

Social History of Medicine in Colonial India

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Lecture 04

Small Pox

Hello and welcome to yet another lecture, lecture number 14. In the last few lectures we have been talking about the various public health measures - we were talking about sanitary measures, Sanitary Commissions and the various steps to promote hygiene and to prevent disease and at the end of the thirteenth lecture we were talking about epidemics. , we spoke briefly about epidemics and other variations like endemic, pandemic and all that. The disease need not always be of epidemic proportion and the same disease in fact can be endemic at some time can become epidemic later at other times. But what matters is the seriousness of the disease - even if it is in a small place -the kind of mortality it can bring about. Smallpox was one of those serious kinds of diseases and it has a long history all over the world. It was acute - we can say it **was** - it is no longer there - it has been eradicated, as you will see. It was an acute contagious disease caused by the variola virus and it was one of the most devastating diseases known to humanity and it caused millions of deaths before it was finally eradicated about some 50 years ago in the 1970s. It had a high death rate - 30 percent of the people who got it would die. In other words, 3 out of every 10 people who got the infection would die. Some of its symptoms included high fever, fatigue and severe back pain and sometimes even abdominal pain and vomiting. But the most visible external sign were the rashes with liquid filled bumps which later developed pus and then became crust which dried and then fell down. The rashes usually started on the face and the hands and then they would spread to the rest of the body. Apart from this lesions would also develop in the mucous membranes of the nose and the mouth and ulcerate soon after the formation. And it was a disease which could be transferred/ transmitted easily from person to person through different means like infective droplets during close contact with infected people or by coming into close contact with contaminated clothing or bedding.

One of the earliest methods of controlling this disease was variolation. The name comes from the virus that actually caused the disease which is the variola virus. What this procedure basically involved is the inoculation into the body of live small pox matter. In India the variolation was carried out by tikadars - people who left a tika – a mark - on

the skin, on the body. It is usually done on the skin in the patient's outer arm. It starts with the rubbing of the area with a piece of cloth for a few minutes and then the actual pricking of the skin with a sharp small metal instrument. And on to that newly created opening would be wrapping of a wad of cotton impregnated with that variolous matter taken from pustules produced from the previous year's inoculation. So, it is not straight away from diseased person or live disease condition - this has to be borne in mind.

This material is taken from previous year's inoculation and therefore, it is attenuated. - less strong. The use of this old and attenuated matter ensured that this itself does not lead to the disease in its full/severe form or lead to the outbreak of an endemic or epidemic -because they are doing it to several people at a time. But at the same time, it had enough power to trigger prophylactic effect, which is a preventive effect. All of these, we now know in hindsight - with the ideas of antigens and antibodies and the immunity and all that - we have to keep in mind, these background theories were not known. It was by and large, empirical they just figured out (as you will see when we go to vaccination) certain things had these prophylactic effect - without actually knowing the background theories which we know now. This variolation led to only a mild nature since it was done with attenuated and old variolous matter - it led to only mild nature smallpox with small number of the pustules and therefore, there was hardly any risk of death to the patient because of the causing of this mild variant of the disease nor would it spread and become an endemic or epidemic.

And, of course, there were other precautions also which were taken to make sure that the remedy itself does not become a problem as it happens in many cases not only in medicine, but generally in life - in administration and other things. There were these precautions they took which included the care to avoid fresh matter for inoculations as I said it was from previous years' inoculation they took and, it is not matter from the disease caught in the natural way. To repeat, the variolous matter was got from the variolation done the previous year - the material was not taken from people who currently had the disease and who got it in the natural way. And pregnant women and unprotected adults and any such vulnerable group of people were excluded during the variolations. And also, there were other side accompaniments like introducing of cooling elements like cold water douche. The liberal application or spraying of cold water or prescribing food or drinks should have a cooling effect and a neutralizing effect because the basic thing was it was like a fever and causing considerably heating of the body.

But then a big breakthrough came in the fight against this deadly disease with vaccination, whereby instead of using actual small pox matter what is used here is matter from cow pox the variant of the disease caught in cows, which, as you could guess was even less dangerous more attenuated. Therefore, the word vaccine itself comes from the word related to cow - vacca - this is the Latin word for cow. Now we are all very

familiar with the word vaccine. Vaccine is generally applied to all kinds of such substances used for preventive measures - especially in the context of COVID 19. Of course, vaccines have been there and used at different points of one's life, but after COVID I think the word vaccine and vaccine itself became so much part of our consciousness. We should remember that vaccine the word itself comes from cow because this one (for small pox) was actually taken from cow. So it is not like all vaccines have some connection to cow or parts of the cow's body or its diseases or fluids.

This was first developed by Edward Jenner who observed in 1796 that milkmaids who were in close contact with the cows on a daily basis and more likely to get cow pox. Those who had that cow pox were immune to small pox - more likely to be immune to small pox. This kind of prophylactic effect was confirmed and accepted finally in 1798. In this context, when we are talking so much about vaccines, it is useful to note that this is one of the earliest, first successful vaccines to be ever developed. We can call this maybe the mother of all vaccines just as we have been calling the Sanitary Commission, the mother of all Commissions in India or the IMS as the mother of all Services in India. So, this is the mother of all vaccines all over the world - successful one at that. And it did not take too long - within say couple of years it was brought to India in 1802.

This meant switching from inoculation to vaccination though the switching was not immediate. There were many issues and road blocks on the way and this switching again was used as yet another opportunity to prove some cultural points. This again was not just as a just a medical matter. The coming of vaccination was touted as yet another proof of the superiority of western medicine over indigenous practice. And also, this coming of vaccination is an important milestone in terms of medical intervention and especially from a cultural point of view because this meant the touching of Indian lives both in a figurative sense as well as a literal sense for the Indian bodies were touched.

And, as I keep saying, one of the issues that was always lingering in the mind of the colonial state was to what extent can we get into Indian lives, to what extent can we touch their cultural habits, living habits all that. This was one of the very direct ways of touching and interfering. It is not only touch as we will see later - it also involved lot of other more serious cultural matters. Now with the coming of vaccination one would expect, as I had already given a hint, it being touted as a proof of superiority of western civilization or science - one would expect the changed attitude towards variolation.

Initially variolation was one of the most viable options available. So, till that point of time, there was a positive attitude and it was also practiced in the west. It is believed that it went from the the area around Turkey to the west and quite successfully used there. It was very efficacious in several parts of India as well. But once vaccination came then the attitude changed. This is something we have to keep in mind - in this field

within medicine and other fields, there would be this kind of initial appreciation with regard to a particular field or a particular kind of a remedy or a particular kind of a medicament. But once something superior with regard to that particular thing has been developed elsewhere in the west, then suddenly this would look very barbaric, cruel, crude and all that. That is a trend you will see and most certainly we see it here. Now suddenly the same tikadas were very useful for the variolation techniques which considerably helped control the small pox - the same tikadas were now blamed - their activities and their movements were blamed. They made a connection between their movements (and small pox) - wherever they went or whenever they went, there was that bout of new bout of small pox. Such kind of correlations were made and they were also blamed - now that vaccination had come. It was said they had become challenged - it was a new danger to their profession and therefore, they went about spreading all kinds of false rumors and ridiculous stories about vaccination. And in fact, a Commission was appointed to study small pox in 1850. This commission now compared variolation to some of the gruesome social evils like sati which as we mentioned in earlier lecture the wife jumping into the funeral pyre of the husband if the husband died or the killing of children. Therefore, there was this call now for what now became this 'murderous trade'. Variolation became a murderous trade which had to be suppressed. But, not everyone subscribed to that view. There were few voices among the Europeans and within the medical establishment itself which argued that the evils of variolation had been exaggerated.

They acknowledged that variolation hardly caused epidemic or any considerable scale of mortality among the people who were inoculated. Therefore, this group of people advocated the continuation of variolation as a reliable method of protection at least until vaccination which had its clear definite advantages - at least till that advantage was made more widely available. It was also proposed that the very same people who were doing variolation the tikadars, they themselves could be enlisted into this new activity. They could be licensed and made to work under state supervision and control - therefore, they also do not feel their profession is endangered and they do not indulge in the supposed story/rumor-mongering.

What were the measures? Of course, vaccination had come, but then there had to be some organized measures and policies to curb smallpox at a broader level. One of the methods suggested was the introduction of compulsory vaccination against smallpox. Again this is something which many of us can personally relate to, in the context of COVID. There are not any direct compulsions made, but there are other indirect ways in which we were made to feel that this is something which had to be done. But this (in the case of small pox) was something more direct. They made it explicitly compulsory and especially this was also due to a lot of pressure from the European community who were also anxious and concerned because this is something which could easily spread. ,

Therefore, in response to this kind of pressures and concerns the vaccination and , also that vaccination was now available, the new Vaccination Acts were introduced in the 1870s and 1880s. One of the important dimensions of these acts was to how categorically outlaw variolation as a practice. Variolation is something which was made illegal even as vaccination was made available and made compulsory in areas like municipalities and cantonments to start with. And as a kind of a supporting measure, the state was to bear the costs of distributing the vaccines and to create a suitable vaccinating agency rather than expecting the people themselves to take it voluntarily and proactively. The nature of the approach varied from one Presidency to another, one Province to another in British India. For instance, in Bengal there was a considerable reliance on public dispensaries and on enlisting the support of the those who were variolators or tikadars earlier. Such tikadars were recruited in Bengal in the 1870s to carry out large-scale vaccination programs. But, on the sidelines they were also suspected - that though they were recruited for this - they were secretly practicing their old trade. But nevertheless they were recruited.

Bombay Presidency followed a different system. There, they were even more proactive in carrying the vaccination directly to the people - instead of setting up dispensaries and expecting the people to come, what they did was to divide the entire Presidency into vaccination circles. Each circle had a team of itinerant - moving - Indian vaccinators with the Europeans supervising them. They were very well trained. The vaccinators visited each village in their area, at least once a year, and gave free vaccination to as many children as possible. This is something to draw a modern parallel with. For instance, now in the Tamil Nadu state of independent India, currently we have systems like Veedaithedi Kalvi and Veedaithedi Maruthuvam. Veedaithedi Maruthuvam meaning medicine, medical care at your doorstep - it is coming in search of your door. Veedaithedi Kalvi is education coming in search of you, in search of the household. The vaccination campaign in Bombay can be seen as a shadow, the prefiguration of these modern schemes. This scheme practiced by the Bombay presidency was taken up in the Punjab Province and Madras Presidency and other areas.

The Vaccination Act of 1880 gave special powers to the provincial government to introduce into certain towns and cantonments. Compulsory vaccination now specifically for particular kind, age group for all children above 6 months old and now with even more specific punishments also for that - for instance fine of rupees 1000 or 6 months of imprisonment if the parent failed to bring the child of that age to be vaccinated. Because of this and due to positive campaign also, the number of vaccinations rose from 350,000 in 1850 to 4.5 million in 1877 – a considerable jump in about 30 years. In the early 20th century, the children were vaccinated and the people who administered vaccines were more than 2500 by 1877. And the annual number of vaccines also rose to nearly 8 million by 1890s and 9 million by the early 20th century. All this meant that nearly one

third to one half of the children were vaccinated in many provinces and Bombay as you would expect considering the system we just now saw – it is not surprising that it had as high as 80% of its children vaccinated around that time. And, as in everything else in life, and particularly in medical programs like this, and as you also saw in our own recent COVID vaccination program, there were some shortcomings and challenges. One was about obtaining the staff because they were very crucial and it was very difficult to obtaining sufficient number of that subordinate level staff on the existing rates of pay.

And, there was lack of trust also between the subordinate staff and their superiors in producing accurate statement of works. There was always that suspicion whether they really did vaccination or they were just concocting numbers. There were some real instances where even officers were fined or removed from their post or suspended for providing such false claims, vaccination returns and other kinds of irregularities. And the system itself being new (and we have to bear in mind that we are talking about a period like early 1800s or even mid-19th century 1850s or 1860s - we are not talking about a period which already had a robust public health system – we are just still in a period where all these concerns about public health sanitation are just their embryonic stage) there were all these kinds of clashes between who was in charge, particularly in charge of what. For instance, here vaccination was carried by two agencies - there was a special vaccination establishment and then also the dispensaries which were already there. And also, unlike today like for instance in the case of COVID, where each and every person vaccinated immediately goes into the system -the detail of that person goes into the system - it is available for everyone to see - you can have an hourly count, daily count, monthly count - of how many vaccines have been administered where, in which division, which municipality and all that -that kind of information system was not there. It was very difficult to verify the veracity of the vaccination reports. Especially in very remote areas or hill districts where actually vaccination itself was difficult in terms of accessibility - but even if they did it was very difficult to verify because that involved, again, a set of staff in checking. And most importantly, there are lots of cultural issues. As I already hinted, this was something which just touched on the surface of the body or the surface level. There are lots of deep cultural issues and battles and in fact we will have a special lecture on the cultural aspects of some of these epidemics where we will see smallpox also in particular in considerable detail. On that note, we close this lecture. See you in another one. Thank you.