

# A Study of Leprosy “Aḥādīth” in Light of Medical Knowledge

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## Abstract

*Leprosy was one of the most dreaded diseases of mankind. The subject of leprosy has been addressed in more than one saying “Hadīth” of the Prophet Muḥammad (PBUH). A brief review of the medical knowledge about leprosy is first given. Then the explanation of these “Aḥādīth” in the light of this knowledge is presented.*

**Key words:** *Leprosy, Aḥādīth, infectivity, control*

Leprosy was one of the most dreaded diseases of mankind, as it caused deformities and mutilation due to loss of sensation and paralysis. Lepers or persons thought to be lepers were treated harshly and even brutally. They were often declared “unclean” and hence driven away from their community to live in complete isolation. When they died, they were often burnt with all their belongings to avoid spread of infection.

In Leviticus (Old Testament), Chapter 13, there is a full description of how the priest would detect “dreaded skin lesions”, and hence declare the affected person “unclean”.<sup>1</sup> Certainly many persons were victimized and many others misdiagnosed as lepers and thus confronted with abomination.

The priest could revoke his decision and declare the affected person “purified”. The process would involve rituals of killing a bird, sprinkling its blood seven times on the affected person, shaving all his hair including eyebrows and forwarding two rams, one sheep, flour and olive oil to the priest.<sup>2</sup>

Leprosy was rampant in medieval Europe. At the beginning of the 13th century there were 19,000 leprosariums with 2,000 in France alone. Later in the 14th century there were 40 hospitals and 40 leper houses in Paris.<sup>3</sup> In England, from the 12th to the 15th century, more than 720 hospitals were established, 217 of which were for lepers.<sup>3</sup>

In Islam, the lepers were treated in a humane way. Prophet Muḥammad (PBUH) advised Muslims to avoid the cause of contagion and at the same time instructed them that the disease is caused only by the will of God “Allāh”.

The different “Aḥādīth” (sayings of the Prophet) related to leprosy will be discussed after giving a brief review of the scientific facts of this subject.

Leprosy is a chronic granulomatous disease of man caused by *Mycobacterium leprae*, which was first described by Hansen in 1874. The causative organism, though found in armadillos and some wild monkeys of U.S.A. and Latin America, affects man only.<sup>4</sup>

Leprosy is a chronic disease with a prolonged in-

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cubation period of up to 30 years; the average being 3-5 years. Its clinical manifestations are varied depending on the immune response of the host and not on the virulence of the infecting agent. At one end of the spectrum there is tuberculoid leprosy in which the clinical manifestations are localized to a single area of skin and its nerve supply and where there is a paucity of microorganisms in the affected lesions. At the other end of the spectrum there is lepromatous leprosy where the lesion is extensive, involving many viscera besides the skin and where the cell mediated immune response is negligible. Between the two ends there are various grades and shades known as borderline cases, which may be upgraded or downgraded to one side or the other, depending on the immunity of the patient and the role of drugs taken to combat the disease.<sup>4-7</sup>

### Epidemiology

Leprosy is a disease found predominantly in tropical and subtropical zones, i.e., tropical Africa, Asia (mainly India), and Latin America. Nevertheless, sporadic cases are found in U.S.S.R., U.S.A. (2,000 cases), China, UK (400), and many European countries.

The World Health Organization (WHO) estimated the number of leprosy cases to be 11 million,<sup>4</sup> but many reports raise the number to 20 million.<sup>5-7</sup> In endemic areas the prevalence rate reaches 25 to 55 per 1,000. Lepromatous leprosy constitutes 25 to 65% of cases in Asia and the Americas, while its incidence is much less in Africa, i.e., 6-20%.<sup>4</sup>

Prolonged close contact is needed for infection to occur and even then only a minority of those infected will ever show any manifestation of the disease. In endemic areas, as much as 70-75% of the population would have acquired the infection, overcame it and became immune.<sup>4-6</sup>

Although the infectivity of leprosy (especially the lepromatous type) is high, the pathogenicity is low.<sup>4-6</sup>

### Transmission

The mode of transmission is not known for certain. It is believed that transmission occurs through nasal discharge or from ulcerated skin lesions. The intact skin contains no or very few organisms, especially in cases of tuberculoid leprosy. The sneeze of a patient suffering from lepromatous leprosy may contain  $2 \times 10^8$  lepra bacilli. The milk of infected mothers also contains a large number of lepra bacilli. It may also be possible that *M. leprae* crosses the placental barrier and infect the fetus of an infected mother. Infection can be transmitted through the insects in laboratories, but there is little evidence that it occurs in nature.

Patients with active leprosy may harbor  $10^{13}$  bacilli in body tissues and have a bacteremia of  $10^5$ /ml without signs or symptoms of septicemia; thus, they

may remain active and apparently healthy.<sup>8</sup>

### Clinical manifestations

The first clinical manifestation is usually the indeterminate stage which appears in the skin as a small localized lesion, which may resolve spontaneously or may proceed to tuberculoid or lepromatous leprosy depending on the immune response of the host.

In tuberculoid leprosy, there is one or very few skin lesions, usually circular, well defined, and 20-50 mm in diameter. The lesion is dry, hairless and hypopigmented in dark skins; red or coppery in light skins. It is anaesthetic to touch and pin prick; the patient usually complains of numbness in the affected area. Peripheral nerves are thickened, e.g. great auricular, lateral popliteal, ulnar and tibial nerves. Lepromin test is positive and biopsy from the lesion shows non-caseating tuberculoid granuloma with no *M. leprae*.

Lepromatous leprosy presents as widespread symmetrical macular, hypopigmented or erythematous rash affecting the face, extensor surfaces of the limbs and upper trunk. The face became thickened and nodular, the eyebrows lost, giving the shape of a lion (leonine facies). The nerves are affected and the nasal discharge is teeming with *M. leprae*. Many viscera may be affected.

The main characteristics of these two types of leprosy are:

#### Tuberculoid leprosy

1. Paucity of *M. leprae* in the skin and nasal discharge and hence low infectivity.
2. Positive lepromin test.
3. Strong cell mediated immune response leading to destruction of nerves, loss of sensation and subsequent mutilation of fingers and toes.
4. Viscera are not affected.
5. The patient may recover spontaneously without any treatment.

#### Lepromatous Leprosy

1. Low cell mediated immunity and hence widespread infection of skin, nerves, bones, lymph nodes, and viscera, e.g., kidney and testes, iris and cornea.
2. Negative lepromin test.
3. The nasal discharge teeming with *M. leprae*:  $2 \times 10^8$ /ml.
4. Erythema nodosum leprosum is a serious humoral immunological reaction which damages the skin, the iris (ending in blindness), testes (ending in sterility).
5. The disease usually progresses relentlessly unless checked by treatment. Spontaneous cure is very rare.
6. It is highly infectious.

Pregnancy does not increase the complications of

leprosy. The early reports suggesting an increased rate of abortion and twinning in patients with leprosy have not been substantiated in women receiving chemotherapy for leprosy. However, intrauterine fetal growth retardation is commonly noted, especially in cases suffering from lepromatous leprosy who also showed subnormal estrogen levels. The placenta of treated cases rarely showed lepra bacilli.<sup>8</sup>

Breast milk of untreated patients contain lepra bacilli and may infect the breastfed baby. However, after 1-2 months of treatment patients no longer excrete *M. leprae* in their milk and breast feeding can continue. Stopping breast feeding in tropical and subtropical zones is associated with increased infant mortality from gastroenteritis. The best advice is to treat the mother and continue breast feeding.<sup>8</sup>

### The "Aḥādīth" dealing with leprosy

The following Aḥādīth relate to the subject of leprosy and how to deal with it.

1. 'Abū Hurayrah, a companion of the Prophet (PBUH), narrated that the Prophet said, "There is no " 'Adwā" (contagion) except by the will of Allāh, no "Tīrah" (augury), no "Safar", and no "Ḥamāh" (the spirit of the dead which hovers around claiming for vengeance). Run away from a leper as you run away from a lion."<sup>9</sup>
2. 'Amr ibn al-Sharīd narrated that the Prophet (PBUH) sent to a leper who came with the Thaḥīf tribe delegation and told him that he had accepted his allegiance.<sup>10</sup> Usually allegiance is confirmed by hand shaking with the Prophet himself.
3. Jābir narrated that the Prophet (PBUH) ate with a leper in the same large bowl and said "Eat. We have confidence and trust in Allāh."<sup>11</sup>

Ibn al-Qayyim commented on these three apparently contradicting Aḥādīth in his book "The Key to the House of Happiness"<sup>12</sup>:

"Regarding the issue of leprosy, there is no doubt that the Prophet said "Escape from the leper as you escape from a lion" and sent to the leper of Thaḥīf delegation, informing him that he had accepted his allegiance without shaking hands with him. The Prophet also ate with a leper in the same bowl."

"There is no contradiction between these Aḥādīth. Contact with a leper is only one reason for being infected, but this reason is opposed by other reasons which by necessity prevent it. The strongest of these is confidence and trust in Allāh."<sup>12</sup>

If we apply the medical knowledge available to study the Aḥādīth, we can arrive at the following conclusions:

1. Lepromatous leprosy (with leonine facies) is

highly infectious while tuberculoid leprosy is rarely infectious.

2. Only 2-5 percent of those who get infected will ever get the disease. The majority will become immune.
3. The type of leprosy which would affect the person depends solely on his immune response and immune system and not on the virulence of the infecting agent.
4. A leper may carry a huge number of lepra bacilli in his tissues ( $10^{13}$ ) and each milliliter of blood may contain  $10^5$  *M. leprae* with no signs or symptoms of septicemia. The patient may be active and apparently healthy.<sup>8</sup>

The first Ḥadīth indicates that the occurrence of the disease does not depend on the infecting agent ('Adwā). It depends on the immunity of the host and other factors, which are all controlled by Allāh. The presence of the infecting agent in the body of the host is not proof of the occurrence of disease. The agent may be dormant or the body defence mechanisms may overcome it, or it may live in symbiosis with the host without causing any harm.

The Jāhiliyyah people (pre-Islamic era), ignored the innate forces within our bodies which would negate the effect of most infectious agents. The will of Allāh is capable of making our immune response to infection strong or weak, useful or deleterious.<sup>13</sup> The occurrence of disease is not even related to the strength of the immune system. On many occasions, the disease may be the result of an overactive immune response and not due to the infecting agent.

In the second Ḥadīth, the Prophet (PBUH) did not want to shake hands with a leper who may have been suffering from lepromatous leprosy, which is highly infectious, and is instructing Muslims to avoid such source of infection. The Prophet said "Escape from a leper like you escape from a lion". The relation between mentioning the lion and lepromatous leprosy with its characteristic leonine facies is very intriguing. While the description may not have been comprehensible during those old ages; it is now known to be quite fitting. In the same Ḥadīth the Prophet did not want to embarrass the leper by refusing to shake hands with him. The Prophet sent a messenger to tell him that he had already accepted his allegiance without the customary rite of shaking hands. This contrasts vividly with the way lepers were generally treated. The lepers were brutally treated in pre-Islamic times (Leviticus of the Old Testament) and even in post-Islamic times in medieval Europe.

In the third Ḥadīth, the Prophet (PBUH) ate with the leper in the same bowl. That patient might have been suffering from tuberculoid leprosy which is almost non-infectious. "The Prophet ate with a leper in the same bowl in order to teach Muslims to have faith and trust in Allāh who controls the causes of harm and benefit. Allāh alone inflicts harm and

grants benefit.”<sup>12</sup>

Ibn al-Qayyim commented further on this Ḥadīth “contact with a leper is only one reason for infection, but this reason is opposed by other probably more effective reasons which can prevent it. The strongest of these other reasons is confidence and trust in Allāh”.<sup>12</sup>

Since not every individual in the “Ummah” can afford this and have the strong faith, the Prophet advised Muslims to avoid the causes of disease and contagion as in the second Ḥadīth.

Thus all three Aḥādīth tally with scientific data and indicate that contact with a patient does not in itself cause disease. Even the entrance of microorganisms into the body does not necessarily mean disease. The immune response of the host, virulence of the infecting agent and many other occult reasons play a role in the process of infection and occurrence of disease. At the same time it is wise to avoid the sources of infection when the risk is high. Thus these Aḥādīth are now better understood in light of modern scientific knowledge.

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