly movements of great amplitude and without any purpose. It can affect any muscle region (facial, language, extremities, etc.). In Italy it was supposed to be caused by the bite of a tarantula and they tried to cure it with music, which gave rise to a musical composition: the tarantella.

4. TUBERCULOSIS OR TISIS

It is produced by the bacteria *Mycobacterium tuberculosis*. It is one of the oldest known diseases and even today it is still the contagious disease that causes most deaths in the world. It is an epidemic disease that evolves into outbreaks that develop over decades. The symptoms are: extreme thinness, skin redness caused by persistent fever and cough with bloody expectoration. Tuberculosis sooner or later ended up causing death. The high density of medieval cities like Seville in the 13th century, and the poor hygiene conditions of the time were the ideal environment for the spread of the disease.

5. MALARIA

It was called "malaria" (from the Italian mala aria = bad air), because it was thought that the putrid air of the swamps and marshes was the cause of this parasitic disease. It is caused by parasitic protozoa of the genus *Plasmodium*, and is transmitted through the bite of the *Anopheles* mosquito. Malaria cases have been recorded in the Iberian Peninsula as old as 2,500 years ago. In the localities near the marshes and wetlands of the Guadalquivir (provinces of Cádiz, Seville and Huelva), it was a disease with recurrent outbreaks during the Middle Ages until well into the XX century. Even today it is still a widespread disease. In 2020 there were 241 million cases of malaria worldwide resulting in an estimated 627,000 deaths. Approximately 95% of the cases and deaths occurred in Sub-Saharan Africa. The symptoms are intermittent fevers, anemia and nervous manifestations that often end in the death of the patient. During the XIII century, attempts were made to cure malaria with prayers, emetics, bloodletting, tree planting, minerals, and magic.

6. TRACHOMA

Trachoma is an eye infection caused by the bacteria *Chlamydia trachomatis*. In its first phase it is very contagious. Infection spreads through personal contact (via hands, clothes or bedding) and by flies that have been in contact with discharge from the eyes or nose of an infected person. The overcrowding and lack of hygiene in Seville in the 13th century made it a very common disease. It is manifested by photophobia, tearing, local burning sensation and visual disturbances, even producing visual impairment or blindness.

7. ANTHRAX

It is a contagious, acute and serious disease caused by the bacterium *Bacillus anthracis*. It was very widespread among domestic animals such as horses, pigs or sheep. The severity of anthrax in humans varies according to the mode of infection and the speed of treatment. Cutaneous anthrax, the most common manifestation of the disease, has low mortality. In contrast, pulmonary anthrax is fatal in most cases. During the XIII century, man was infected by contact with spores lodged in the wool or skin of infected sheep or horses. The entrance door was the small erosions of the skin. The animals were infected in the stables or in meadows where spores from bacilli eliminated by the urine and feces of contaminated animals abound. It produced great epidemics throughout the Middle Ages. The most common remedies were purges, homemade ointments or medicinal herbs.

8. BLACK DEATH or PLAGUE

Produced by the bacillus *Yersinia pestis*, isolated in 1894 by the microbiologist Yersin. It is transmitted by the black rat flea (*Xenopsylla cheopis*). The flea bites the rat and sucks the blood with the bacteria. It is also spread from man to man by the pulmonary-respiratory route. The pandemic took a third of the European population. And caused the death of King Alfonso XI during the siege of Algeciras. There are two types:

- a) Bubonic, the affected person had buboes in the groin, armpits or neck. They died between 40 to 90% in approximately one week.
- b) Pneumonic, characterized by bluish-black plaques that appeared in the patient's body, symptomatic by fever, shortness of breath, cough and bloody sputum. It took between 90 and 100% of those infected, who died within three days.

It was eradicated from Europe by the arrival of the current gray rat, which exterminated the black rat, carrier of the flea. In the case of the black plague, the marginalization is reversed, that is, the sick person is not expelled, but rather the healthy person exiles himself in the face of the terror of contagion and flees the city in search of clean air. In an attempt to combat it, prayers, masses, processions... Another measure to fight the epidemic was the removal of dead bodies.

The causes of the pandemic, according to contemporaries, were the following:

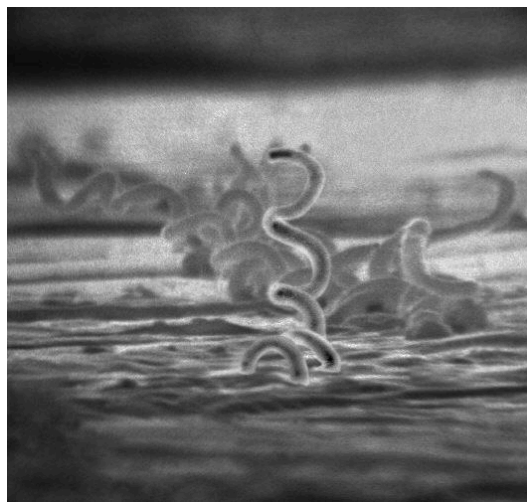
- Adverse conjunction of the stars.

- Divine punishment for the sins of men.
- Seismic movements that shook the earth and through the cracks filthy fumes arose that stank the air.
- The Jews, who poisoned fountains and springs.

9. SYPHILIS

Syphilis was confused with leprosy. Syphilis was thought to have been 'imported' to Europe by sailors returning from the New World (possibly due to an epidemic of the disease between the fifteenth and sixteenth centuries), but paleosteology has shown its existence in mummies. Descendants of Ancient Egypt (the study, in Paris, of the mummy of Ramses II by a commission of Western scientists, showed that this pharaoh of the Eighteenth Dynasty suffered from the disease). The Italians called it "French evil," the French "German evil," the Flemish "Spanish evil," the Russians "Polish evil," and the Turks "Christian evil." Geronimo de Huerta, in the 17th century, described it as "an evil brought from Naples by the soldiers of the Catholic Monarchs." It is possible that the sudden decline of leprosy at the end of the fourteenth century is due to the fact that it is then that the difference between the two diseases is learned. Syphilis was manifested by the appearance of buboes, foul-smelling sores in the nose, mouth, and other parts of the body, with joint and headache pain and hair loss.

Syphilis is a bacterial infection that is usually transmitted through sexual contact. The disease begins as a painless sore, usually on the genitals, rectum, or mouth. Syphilis is spread from person to person through contact with these sores on the skin or mucous membranes. After the initial infection, the syphilis bacteria can lie dormant in the body for decades before becoming active again. Early syphilis can be cured, sometimes with a single injection of penicillin. Without treatment, syphilis can seriously damage the heart, brain, or other organs, and can be life-threatening. Syphilis can also be passed from mother to fetus. It is produced by *Treponema pallidum*.



Treponema pallidum, spirochete bacteria causing syphilis

10. DIPHTHERIA

Diphtheria is an acute, febrile, infectious-contagious disease caused by the bacillus *Corynebacterium diphtheriae*, discovered by Klebs and Loeffler in 1873. It manifests itself by paleness, vomiting, fever, and the appearance of false membranes in the throat that cause suffocation (club) and ends up causing death by suffocation. Pliny describes her as having ulceration in the mouth and foul-smelling sores.

11. TYPHUS

The first description of the disease appears in 1489 in Spain during the Nasrid kingdom of Granada. The presence of fever and red spots on the arms, back and chest, deficit in attention with progress towards the state of delirium, gangrenous sores and the stench of rotten meat are described. During the siege of Granada, the Christians lost 3,000 men in enemy actions, but 17,000 died of typhus. Local people define it as «...a disease of wars, famines, prisoners, prisons, ships and medieval cities...». It is produced by a germ called *Rickettsia*, which is transmitted to humans through louse. The symptoms are fever, dry cough, among others. Can affect all organs of the body

12. SMALLPOX

It is manifested by a febrile catarrhal process, followed by an eruptive phase that ends up being pustular. The first data on it dates back to the year 164 AD, during the mandate of Marcus Aurelius Antoninus, which is why the sources call it the Antonine plague. Arabic texts also quote it frequently. Smallpox is a disease caused by the Variola major virus. Some specialists say that over the centuries it killed more people than all other infectious diseases combined. Worldwide vaccination stopped the spread of smallpox three decades ago. The last case was reported in 1977

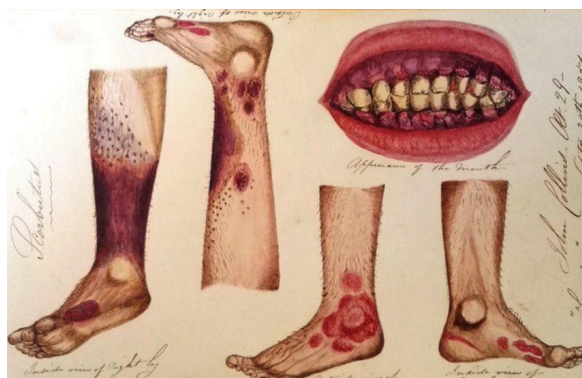
13. EPILEPSY

In the High Middle Ages epilepsy was considered as the evil of great men and it was not frowned upon. It seems that St. Hildegarda of Bingen herself suffered from it. Over time, it was considered that the people affected by this evil were victims of demonic possession, which led to the marginalization of the affected person. His healing was attempted based on exorcisms to expel the demon from the possessed body.

In the High Middle Ages, madness did not imply marginalization: madmen were considered intermediaries between the supernatural world and men, endowed with the power to predict; naive and sincere so they were closer to God, so much so, that until well into the 16th century the first asylums did not appear dated, which indicates that prior to this date the insane were not confined.

14. SCURVY

It is produced by a deficit of vitamin C due to lack of consumption of fresh vegetables and citrus fruits. The symptoms are: nervous depression, yellowish skin, swelling of the gums, hemorrhages, pain in the joints and spots on the skin that are first red, turn purple, green, yellowish-green and finally yellow, due to the alteration of blood pigments.



Scurvy symptoms

READING COMPREHENSION EXERCISES

1. Indicate whether the following sentences are true or false. If they are false, indicate which would be the true sentence.

- I. Many patients were discriminated against or separated from society due to their illness.
- II. The Arab medicine of Al-Andalus during the Middle Ages was much less developed than the medicine of Christian Europe.
- III. Ibn Al Baytar was a very famous doctor who found a cure for most infectious diseases of the time.
- IV. San Antonio's fire was produced by food poisoning due to the ingestion of cereals contaminated with a fungus.
- V. Tuberculosis in Seville was widespread due to the high population density and the poor hygiene conditions of the time.
- VI. Trachoma is an ear infection caused by the bacteria *Chlamydia trachomatis*.
- VII. The black plague was caused by the bite of a mosquito that was transmitted through rats.
- VIII. Epidemic typhus is due to *Rickettsia* spread by body lice.
- IX. Epilepsy is an infectious disease caused by various types of viruses.
- X. Scurvy is a nutritional disease caused by the lack of Vitamin D.


2. Answer the following questions about the text:

- a- What kind of disease treatments without scientific evidence were common during the XIII century?
- b- What kind of illness was believed to be cured by dancing?
- c- What was the mode of contagion of anthrax?
- d- What disease can be transmitted by sexual contact?
- e- What disease has already been eradicated nowadays?

VOCABULARY

1. Write down the following words under the correct pictures.

Disease	Bacterium	Hygiene	Fungus	Sick
Infection	Madness	Malaria	Epidemic	Medicine

2. Complete the sentences with the correct words from the text.

- a) _____ is an eye infection caused by the bacteria *Chlamydia trachomatis*.
- b) It is produced by a deficit of _____ due to lack of consumption of fresh vegetables and _____.
- c) In the High Middle Ages, madness did not imply _____.
- d) Arabic texts also quote it frequently. _____ is a disease caused by the Variola major virus.
- e) During the siege of Granada, the Christians lost 3,000 men in enemy actions, but _____ died of typhus.
- f) _____ is an acute, febrile, infectious-contagious disease caused by the bacillus *Corynebacterium diphtheriae*, discovered by Klebs and Loeffler in _____.
- g) Syphilis is a bacterial infection that is usually transmitted through _____.
- h) _____ caused the death of King Alfonso XI during the siege of _____.
- i) _____ is a contagious, acute and serious disease caused by the _____ *Bacillus anthracis*.
- j) The overcrowding and lack of _____ in Seville in the 13th century made it a very common disease.
- k) In 2020 there were _____ million cases of malaria worldwide resulting in an estimated _____ deaths.
- l) Produced by excess and intoxication with _____, a substance secreted by the fungus _____.
- m) _____ is an epidemic disease that evolves into outbreaks that develop over decades.
- n) An _____ person may also experience muscle weakness and poor _____.