

M. Voegeli, M.D.
"Marlefried"
Goldiwil-ob-Thun
Switzerland

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The Editor
"The Lancet"
7 Adam Street
Adelphi Terrace
London W.C.2
England

Sir:

I am sending you the enclosed article in the hope that you may find it of value for publication in "The Lancet".

For your information I may say that I hold the Master's degree from Columbia University of New York City, and my Doctor's in medicine from the University of Berlin and the University of Paris. In India I practiced in my own private hospital, specializing in surgery. In 1950 I retired and am now living in my native Switzerland.

Yours very sincerely,

M. Voegeli, M.D.

CONTRACEPTION THROUGH TEMPORARY MALE STERILIZATION

by Dr. Martha Voegeli

In view of the fact that the problem of over-population, instead of being solved, looms ever more largely in the minds of thoughtful, conscientious people, it might be of interest to those trying to solve the problem to know how I met it during my thirty years of life and practice in India.

Working in an environment where the need for a practically useful contraceptive was of the utmost urgency, a type was aimed at which would meet five basic requirements, namely, effectiveness, reliability, safety, cheapness and simplicity. Such was the method finally evolved in my own laboratory. I called it the method for temporary male sterilization. The name indicates that it is for men. It requires the application of heat which reduces male fertility to the extent of producing in its stead sterility for a period long enough to be of value practically, without however sterilizing a man permanently.

The treatment consists in a sitting bath of 45 minutes, at a temperature of 116 F, daily, for a period of 3 weeks. This treatment results in sterility which lasts for at least 6 months. After that time, normal fertility returns. Where sterility of longer duration is desired, the treatment must be repeated every 6 months.

This formula was arrived at after ten years of experimentation, with the free and intelligent cooperation of nine male patients. While results differed at a temperature lower than 116 F, at 116 F they were uniform in all cases and remained stable. Race, nationality, age, climate made no difference. Among the volunteers were two English, two Americans, two Scots, two Indians, and one Austrian of Semitic origin. They lived in climates where average temperatures ranged from 60 - 100 F; ages varied from 25 - 45 years.

In all cases it was found that at a temperature as low as 107 F, motility in the specimens observed was visibly reduced. Timely treatment with a stimulant solution would promptly restore it to normal. This suggests that sterility resulting from exposure to heat is due to impaired motility of the spermatozoa rather than to their destruction. At 116 F, movement of any kind ceased altogether and could not be restored. Here it was impossible to determine whether this was due to simple paralysis or to complete

destruction of the spermatozoa. Were they doped or were they dead? That was the question. In neither case could it be ascertained whether the matrix they produced them had not also been affected. It must be borne in mind that in every case under observation normal fertility returned when the term of temporary sterility had expired. This would indicate that the matrix, if affected at all, had not been affected to an appreciable degree. The heat applied may have led to a reduced output of spermatozoa or to impairment of their motility, or both. Certain it seems, that the temperature necessary to the suspension of fertility does not affect the matrix permanently. Conclusive answers to this and other questions will probably be forthcoming shortly through further research.

In the meantime, the method evolved in my laboratory was found to be effective, reliable, safe, cheap and simple. Its effectiveness and reliability were established beyond doubt. Daily baths of 45 minutes' duration at 116 F, over a period of 3 weeks, resulted invariably in sterility lasting for a minimum of 6 months. Successive applications of this formula yielded the same result. This was established by a test period of ten years.

In the field of practice, control was possible to a very limited extent. Only a fraction of those treated would report regularly and for any extended time. To establish reliable statistics was therefore next to impossible. Nevertheless, the results were obvious. In families who could not feed even the children they already had, babies ceased to be born, or their arrival was spaced. Moreover, gratitude, expressed by gifts of flowers and fruit, by a happy smile or a gracious bow, or where it was very deeply felt, by bodily prostration before the doctor, left no doubt of the practical help which the method had given. It often happened too, that parents would pay a courtesy call, all smiles, just to exhibit the new baby decided upon after hard times were over.

The safety of the method was likewise evident. Whether its systematic use for a period longer than twenty years would have had any undesirable side effects is not known, but within that period no such effects, local or general, physical or psychic, could be observed. To ascertain this was easy in laboratory cases all of which had been followed up and checked periodically for that span of time. In these it was found that temperatures below 116 F would produce sterility for a time of varying length. At 107 F, for instance, the ensuing sterility would last for two to five months; at 110 F, four to seven months, and at 116 F for a minimum of six months and a maximum of eight months. But where the sperm count is abnormally high, sterility lasts for only four months. This was pointed out by a research scientist in a university where the method is currently being put to the test. In such a case, the bath temperature would have to be raised, or the number of baths increased, or both, in order to insure sterility for six months. This could indeed be done without risk of any kind. In the laboratory as well as in practice, temperatures of 125 F were comfortably supported. In no instance were there undesirable after effects; heightened temperature merely lengthened the period of sterility. In no case did it produce permanent sterility because no degree of heat within the range of physical tolerance is high enough to sterilize a man permanently. For this purpose, other more drastic methods, operative or chemical, would have to be resorted to.

As to the effect of the method on physical health, in not a single instance where it had been used systematically and for years did it affect the body adversely. Except for the period of treatment, marital relation was normal. From the psychological point of view, far from being detrimental, the method proved to be beneficial to both husband and wife. It did away with a number of psychic disorders arising from inhibitions and forced restraint which manifested themselves in perverse habits and moral aberrations of various kinds. Again and again, couples would express in their humble way their relief from the mental strain due to the fear of the coming of another baby they could not feed. Now they could mean more to each other and to their family than ever before. Children subsequently born to such parents were normal in every respect.

The cheapness of the method was guaranteed by the fact that the only cost to the individual was that of a bucket of hot water. To a government adopting it the chief expense would obviously be that attached to the dissemination of information. This could be accomplished through existing clinics, centers of public health education and other channels suited to the purpose.

The simplicity of the method is obvious. There is hardly a method now in use as simple as the method for temporary male sterilization. Apart from the mentally deficient, the

most backward individual can grasp and apply it. Its technique is suited admirably to people in countries like India, where the poorest avail themselves of every opportunity for bathing, where time is as yet no factor, and "squatting" a favorite mode of relaxation. In actual practice, containers used in the household or in everyday work were adequate for the bath. Naturally, thermometers were not generally available. To give men an idea of the correct temperature, they were offered a sample "feel" by dipping the hand into water heated to the required degree. Where a timepiece was lacking the men had more than one way of knowing when the forty-five minutes were up. One was the position of the sun, another their own uncanny sense of time, not easily comprehended by the foreigner.

For western man, or those living in the more highly industrialized places, the sitting bath might prove to be too cumbersome and time-robbing to be practical. For them an electrically heated gadget, such as a cushion, pad, chair, or suspensory would perhaps be more acceptable. Here a fresh series of experiments would be needed* to determine the factors of temperature, and the number of baths. It is possible, even probable that by use of such gadgets the duration of the treatment could be considerably shortened. Where the procedure is now being tested the sitting bath is used.

I wish to point out that between the years 1930 and 1950, the method was used in practice on a constantly expanding scale in places where famine had broken out. At that time there was no other method in sight that was cheap, simple and effective. The poor took to it readily and with gratitude. Advice, instruction and treatment were given without charge. No propoganda was needed. Fear of being censured or penalized by those representing special interests - priest, employer, family, headman and party boss - would deter some from seeking help. When they were assured that they could come under cover of night and that no name and address would be asked, many would seek the help offered. Those who did so were, among non-Christians, about equally proportioned between Mohammedans and Hindus. Among Christians, Catholics were in the majority. Opposition, sometimes violent, came only from among the well-fed, motivated as a rule by prejudice - religious, cultural, economic, political. A good deal of encouragement and understanding was given to the movement by the intellectual members of the community.

In closing may I say that from the practical results which were obtained, there can be no doubt as to the value of the method. From a more theoretical point of view, some questions are justified. For example, it might be said that the method rests at present largely on empirical grounds; that the purely scientific basis I was able to provide was not substantial enough to justify its application on a large scale in practice. But confronted as I was on the one hand with the appalling misery caused by overpopulation, and on the other hand aware of the utter harmlessness of the sitting bath as a means of implementing the treatment, I had no compunction about putting it to use without further temporization. Here I must emphasize that those who volunteered for experiments were motivated by truly humanitarian considerations. They were all willing to help to the point of sacrifice. Their distress at the sight of the misery around them was as great as my own.

Again, from the moral point of view, it might be asked if dissemination of the knowledge of the method could not lead to its misuse. To this question the answer is yes. But what plan or invention for man's good has not been misused? Such misuse would hardly result in increased licentiousness, for men so constituted will follow their inclination with or without knowledge of the method. Conversely, wide-spread information about it would certainly reduce the number of unfortunate children born out of wedlock. Faced with the case of a man who by reputation was a libertine, I decided, after much thought, that he too should be given the information. My reasons were, first, it might protect an unsuspecting, gullible or even morally defective woman; second, prevent the coming of a child unjustly doomed to suffer the liability of offspring of his type. Considerations such as these convince me that misuse of the method, in itself to be deplored, is an inconsequential factor, as against the benefits which will accrue to family and to society where it is used with conscience and with discrimination.

M. Voegeli, M. D., M. A., B. D.
Chalet "Marlefried".
Goldiwil-ob-Thun.
Switzerland.
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* This would also apply to other substitutes for the sitting bath such as sunbaked rocks, sand, or the direct exposure to the tropical sun itself in places where hot water is not easily available. Factors like these may have caused some of the sporadic cases of temporary sterility reported after the second world war.