

# » Syphilis: A fresh Persian perspective

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Syphilis is an infamous disease. Its legacy extends across much of our recorded human history. The route of transmission of syphilis has been fiercely debated for many decades. The literature is continuously evolving. In this article we examined the literature and found that there appear to be some inconsistencies in the evidence base for the newer pre-Columbian hypothesis in contrast to the evidence base for the older 'Columbian hypothesis'.

We explored the earlier experiences of physicians in the 15th and 16th centuries who first encountered syphilis in the Old World. Physicians and philosophers, such as Fracastoro, through their literary works gave us a unique perspective of their world view of this disease. Elements of their scientific thinking were admirable and demonstrated great insight into the disease process and its impact upon the lives of humans during this time period.

Our article also provides, to the best of our knowledge, the first modern day translation of two ancient Persian texts that highlight how syphilis was perceived, diagnosed, and managed by early Persian physicians in the late 15th century. The physicians presented their findings for signs and symptoms of syphilis, general management advice for patients, as well as treatment options and prognosis. These texts are, to the best of our knowledge after conducting a literature search and physical search at the National Library of Iran, some of the earliest recorded pieces of work in which physicians suggested that syphilis was a sexually transmitted disease based on clinical observation.

## Introduction

Syphilis has been associated with mankind throughout the ages. Its evolution, development, and transmission has been intertwined with human civilisation for centuries. It is an infamous disease, well known around the world for its pestilence before the advent of penicillin. Venereal, or sexually transmitted, syphilis is a disease that has long been associated with much stigma and shame. It has thus gathered great interest over the centuries in terms of its characteristics, management, and its route of transmission across the globe. This article aims to further explore the origins and transmission of syphilis between the Old and New World. This was completed by performing a literature search

using the Google Scholar and Pubmed databases, with the keywords 'Syphilis OR "Treponema pallidum" AND "history" AND "transmission" OR "route" OR "origin". Google Scholar results were limited to the first ten pages. We also viewed the physical texts on record at the National Library of Iran. This article also aims to translate two ancient Persian texts from the literature search that describe physician accounts of syphilis. In doing so, we provide a fresh perspective from a Persian viewpoint that adds to the tale of this legendary disease.

## Background and origins of syphilis

Venereal syphilis is classified within a class of diseases collectively known as the treponematoses. These are a group of diseases caused by the Treponema bacteria. Venereal syphilis is caused by Treponema pallidum, whilst yaws, bejel and pinta are caused by other bacteria from the Treponema class.<sup>1</sup> While these four forms of treponematoses are solely linked to disease in humans, there is evidence to suggest that the earliest strain of Treponema bacteria arose potentially during 10,000 BC to 15,000 BC.<sup>2</sup> The bacteria then evolved across the millennia until the more commonly recognized venereal syphilis was first documented in the 14th century.<sup>2</sup> From this point in time however, there are competing theories as to how venereal syphilis was spread around the world.

The name syphilis originates from the poem across three books by Girolamo Fracastoro in 1530.<sup>3</sup> Fracastoro tells us that the name syphilis is in reference to a shepherd Syphilus from the New World who abused the Sun God and instead chose to worship his king. He subsequently was the first person thought to be plagued with syphilis. In his works, Fracastoro describes the suspected origins of the disease, its presentation and management, and finally he devotes his third book to a tree discovered in the New World that the natives used to treat syphilis. In Fracastoro's mythology, he believes that the origins of syphilis are spontaneous. In book three he described it as a punishment from Apollo. However, in book one he has described how he believes that syphilis is a part of nature, and that the gods have approved of this fate for humankind where syphilis spontaneously came to be from the very air itself. Interestingly enough, he predicted that syphilis would plague humankind for many years to come and he believed that after they had managed to eradicate it that it would one day return to infect humans

once more.<sup>3</sup> Those in the Old World tried many different remedies such as exercise, certain herbal potions, and finally mercury, which appeared to be effective. Fracastoro describes a mythic tale in which a goddess under the earth in Syria revealed mercury as a cure to humankind.<sup>3</sup> Mercury was indeed used for many years after this as a cure for syphilis, however was replaced by penicillin more recently with the advent of antibiotics.

### The transmission of syphilis around the globe

Fracastoro noted that syphilis was rampant everywhere in the New World. He also wrote that this disease had begun its outbreak in the Old World more recently. Fracastoro did not explicitly attribute this to Columbus and his travels, and furthermore, appears to reject the idea of the disease originating from the New World in book one. Rather, he believed that the 'origins of the evil are firmly fixed in the very air'<sup>3</sup>, which is to say he believed that contaminated air fuelled the spontaneous creation of this disease.

Some researchers believe in the pre-Columbian or similar unitarian hypotheses. These argue that venereal syphilis, and potentially the other treponematoses, were already widespread amongst the Old World and New World prior to Christopher Columbus's travels. Those supporting these theories argue that there is evidence of syphilis and indeed the other treponematoses in the New World almost 50 years before Columbus's journey there, amongst the slave trade within Africa.<sup>4</sup> They also argue evidence that amongst the Old World in Europe, syphilis may have often been misdiagnosed as leprosy.<sup>5</sup> This is an example of one of the limitations that arise when using historical documents and records to draw conclusions about the history and route of transmission of syphilis.

In contrast to this, an older theory that has also amassed a large following is the Columbian hypothesis. This theory argues that syphilis was not initially present in the Old World, and that it was only first introduced there by Christopher Columbus's crew in 1493 upon his return from his voyages.<sup>6</sup> This theory is supported by documents from two Spanish physicians who assessed Columbus and his crew at the time of their return from the New World.<sup>4</sup> They noted that several of the crew had an unknown disease that had not yet been seen in Europe. They also commented that this disease appeared similar to the disease that a few indigenous people from the New World seemed to present with.<sup>4</sup> As a result, there have been multiple attempts to disprove the Columbian hypothesis by demonstrating evidence of treponemal diseases in the Old World before 1493 when Columbus returned from the New World. A review carried out of 54 studies investigating this theory, found that while the evidence base for the pre-Columbian hypothesis is growing, there is much inaccuracy and inconsistency amongst the current evidence base and the studies did not demonstrate any reliable evidence for the presence of treponematoses in the Old World prior to Columbus's travels.<sup>7</sup>

Another factor that complicates the history of syphilis, is that studies often call into question which of the treponematoses were present at any given time. The clinical course of each of the four above-mentioned diseases share many similarities. Venereal syphilis in humans presents at one of four stages. The first stage after contact with disease presents with a genital or extra-genital chancre (9–90 days after contact). This is known as primary disease, and if left untreated can result in secondary disease in the patient, which presents with rash, warts, and other clinical manifestations such as hepatitis (4–10 weeks after primary disease). The disease enters a third, latent stage after 3–12 weeks. After this point it can manifest many decades later with tertiary disease, which has a wide range of complications such as neurological and cardiovascular disease.<sup>8</sup> It is not a stretch to imagine that these similarities can cause difficulties when attempting to identify which disease was actually implicated during the analysis of archaeological records. A study by A. Crosby made the argument that the different treponematoses were likely to have evolved separately within the contexts of their unique climates

around the world.<sup>9</sup> They argue that venereal syphilis would likely have evolved from its ancestor within the unique climate of the Americas and then have been transmitted to Europe via Columbus and his crew in 1493. Further supporting this argument is a more recent study in 2005 by B. Rothschild.<sup>10</sup> This study analysed evidence in the literature for the distribution of the treponematoses based upon the distinctive bone changes that each disease makes to the bone structure. The study concluded that these distinctive changes in venereal syphilis were not found in the Old World prior to Columbus's return.<sup>10</sup> It also concludes that there is evidence of treponemal diseases from 1493 onwards in the old Dominican Republic where Columbus landed, which suggests the potential primary site for the spread of syphilis throughout Europe.<sup>10</sup>

### A Persian perspective

Girolamo Fracastoro made significant contributions to both medicine and literature with his tales of syphilis. His perspective on syphilis, in our opinion, was revolutionary for his time. He displayed elements of the scientific curiosity and rigor that we expect from our modern day researchers. He mentioned that syphilis would once again rise to plague our civilisations, and as we know today it continues to be a sexually transmitted disease that has serious implications for individuals and new born infants who are left untreated.<sup>10</sup> It appears as though humans are doomed to forever bear the burden of disease, regardless of whether they are ancient cities brought down by syphilis or modern countries fighting to suppress human immunodeficiency virus (HIV).

Fracastoro focused on the impact of syphilis in his own country however, he did also make reference to other countries that were affected by other diseases. For example he makes reference to the 'Black Death', which '... attacked the people of Assyria and Persia...'.<sup>3</sup> Persia (currently known as Iran) was well known for its ancient scholars of philosophy, mathematics, and medicine, such as Ibn Sina (Avicenna) and Al-Razi (Rhazes). As the Persians were devoted to a thorough study of the field of medicine and philosophy, we wanted to further explore their perspective of syphilis. Through reading their ancient literature this allowed us to better understand how syphilis impacted their people. This affords us a new perspective into how syphilis was entwined with life in Persia.

### Persian translations

We have examined two pieces of Persian literature, which were obtained from the National Library of Iran. These ancient pieces of medical literature were some of the earliest Persian records first describing syphilis and they have given us great insight into how syphilis was understood by earlier physicians and scholars. One of our authors visited the National Library of Iran and reviewed the ancient Persian texts on record, which had not previously been viewed or loaned. As we have a particular research interest in syphilis both in the current age and its past history, our review of the literature yielded these two texts. They were initially translated from the old Persian language to modern Persian, and then finally to English. We translated these texts in conjunction with the Department of History at the University of Isfahan. It should be noted that these two texts have been discussed previously by P. Huard in *Histoire de la médecine* in 1956.<sup>15</sup>

The first text (Figure 1) was published in 1502 by Baha-Alduleh Razi and was within his book *Kholasat-al-Tajarob*.<sup>13</sup> This book sought to discuss many principles of medicine, with one page devoted to syphilis. Razi initially described syphilis as a type of 'European smallpox', which he observed in the Khorasan province.<sup>13</sup> Razi described a range of patient presentations of this disease. He mentioned that the initial lesion often manifested itself as small black dots or 'seeds', which would increase in size. The lesions would be present on all parts of the body, including the head. He would often see these lesions more prominently on the head, accompanied by a few lesions in other places such as the lower limbs. In some cases the lesions would present as multiple sores which could then coalesce. While some of these lesions did not express fluid, some

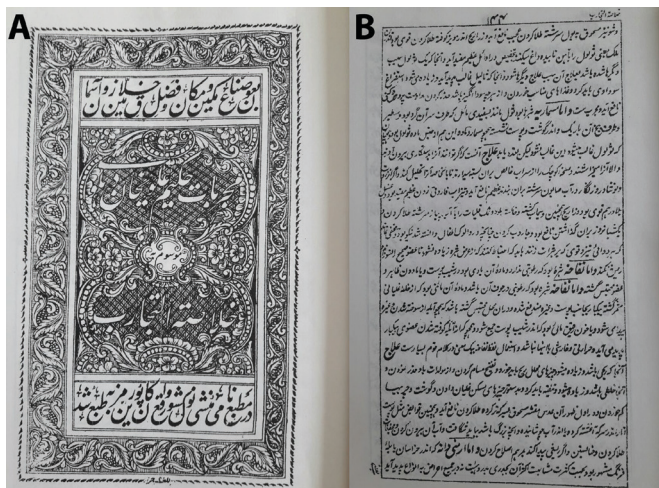


Figure 1 The title page from *Kholasat al-Tajrobeh* in 1502 (A) and a page from this text, which documents Razi's observations of syphilis (B). Graciously obtained with permission from the National Library of Iran.

became vesicular, which he described as 'juicy'.<sup>13</sup> Furthermore, a few cases also presented with pain or itching, some with one or both of these symptoms. The 'juicy' lesions would often progress to become inflamed and painful. He mentions that the lesion would sometimes progress to flaking skin or a patch of skin that he likened to alopecia. Razi found that even if the patient merely presented with a few dotted lesions, these could nevertheless be accompanied by intense itching, fever, and joint pain. He found that fewer lesions correlated with more joint pain. This joint pain was at times so severe that Razi describes patients committing suicide as a result, and one female patient who was unable to walk. He noted that some cases presented with inflammation of the eyelids accompanying the joint inflammation. Razi did observe that some patients who had these lesions did not experience any pain at all. Fracastoro also described in book one the symptoms and signs of this disease from the case history of a young man, which he personally observed. These were different to the observations made by Razi. Fracastoro described a likely advanced case of syphilis, which manifested as sores over the young man's body that expressed fluid, and eventually led to his disfigurement and death.

Interestingly, Razi noted that based on the patient histories he had taken, it appeared as though this disease was not transmitted in a 'casual relationship'. He instead noted the observation that it appeared to be transmitted via sexual relationships or the sharing of personal or bathroom materials, which often belonged to those who were engaged in more than a 'casual relationship'.<sup>14</sup> This, unlike Fracastoro's poem on syphilis, is one of the first clearly documented cases of the venereal nature of this disease. Razi's observations are further reinforced by the findings of another Persian scholar, which are discussed below.

The second Persian text which we have considered was written by a doctor named Imad al-Din Mahmud Ibn Mas'ud Shirazi in 1560 (Figure 2). The text is called *Atashak*, the name of which is a description for a small flame. A small flame when viewed from above is what the author described as the appearance of the lesions upon manifestation of the disease.<sup>14</sup> In this text he discusses in detail the symptoms, route of transmission, prevention, and finally the management of this disease, including his beliefs about the effectiveness of the 'China Root'.<sup>14</sup> In this text, he references the previous text written by Baha-Alduleh Razi to give weight and provide evidence to support to his own findings. His reports of the symptoms of this disease are similar to that of the previous author. He also emphasised that to his knowledge, no one had described this disease in Persia prior to its outbreak and that he believes it is a 'souvenir from the West'.<sup>14</sup>

Imad al-Din Mahmud Ibn Mas'ud Shirazi describes multiple patient histories where sexual relationships or frequenting public bath houses

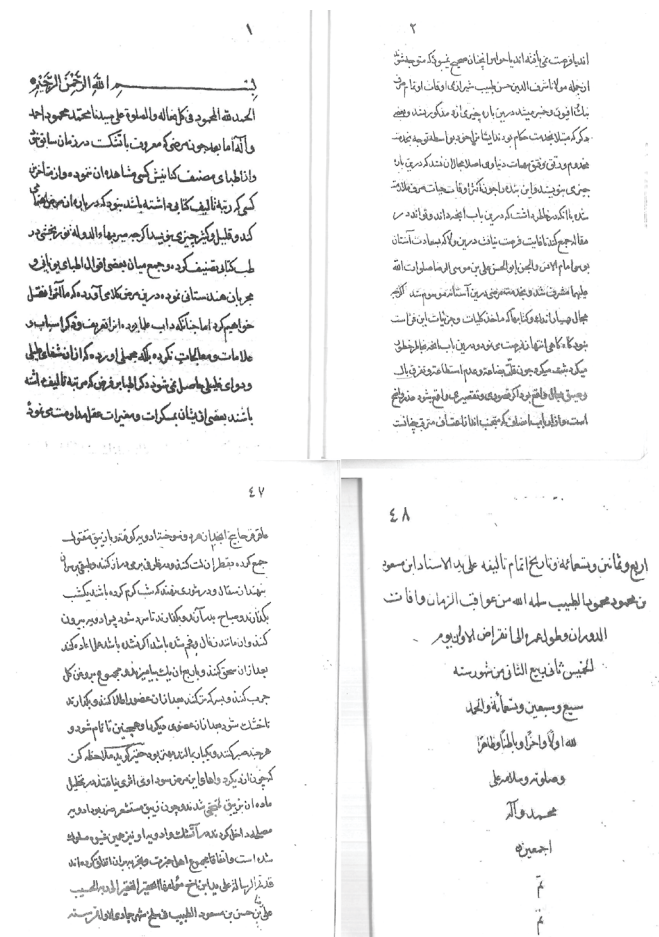


Figure 2 Pages from *Atashak*, which detail Shirazi's observations of syphilis in 1560. This figure includes the title page one (top left), page two (top right), page 47 (bottom left) and the final page 48 (bottom right). Graciously obtained with permission from the National Library of Iran.

were common observations. He described one particular case where the disease was spread via a blade used for shaving hair. He further emphasised that the disease could not be passed down to offspring. He did observe that offspring developed the disease when their parents were also infected, however he believed that this was due to contact rather than inheritance. He made recommendations that a diseased person's pants or shirts should not be worn by others.

## Discussion

The ancient Persian texts by Razi and Shirazi contrast when compared to the literary works of Fracastoro and even our modern day literature and understanding of syphilis. The modern day literature demonstrates conflicting viewpoints as to the origin and route of the transmission of syphilis. It appears that there are inconsistencies in the literature supporting the pre-Columbian hypothesis. The older theory that syphilis was initially transmitted from the New World appears to currently have a stronger and more consistent evidence base supporting it. Interestingly, this theory is also supported by the observations made by Fracastoro, Razi, and Shirazi. They have all documented in their ancient texts that prior to the outbreak of this disease, the likes of it had not been seen before in their country. A major limitation to concluding that the Columbian hypothesis is true however, is that many of the historical texts used as evidence can be riddled with inaccuracies or ambiguities. As alluded to previously, for example, it was suggested that syphilis may have been misdiagnosed as leprosy in the Old world. It is uncertainties such as this that make ancient literature more difficult to interpret. To clarify this uncertainty, further research that continues to analyse the genome and evolutionary history of syphilis as well as research further documenting

the archaeological changes as a consequence of this disease would be helpful.

As a result of our literature search, we would like to suggest that to the best of our knowledge, the ancient Persian texts written by Razi and Shirazi do indeed document some of the earliest evidence of the venereal nature of syphilis. Their accounts of syphilis describe case studies of multiple patients and this increases the reliability and validity of their texts. A limitation of this is that their accounts of syphilis appear to be describing syphilis at multiple stages of presentation (e.g. some patients presented with genital lesions whilst others presented with complications of secondary disease). This, in addition to a lack of a specified time period for the development of these symptoms, meant that confirming the identity of all of these cases as syphilis became more difficult. Fracastoro in particular appeared to focus his descriptions of syphilis on those patients with secondary or tertiary disease who experienced greater complications as a result of their infection. Thus his works contrast slightly with the observations made by Razi and Shirazi. It should be noted that Fracastoro later wrote, in 1546, a more scientific and detailed piece of work which discussed a range of contagious diseases including syphilis.<sup>16</sup>

History is an important facet of the literature that we as health professionals and medical scientists can draw upon to better understand the modern challenges that face us. In New Zealand alone, a report by the Institute of Environmental Science and Research demonstrated that the incidence of syphilis is once again increasing dramatically.<sup>12</sup> We believe it is important to take time to appreciate history and learn from the lessons provided to us by ancient scholars such as Fracastoro, Razi and Shirazi. Syphilis is a sexually transmitted disease that can have serious consequences for individuals and infants if left untreated. As Fracastoro prophesied, syphilis appears as though it is destined to be entwined, for many years to come, with the history of humanity.

## Conclusion

Syphilis is an infamous disease with a legendary history to follow. To our knowledge, this has been the first translation and publication of these Persian texts in modern day literature. This allows us to gain a fresh perspective on how syphilis impacted those in Persia and the way in which it was observed by early Persian physicians. The Persian descriptions displayed scientific rigor that made an attempt to be evidence based upon patient histories and clinical observations. These papers, to the best of our knowledge, were also some of the earliest papers to describe the venereal nature of syphilis. We hope that these texts will help to further illuminate the history of syphilis and add to the growing evidence base regarding the Old World versus New World hypotheses on the origin and route of transmission of syphilis. This article also serves as a timely reminder to look to history in order to better understand the modern day challenges we face, such as the increasing incidence of syphilis in New Zealand.

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