

NOTES ON VARIOLATION

BY

G. F. Glokpor¹

The Larousse Medical describes "variolation" as:

"An operation giving protection against severe smallpox, employed in earlier times before discovery of the vaccine, and still in use in certain countries (China). It consisted of inoculating in the arm, by means of two superficial punctures, with a solution made by dipping in water the point of a lancet with dried smallpox pus upon it. The results of the inoculation were fairly good; the eruption was usually limited to the arm and the face was saved. A appule appeared on the second day; it pustulated about the fifth day; the pustule umbilicated about the tenth day; a scab formed and left a conspicuous scar. Systematic symptoms such as fever and headache were more or less marked. This mild smallpox gave lasting immunity. But sometimes, instead of mild smallpox, severe smallpox ensued, resulting in death or blindness. Variolation is thus a dangerous method, and is now prohibited."

HISTORY

Variolation is an ancient practice.

Voltaire gives an account of variolation practices in the Circassians in the eleventh of his Philosophical Letters, as follows: "The women of Circassia have from time immemorial been in the habit of giving smallpox to their children, even at six months of age, by making an incision in the arm and inserting into the incision a pustule they have carefully taken from the body of another child. This pustule has the effect, in the arm into which it is introduced, of leaven in a piece of dough and ferments there. The pustules of the child to whom this artificial smallpox has been given are used for transmitting the disease to others....". (Fasquelle, Eléments de virologie médicale) Fasquelle adds that the Chinese too, long before the Circassians, "practised variolation, but by the nasal route with smallpox scabs". Variolation, in fact, was practised in China long before the Christian era.

Interest in variolation in England dates back to 1700-1725, but variolation appeared in popular medical practice in several parts of Europe at least as early as the 1650's. The collection of scabs from smallpox cases for inoculating other people was a common practice in Poland (1671); it was also known in Wales and Scotland and in Naples. The Bedouins appear to have practised variolation for a long time in a number of places in the Middle East and it was from the east that the method was introduced into Europe. It was introduced into England from Turkey at the beginning of the eighteenth century by the wife of the British Ambassador at Constantinople, Lady Mary Wortley Montagu. She had her children inoculated and royal family followed her example. The practice of variolation spread rapidly in England, and it was subsequently practised on a wide scale. The continent of Europe was relatively slow in adopting it. Variolation was observed in Holland in 1749, in Germany in 1750 and in France in 1755. In 1768 an English doctor, Dimsdale, was asked to inoculate the Empress Catherine II of Russia and was rewarded by being made a Baron of the Russian Empire, Councillor of State and Physician to Her Imperial Majesty. Outside Europe the practice was also noted in India and in some parts of Africa.

Thus variolation is a very ancient practice which was extremely widespread and, for a long time, it was the only recourse mankind had against the scourge which struck, at intervals, again and again.

¹Chef, Division de l'Epidémiologie, Ministère de la Santé, Lome, Togo.

VARIOLATION ON THE BENIN COAST

Although prohibited, variolation is still occasionally practised in some parts of Africa and in our country in particular.

About Ghana, D. Scott writes ("Endemic disease in Ghana 1901-1960"): "In the early days the illegal practice of smallpox inoculation was discovered from time to time, particularly among the Hausa people; it is uncertain how extensive this was or what its influence may have been, but it can be presumed that it resulted in both spread of the disease and increased mortality. In the Accra epidemic of 1920 a fetish woman had induced a number of people to accept inoculation with material obtained from the pustules of cases and in this instance there was a heavy mortality; the inoculation was made on the forehead. More frequently it was carried out on the back of the wrist, and there is a record of another method which was practised in West Africa, the insufflation of dried and powdered material from the desiccated pustules of variolous patients. The most recent discovery of inoculation being carried out in Ghana was in 1930. In that year, when the disease was introduced into the Yendi area of the Northern Region it was found that two Mallams were carrying out arm-to-arm inoculation in the district, and before the epidemic was over some 600 cases of smallpox had occurred with 44 deaths; the inference being that their activities had made a considerable contribution to the size of the outbreak."

In Dahomey, Challenor and Agle discovered a case of variolation in the Ouidah area in 1967, the victim of which died shortly afterwards of severe smallpox. There, variolation was performed by scarification on the forehead.

In Togo, three cases of variolation were found in September 1968, on one of the farms constituting the village of Abidje in Akepe Canton (Tsevie District). There, a pulverized scab was inoculated by superficial scarification on the underside of the wrist. On a second visit, we learned that the perpetrator had fled the village and was only coming back at night to sleep there, because he had learned that we had examined and questioned his three victims. Did that mean he knew about the deadly consequences of his practices? It was said that in some areas the person responsible for looking after a variolous patient must, before he takes up his duties, swallow a little alcohol mixed with material taken from smallpox pustules.

R. H. Henderson, in a study of two smallpox outbreaks in rural areas between Ouidah and Allada in the south of Dahomey, gives an interesting account of the way in which variolation was performed:

"Sometime during the third or fourth week, following onset of a case of smallpox, the healer arranges a ceremony to which the whole village is invited, for 'freeing the patient'. We had occasion to investigate two smallpox outbreaks shortly after the ceremony occurred and we noticed each time that the friends of the smallpox cases had a mark on their forehead just at the base of the nose. Questioning the people, we learned that as an integral part of the ceremony, the healer scarifies the forehead of everyone present with a blade and rubs a powder on the scarified part. This powder is made of a mixture of smallpox scabs and herbs. A number of people seen five days after this ceremony had a round 5 x 5 mm lesion which had already formed an eschar scab in all respects similar to a vaccination scab. From a scab taken at Daujobame from a woman of 35 who had been inoculated by the healer, smallpox virus was grown on culture. Thus variolation is, in this part of Dahomey at least, practised by healers."

These instances of variolation that have been discovered show how diverse the methods are. In the Benin area, variolation is chiefly effected by superficial scarification of the forehead or underside of the wrist using material taken from dried pustules or pulverized scabs mixed with herbs of various kinds.

CONSEQUENCES OF VARIOLATION

The variolators usually believed they were inoculating a mild smallpox to secure protection from severe smallpox. Unfortunately the method entails serious dangers both for the victim and for the community. In France, Fasquelle reports that a decision of the French Parliament, modeled on an English act, provided that operations of this kind must only take place outside towns and that inoculated persons must not mix with other folk until six weeks after recovery. But these precautions proved ineffective against the dangers of variolation. That is why the method was ultimately prohibited and generally abandoned.

The consequences of this practice are several:

- (1) It involves collecting and keeping scabs taken from a smallpox infected patient. The scabs retain the smallpox virus for long periods and may subsequently serve to infect people living in or near the inoculator's house. The consequences of reducing the scabs to a powder which can be blown about by the wind may easily be imagined.
- (2) The inoculated person can develop severe smallpox and die or be left with severe sequelae such as blindness. The inoculated case in Dahomey died of severe smallpox a few days after discovery.
- (3) Variolation is a danger to the community in which the inoculated person lives for he may infect those who come into contact with him. A single inoculated person is enough to initiate an outbreak of smallpox which may engulf an entire village. One wonders whether some of the smallpox epidemics in our villages were not due to variolation, particularly since it is impossible in many cases to trace the source of the epidemic.

ROLE OF LEGISLATION

It is doubtless owing to these harmful consequences of the practice of variolation in certain areas that the WHO Handbook for Smallpox Eradication Programmes (1967) says: "It is vital that every effort be made to terminate present practices of variolation by whatever means necessary, including direct punitive action".

Although efforts have been made in the past in other countries to limit the consequences of variolation by various measures, as in France and England, these precautions proved ineffective and variolation itself was therefore eventually prohibited. In Africa too, in the countries where variolation still occurs and constitutes a danger, the advisability of prohibiting it should be considered.

But I do not think that simply passing a law is enough to abolish the practice overnight. Variolation is usually, in Togo and Dahomey, an occult practice. It occurs in initiates to a secret society at the end of the period of initiation, and it is practised in healer's "surgeries" on the patient's relations and friends. Only in exceptional cases is it medicinal. Consequently it is no easy matter even to detect it. Education of the public would therefore be a help. Maybe in the near future, with the eradication of smallpox, variolation will disappear of its own accord for lack of smallpox scabs.