

Institutional Trials of Leprosy Medicines in Nineteenth Century British India: An Analysis of Treatment with Chaulmoogra and Gurjon Oils

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This article is an analysis of two reports of indigenous treatment of leprosy used by British medical practitioners to reduce public healthcare expenditure and curtail the spread of leprosy in colonial India. These reports are based on the trials of Chaulmoogra oil and Gurjon oil conducted at Jamsetji Jijibhoy (J.J.) Hospital, Bombay, and Port Blair respectively. The article tries to contextualise the results of the reports with the country's history, social structure, culture and prevalent indigenous medical systems to show how leprosy patients were perceived and responded to the disease. On the one hand, the British initiatives provided relief to the leprosy affected people and on the other hand, they introduced rigorous segregation policies by constituting sanitary and leprosy commissions and implemented laws to protect the British and the public from the disease. The article reveals that the treatment of leprosy using the indigenous medications yielded positive results in a substantial number of patients.

Keywords: Treatment of Leprosy, India, Western Medicine, Indigenous Treatment, Public Healthcare, Skin Disease, Historical Aspects

Introduction

Leprosy is a systemic disease that mainly affects the skin and the nerves which may lead to permanent disabilities and ensues stigma. *Mycobacterium leprae*, the causative organism of leprosy, is not cultivable in any artificial media. The disease is curable when treated optimally and early without causing any disability to the host. Due to late diagnosis and inappropriate treatment, "affected persons do develop disabilities and consequently, face stigmatization and discrimination." (WHO 2023). While all efforts have been made to eradicate leprosy through effective multi-drug treatment and appropriate strategies, social well-being and assimilation of leprosy affected people with

others remain an important goal of authorities and medical community (Ahmad & Katoch 2021). At present, the efforts of healthcare providers are focused on appropriate use of currently available drugs/tools for medical/surgical management of the disease and to search for more effective agents to improve treatment. Nevertheless, it is important for medical historians as well as future researchers to be acquainted with the historical developments in the field of leprosy management.

The management of any health problem depends upon the type of government and the empowerment of society through education, governance, economy and general infrastructure development. Various publications, such as

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Chang & Rocke (2021), David (1993), Harrison (1994), Hume (1986), Medical Act 1858 (National archives of United Kingdom) and Pandya (2019) have extensively addressed these issues in the context of colonial India. However, leprosy is quite different from other diseases because of stigma attached to it. To prevent the spreading of leprosy to the Britishers, the disease witnessed unprecedented research, varied treatments and accumulation of data during the colonial period as evident in several reports/articles (Buckingham 2002, Cook 1874, Dougall 1874, Harrison 1994, Hume 1986, National Library of Scotland, Raman et al 2012 & 2013, Oldrieve 1924). Dr H V Carter (1831-1897) immensely contributed to sensitize the British administration towards the disease and also prepared a report on leprosy sufferers in the second half of the nineteenth century (Carter 1877) in which he wrote, "the disease affects all classes of the community, varying in proportions roughly estimated at 1 leper in 400 of population (Kolis and Mahrathas), to 1 in 2000 (Parsees); affects both sexes, but more predominant in males with a ratio of 438 males to 1 females; it affects all ages, but more often between 20 and 40 years in men, or somewhat earlier in women; it does not greatly shorten life. It spares no rank and is not regulated in frequency by affluence or penury, and, in short, it appears to prevail independently of such influences as social status, habit, customs, or diet" (Carter 1878).

In the early decades of the twentieth century, similar kind of observations were made by Frank Oldrieve, Secretary, the British Empire Leprosy Relief Association, who explained, "the disease did not discriminate on the basis of gender, nationality, race, class, caste and age" (Oldrieve 1924). He further wrote that according to the Census of 1921, "the total number (of leprosy affected people), in the Indian Empire, was 102,513, but most of those who work among them consider that this number does not at all represent the actual number of leprosy cases in

the country. Probably the number ought to be put down to 250,000 at least" (Oldrieve 1924). The disease had socio-cultural and socio-economic impacts on the patients along with a burden of medical expenses that was very high for the marginal sections of society. The British Indian government considered the disease a threat to its administration, especially to its civil servants and military officers, which could jeopardize their rule. Moreover, the administration recognized its financial repercussions on the country's public health expenditure and therefore endorsed the efforts of medical practitioners to seek indigenous cures.

Materials and Scope of Research

The article is an attempt to analyse the prevalence, perception, treatment and medical approach of the Britishers towards leprosy in India during the eighteenth and nineteenth centuries. It deals with two important studies of leprosy treatment published in the last quarter of the nineteenth century (Cook 1874, Dougall 1874). The first report (Cook 1874) focuses on the effect of Chaulmoogra and Cashew Nut oils on leprosy treatment conducted at J.J. Hospital (Bombay), while the second report deals with the effectiveness of Gurjon oil (Dougall 1874). The report on Gurjon oil is based on the observations of treatment of leprosy affected people in Port Blair. However, these reports are not just the only trials of indigenous medicines on leprosy, but also other treatment modalities were underway across the country. This article also provides brief information, relevant references, and progress related to leprosy in the eighteenth and nineteenth centuries along with the opinions of medical experts who worked closely with leprosy patients and furnished their observations in the form of reports to the British Indian government to restrict the disease from spreading (Blake 2004, Buckingham 2002, Carter 1872, Oldrieve 1924) and to exchange their research outcomes.

This article focuses specifically on leprosy medical institutions in Madras and Bombay during British colonial rule. It explores the debate among medical practitioners regarding the contagious nature of leprosy, with a particular emphasis on studies conducted at the Jamsetji Jijibhoy Hospital. These studies investigated the use of Chaulmoogra and Cashew Nut oil as external applications for treating leprosy. Additionally, the article highlights research into the use of Gurjon oil for treating leprosy in Port Blair.

Historical background: Revisiting the leprosy medical institutions in Madras and Bombay during the British rule

The first leprosy hospital Palliport Lazaretto was set up by the Portuguese in Cochin in 1587. It is also documented that the Dutch restored the hospital in 1728 and provided medical care to leprosy patients (Buckingham 2002). The East India Company took over its administration in 1795. As the dominance of Britain expanded across India in the last decade of the eighteenth century, the administration of British presidencies set up a system of providing healthcare facilities and medicines for common illnesses through dispensaries which provided treatments homogenously to leprosy patients with other people (Blake 2004). The Madras Native Infirmary (MNI) played a crucial role in the segregation of leprosy patients from other patients. It also worked towards the standardization of leprosy treatment. The Madras Medical Infirmary was established by Dr John Underwood in 1799 which later became famous as Monegar Choultry (Home for Destitute and Disabled Persons). The idea behind the establishment of an infirmary was to provide relief to the countrymen like what workhouses used to do in England and Scotland. In the context of Bombay, the medical systems were functioning in parallel to the systems prevalent in other British presidencies, but its healthcare facilities developed gradually owing

to several factors including its emergence as an industrial city where traders and merchants created employment opportunities for people migrating from nearby regions. Consequently, science, technology and healthcare developed much more rapidly in colonial Bombay (Blake 2004) than in other British presidencies (Annual Report of Civil Dispensaries 1874, Raman et al 2012). The administrative initiatives to provide relief to the people were promptly taken up in Bombay. The authorities opened asylums also known as Humane Hospitals in 1803 for the famine sufferers. In the early decades of the nineteenth century, it was planned to open a medical school for natives against the backdrop of a low number of trained medical practitioners. The British Bombay Government started a Medical School in 1826, but it was shut down in 1832 because none of the 70 pupils were found qualified to be employed as medical practitioners and teachers (Pandya 2019). In 1835, Sir Robert Grant, the Governor of Bombay, planned to make systematic efforts to set up a scientific institution to impart healthcare and medical training in the presidency. As a result, the foundation of Grant Medical College was laid in 1843, and it began operations in 1845 with the first batch of eight Indian students. In view of the Bombay Government's initiative to promote medical education among Indians, Sir Jamsetji Jijibhoy decided to establish a hospital for which he donated one lakh rupees. The vision was to attach a hospital with the Medical College as the learning of clinical medicine was not possible only in classrooms. Students enrolled in the Grant Medical College had their theoretical learning of medicine in classrooms and practical exposure in the hospital. It symbolised the gradual dissemination of western medical facilities in Indians. Nevertheless, the Bombay Government faced a tough challenge to build confidence and attract people for treatment. As J. J. Hospital was in Bombay and catered to patients suffering

from different kinds of ailments, it became a centre for medicine trials in the second half of the nineteenth century. Both the College and the Hospital played pivotal roles in the collection of data and information and conducting trials and research on leprosy.

Debate on Contagious Nature of Leprosy among Medical Practitioners

In 1811, Dr James Dalton, a surgeon working at the Native Asylum in the Madras Presidency, described the disease as roughness of the skin, numbness in limbs, hoarseness of voice, lumps of different colours on the face, and loss of sensation in fingers and toes. Dr Francis Day (1829-1889, a civil surgeon at Pallipport Lazaretto) and Dr J. Shaw (Principal Inspector General, Madras Medical Department) worked extensively on leprosy in India. They attempted to explicate how leprosy could not be linked to other kinds of skin diseases. These efforts indicate the British administration's sensitivity towards leprosy patients who were till then treated in the existing infirmaries alongside normal patients. As in the case of Madras presidency, leprosy patients were also admitted to Madras Native Infirmary in the same wards where patients suffering from other diseases were treated. The British inclination to provide relief was evident from the burgeoning number of leprosy sufferers seeking medical aid, "by January 1813, the number of leprosy patients admitted to the Madras Native Infirmary rose to 40" (Raman et al 2012). Besides, the indoor treatment of leprosy patients alongside other patients may reflect British doctors' perceptions about the contagious nature of the disease. In any case, this was a sound practice as leprosy later was proven to have a very low infectivity.

However, a significant transition in this approach occurred when two Norwegian doctors, Dr Carl Wilhelm Boeck and Dr Daniel Cornelius Danielsen, explained in 1842 that leprosy was both hereditary and infectious. These findings

influenced doctors serving in India as well. Surgeon Dr James Lawder (1788-1860) also expressed his concern about the rapid spread of leprosy in British-administered civil hospitals and therefore recommended a separate infirmary with stringent controls to isolate leprosy patients from others (Buckingham 2002).

In fact, the demand for an exclusive leprosy hospital was first raised in 1813, but by then, no evidence had emerged to prove its contagiousness. David Hill, Chief Secretary of the Madras Government, wrote in response to the demand for a separate infirmary for leprosy patients that all such patients should be sent home. Despite persistent denial for a separate facility, a temporary building was established near the Madras Native Infirmary for leprosy patients whose, "number by then declined to 26 from 40" (Raman et al 2012). The aetiology and transmission of leprosy also received attention in the nineteenth century in Madras (Raman et al 2013).

Dr Gerhard Armauer Hansen (1841–1912), who worked as an assistant physician under Dr Danielssen, became the first physician to relate microorganisms to leprosy. He examined leprosy skin nodules and found rod-like bodies inside cells: These bodies, which resembled bacteria, were present in most of the cells in the tissues. Hansen continued to report his viewpoint on infectious aetiology from 1869 onwards and published his findings in 1874 as a monograph (International Leprosy Association, database). He sent scrapings from leprosy nodules to Dr Carter who was then working on leprosy in Bombay. Dr Carter spent thirty years of his life in India researching on various endemic diseases. He pioneered anatomical research on leprosy by conducting, "the first autopsy and microscopic examination which was published with the title 'On the Symptoms and Morbid Anatomy of Leprosy' through the Medical and Physical

Society of Bombay in 1865.” (Buckingham 2002) The autopsy was conducted on patients who had been abandoned by their relatives or had run away from their families owing to societal pressure and died at J.J. Hospital during the treatment. Dr Carter worked extensively on the treatment of leprosy and prepared a report which was sent to the Secretary to the Government of Bombay. The magnitude of the disease could be inferred from the records of the *National Library of Scotland*. According to a report titled *Medical History of British India*, an estimated 120,000 Indians were leprosy patients in 1881, while the 1901 census estimated the total number of leprosy patients at 102,000 (Edwardes 1901). However, these figures did not represent the actual number of leprosy sufferers as most remained outside institutional support and treatment throughout the colonial period.

Dr Carter visited Norway to study the country’s policy of isolating leprosy patients from others to contain the contagion. He implemented similar measures in India and introduced new ones based on his own investigations in Bombay. In his report ‘The Pathology of Leprosy’, he advocated, “the segregation of leprosy patients and discouraged marriage among leprosy affected people” (Carter 1878). In parallel, Dr Birdwood Van-Someren Taylor played a pioneering role in shaping the policies and regulations at Madras Leper Hospital such as changing the diet, allocating light works to leprosy patients, discontinuation of certain medicines, cleansing techniques and observing the efficacy of certain drugs and conducting medical drug studies. He vehemently criticised Dr James Dalton who in 1811 recommended the use of a mixture of healthy person’s urine and Madeira wine by leprosy patients to clean their ulcers.

Report of the Treatment of Leprosy at the Jamsetji Jijibhoy Hospital with Chaulmoogra oil and on the use of Cashew Nut oil as an External Application

According to the Indian Government Home Department Proceedings 1874, the Surgeon General of Indian Medical Department wrote to the Secretary, Government General Department and attached a report of the above study which begins with a reference to Dr Carter’s articles on the confirmed cases of leprosy and its prevalence in Bombay Presidency. These two papers are adjunct to the report prepared by Dr H Cook, the first Physician, J.J. Hospital, who gathered information with a view to provide relief to leprosy patients and protect community from it (Cook 1874).

Chaulmoogra oil (*Oleum Gynocardii*) was a renowned indigenous remedy for leprosy in India. The British medical practitioners endorsed this therapy based on its extensive acceptance in *Ayurveda*. Chaulmoogra seeds were separated from integument and beaten together with ghee to form a paste, which was then applied externally to the skin for various conditions, including – rheumatism, scrofula and other skin diseases. Western naturalists and botanists believed that Chaulmoogra oil consisted of the seeds of the tree *Gynocardia odorata*. However, “Chaulmogra” as mentioned in *Ayurveda* is perhaps different and is extracted from the tree *Taraktogenos* or *Hydnocarpus wightiana*. (Buckingham 2002, Parascondola, Ghosh 1917).

Sakahram Arjun L.M. assisted in gathering information and maintaining leprosy patients’ records at J.J. Hospital. The trial of Chaulmoogra oil and Cashew Nut oil began on 89 leprosy patients in October 1869. Out of the 89 patients, majority of them were in the age group of 30-40 years. Only 13 patients were in the age group of more than 50 years, while 3 patients were under the age bracket of 10 years (Table 1).

All the patients who participated in the study were men. There is an obscurity of data on how many Indian women suffered from leprosy during that period. The *purdah* system, which was

Table 1 : Age wise grouping of leprosy patients in the Chaulmoogra oil and Cashew Nut oil study.

S. No.	Age-wise Grouping in Years	Number of Patients Participated
1	10 years and below	3
2	11-15 years	11
3	16-20 years	9
4	21-30 years	30
5	31-40 years	23
6	41-50 years	12
7	51-60 years	1

Source— Report on the treatment of leprosy at Jamsetji Jijibhoy Hospital with Chaulmoogra oil and Cashew Nut oil as an external application (Cook 1874)

practised then, probably played a significant role in concealing their identities, as it confined them to the boundaries of home. It was therefore easy for Indian women of the middle and upper classes to hide their disease from the public. Dr Frank Oldrieve in the book *India's Lepers: How to Rid India of Leprosy* also acknowledges that leprosy was looked at as God's wrath, or the outcome of previous birth deeds. (Oldrieve 1924)

It has also been recorded that the affluent families kept their members suffering from leprosy hidden from the public. Leprosy patients, especially women, were considered God's curse, bringing disgrace to the entire family and potentially leading to social exclusion. Dr Buckingham also writes that the patients, "afflicted with leprosy were rarely noticed, especially women and girls who were kept at home and thus were more able to hide the disease from public attention" (Buckingham 2002). Besides, some indigenous factors like caste, religion, superstition and poverty restricted women from Western medical facilities. However, poor women suffering from leprosy did not have the fear of social exclusion because they lived on begging and government-funded medical aids. Rough and cracked skin, deformed limbs, protruded nodules and sensationless body were used by poor women

as public spectacles to earn their living through begging.

Furthermore, the report gives an insight into the ethnicity, caste and religion of the patients enrolled in the study. Among the 89 patients, there were Native Christians, Jews, Europeans, Mahrattas and Hindus of different castes and people of other religions (Table 2). This data testifies that leprosy could not be associated with people of any specific community. Similar assertions were made in one of the reports submitted to the Royal College of Physicians where Dr Shaw argued that the disease, "undoubtedly attacks all races, European, East Indians, Musselman, and Hindus of all denominations, Brahmins, as well as Pariahs (outcastes)" (Buckingham 2002).

The report further reveals that "around 80 percent of patients participated in the trials were residents of or had come from the towns and villages of the Konkan seacoast of India or Arabia, and not more than 20 percent were natives of inland localities" (Cook 1874).

Regarding the trade and occupation of the enrolled patients, the majority of them were engaged in the occupation of cultivation (23/89: 23.8%). The second highest number were of domestic servants (13/89: 14.6%) followed by artisans (12/89: 13.5%), beggars (12/89: 13.5%),

Table 2 : Caste and religion as well as occupation wise distribution of patients enrolled in the study.

S No	Race/caste of enrolled patients	Number of Patients
1	Europeans	4
2	Native Christians	19
3	Jews	4
4	Parsis	2
5	Mussulman	12
6	Brahmins	3
7	Paruahs	1
8	Mahratta	22
9	Sonar*	2
10	Lohar*	1
11	Hindus of other castes	19

Source – Report on the treatment of leprosy in Jamsetji Jijibhoy Hospital with Chaulmoogra oil and on the employment of cashew nut oil as an external application (Cook 1874).

Note - *Castes and occupation are interrelated. These people are known by their occupation. Sonar – Goldsmith and Lohar – Blacksmith.

labourers (8/89: 8.9%) and sailors (7/89:7.9%) (Cook 1874). Among the patients, there were 4 sepoys, 3 clerks, 3 scholars, 2 shopkeepers, 1 engine driver and 1 bandmaster. This indicates that the disease was not confined to a particular section of society but affected people from nearly every stratum.

The symptoms and manifestations of leprosy were quite diverse. The prominent ones were – 1) Anaesthetic Leprosy with eruption or discoloration of skin, 2) Tubercular and Anaesthetic combined, 3) Pure Anaesthetic, 4) Pure Tubercular, and 5) Hyper-aesthetic and also those who presented with eruptions and nodules. The report reveals, “the majority of the cases consisted of the anaesthetic form of leprosy with discoloration of the skin, and of the mixed forms of anaesthetic and tubercular leprosy combined in the same patient; these together constituted 86.39% of the total number treated. Examples of the distinct forms of leprosy either anaesthetic or tubercular, occurring solely in the one individual,

were rare and together constituted only 12.35% of the total. Only one case of the increased sensibility of the skin was observed” (Cook 1874).

The study was conducted on leprosy patients who had been experiencing the symptoms of the disease, “for not less than 2 years. The majority of participants (83.1%) had been suffering from the disease for less than 5 years” (Cook 1874). While conducting the study, the hereditary aspect and the family history of the participants were also noted. In the report, “not more than (11.2 %) of the cases enrolled gave a positive family history of the disease” (Cook 1874). The report also hints that it was still a possibility that the disease skipped a generation or two and appeared in the succeeding one.

As per the report, the treatment with Chaulmoogra and Cashew Nut oil was observed for different time periods and its outcomes were divided into four categories: 1) cured or almost cured; 2) considerably improved; 3) fairly improved; and 4) slight improvement. The cases, which

were categorised as 'almost cured,' included those patients who had been suffering from the disease for around 2 years and 3 months, while the ones called 'considerably improved' included patients who began the treatment after 2 years and 5 months of the diagnosis. The third category of patients, who observed 'fair improvement' in their symptoms, had been diagnosed with the disease 3 years and 1 month ago whereas the fourth category included the patients suffering from the disease for an average of 4 years and 2 months. Conclusively, it was observed that the efficacy of the treatment depends on the duration of the disease.

The treatment with Chaulmoogra and Cashew Nut oils was administered to the patients for a varying duration, ranging from a few months to 2.5 years. The report delineates that the effect of therapy was high on those patients who continued the treatment in the hospital without a break from 6 to 16 months. However, minimal improvement was observed in patients whose hospital stay and treatment exceeded 16 months. Nevertheless, the treatment had profound impact on the cases where, "the patients had mixed (tubercular and anaesthetic) variety of the disease manifestations. Four out of the 5 of those who exhibited the greatest progress towards recovery (and who are set down as almost cured) suffered from the mixed form and the time which they were under treatment averaged 10 months" (Cook 1874). For patients with the anaesthetic form, slight improvement was observed after 10 months and considerable improvement occurred with the treatment durations of 12.5 months or more.

Dr Cook further argues in the report that leprosy progression varied significantly among patients. In some cases, the disease was rapidly becoming symptomless whereas in others, the progress was slow. There were instances where the disease stood still for a prolonged period without much

improvement. Dr Cook also points out to the complex nature of the disease and the response to treatment depends on its advancement, severity of symptoms and damage to tissues. Furthermore, he explains that the cases that had confirmed inherited taint did not render them less amenable to the treatment, "in the majority of the cases in which hereditary predisposition to leprosy was noted, an improvement was marked" (Cook 1874).

The report also gives an insight into the vulnerability of the patients to other diseases because of their compromised immunity. The possibility of contacting other tropical diseases like cholera, dengue and malaria increased substantially in leprosy patients. The report also documents data of the patients who died during treatment. Out of the 89 patients, 3 died from dysentery and 1 from pericarditis. It was also seen that dysentery was a common form of inter-current disease in leprosy (Cook 1874). As the social and economic backgrounds of the patients varied, it was inadvertent for them to be discharged from the hospital. Under such circumstances, it was easy to observe the progress and benefit of the treatment in the patients coming from Bombay whereas many who had come from other cities, towns and districts left soon after the relief in their symptoms and could not be followed up (Cook 1874).

Regarding the method of application of the treatment, the report elucidates, "10 drops of the Chaulmoogra oil in a wine-glass full of milk was taken orally three times a day, while external application of the oil diluted with common sweet oil in proportion of 1 to 16, was insisted upon" (Cook 1874). The oil had to remain on the skin for 4 hours and then the patient could take bath in cold water. In the diet, the Hindus were given a vegetarian hospital diet whereas the patients of other religions and races had an ordinary mixed diet. Apart from the standard

treatment, the report emphasised the necessity of general hygiene which included a daily bath, good and sufficient food, proper light and air and cleanliness. Dr Cook concludes that Chaulmoogra oil was an effective successful remedy, “surpassing the other treatments prevalent in India. He even endorsed the treatment emphatically to be given to all the patients because it affords a reasonable hope of success; its administration must be persevered” (Cook 1874).

Report of Treatment of Leprosy with Gurjon Oil in Port Blair

The second report was prepared by Dr Dougall, Officiating Senior Medical Officer of Port Blair, for Major General D.M. Stewart, Chief Commissioner of the Andaman and Nicobar Islands, on July 8, 1874. The report is an outcome of 13 months of Gurjon oil treatment of 14 convicts admitted to the leprosy patients ward Haddo, Port Blair, on November 23, 1873. These 14 patients

were convicts and identified with their numbers (Table 3).

Dr Dougall explicates that the application of Gurjon oil had an extraordinary impact on their disease and health. Gurjon oil, also known as wood oil, is derived from the tree *Dipterocarpus Turbinatus* and used traditionally for the treatment of Gonorrhoea because of its stimulant and diuretic properties. Although there was evidence of Gurjon oil use in the treatment of leprosy in *Ayurveda*, it was not as often used as Neem and Chaulmoogra were in earlier centuries across the country. Despite minimal use in medicines, Gurjon oil was produced at the commercial level in India for other purposes, especially to seal the joints of wooden ships and to varnish timber for protection against white ants.

In the report, Dr Dougall reveals that these 14 convicts could not only be cured from the

Table 3 : Details of leprosy patients who participated in the study in Port Blair.

S. No.	Name	Number
1	Kotuppa	16659
2	Bulwa Gwala	6894
3	Kistoo	13097
4	Arrahdir	15094
5	Senevassa	12475
6	Dewanna	15947
7	Yahcoob	9601
8	Baboo Fakeer	6910
9	Kuttoo	9113
10	Ramdool	12331
11	Kulloo	7583
12	Muddoo Khan	10402
13	Bolab	4750
14	Surroop Doobay	13289

Source— Report on the treatment of leprosy with Gurjon oil, Port Blair (Dougall 1874)

disease but improved tremendously, “it is exceedingly gratifying to find that not only had the progress of such a disease been arrested, but I may without exaggeration say it has been obliterated” (Dougall Report 1874). The report also explains that the traces of the disease persisted on the bodies of the patients in the form of loss of toes and fingers and deformation of the body. However, there were no signs of further breakouts of leprosy sores in these patients. Dr Dougall’s recommendation of Gurjon oil treatment should be seen in two important contexts; first, the treatments employed in the second half of the nineteenth century were expensive; second, the British medical fraternity was familiar with the fact that Gurjon oil was used by Indians as an *Ayurvedic* medicine for centuries. Besides, Dr Dougall’s insistence on using Gurjon oil should be seen as a replacement to Beuperthuy’s treatment which involved the external application of Cashew Nut oil and the small dosage of Mercury (Wilson 1871). While Beuperthuy’s treatment was a painful therapy generally avoided by the sufferers, the British medical fraternity and the Royal College of Physicians advocated its trial in India. Dr Buckingham also describes the endorsement of Gurjon oil treatment, “the Gurjon oil treatment developed by Dr Dougall in Port Blair, which followed closely on the heels of Beuperthuy’s remedy, was the first instance of a cure developed in Indian territory, receiving a high degree of Indian Government attention. The Government of India responded vigorously to Dougall’s reports of success, resolving in 1874 that the remedy be initiated throughout India” (Buckingham 2002). Dr Dougall also recommended restoring the social and economic status of the 14 recovered convicts which they had been enjoying prior to diagnosis and treatment. They should be given light work that would enable them to have a better scale of rations and in some instances; they can enjoy the legitimate luxuries permitted

by the administration. This recommendation was not only a way of earning self-respect but also cut down on expenses for the establishment. It would be an additional advantage for the medical officer to keep track in case the disease reappears.

Although Gurjon oil treatment had high efficacy in curing leprosy, some cases showed slow but favourable progress in the symptoms. For such cases, Dr Dougall recommended the same amount of food as an ordinary labourer got to ensure better nutrition, along with a longer duration of treatment to eliminate symptoms. Dr Dougall seems to have endorsed the concept of combining medicine with a dietary regimen and hygiene for more sustainable and fast results.

Conclusion

Leprosy elicited diverse responses from the British medical fraternity in nineteenth-century India. A group of western medical practitioners perceived it as a disease that presented a threat to the Europeans and should be sternly dealt with, while others approved of the fear of contagion but looked at it as an opportunity to do research on the disease. The British Indian government increased vigilance by constituting sanitary and leprosy commissions, seeking reports from medical practitioners and by implementing to protect British soldiers, officers and civilians in the country. British doctors believed that indigenous treatments should be found out for two reasons: first, India had a social, historical, cultural and medical acceptance of the disease; second, finding an indigenous treatment would reduce Government expenditure on public health. Consequently, the perception of the British towards the disease changed drastically, resulting in the establishment of the first leprosy hospital in Madras, followed by one in Bombay. Indian philanthropist Jamsetji Jijibhoy donated to the establishment of a hospital in Bombay and to encourage research on the disease. The

profiles of patients who participated in trials of Gurjon and Chaulmoogra oils involved various types of social, cultural, and occupational characteristics, including types of leprosy but most of them were men since women patients from economically good families were prohibited from entering public spaces. Both the use of Chaulmoogra oil and Gurjon oil have helped in healing of leprosy in the patients treated in the respective studies. Although these therapies do not form a part of the armamentarium used to treat leprosy today, they are still important to be remembered and may have relevance to search for better therapeutics for the treatment of other mycobacterial infections in future.

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