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## IS TRICHOMONAL INFESTATION A VENEREAL DISEASE?

BY

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The evidence that *Trichomonas vaginalis* infestations are transmitted by sexual intercourse in most cases has been reviewed by Trussell (1947). He argued that the organism has its commonest habitat in the vagina, which suggests that it may be implanted by coitus. Many cases have been reported in which both sexual partners have been infected and in which the onset of symptoms in one of them dated from coitus with the other. The age when infestations occurred most commonly was suggestive of a venereal transmission. The condition was uncommon among children and virgins but most common between the ages of 16 and 35 years, which is usually the period of greatest sexual activity. Trussell pointed out that the disease is twice as common in negro women as in whites in the United States of America, and, though this has been attributed to poor hygienic habits, it could equally well be explained by greater sexual promiscuity. The frequent association of gonococci and trichomonads in the same patient suggested sexual intercourse as a means of transmission. King, Mascall, and Price (1936) were the first to point out the frequent association of the two diseases. Greenblatt (1945) found 66% of 127 prostitutes examined to have *T. vaginalis*, and 62.5% of another group of women with gonorrhoea to be also infected with the parasite. King and Gallagher (1946) found *T. vaginalis* in 30 out of 81 female patients with gonorrhoea.

Trussell also pointed out that the increased incidence of infestation in pregnant women suggested that infection might be favoured by the unprotected sexual act. Some authors have suggested that the routine use of chemical contraceptives gave some protection against

infection. Stein (1943) believed that trichomonal and mycotic infections were rare among women who used acid jellies for contraception. Wessels (1943), after investigating the records of 1,471 patients who practised contraception, was impressed by the low incidence of vaginitis.

At the First International Symposium on Trichomonal Infestations, held at Rheims in May, 1957, it was agreed by the majority of the delegates that human trichomoniasis was usually transmitted by sexual intercourse, that it was widespread throughout the world, and that the frequency of the condition was probably increasing.

However, the possibility of transmission of the parasite by other means has been suggested by several authors and cannot always be excluded. Instances have been reported of infection in members of the same family—for example, the mother and the female infants. Brady and Reid (1942) observed vaginal infection in a woman and in her 5-weeks-old baby. Trussell, Wilson, Longwell, and Laughlin (1942) examined 41 babies of women infected with *T. vaginalis*, and found that two were infected. They suggested that female babies may become infected from their mothers during birth.

McCullagh (1953) thought that infection was often transmitted by contaminated lavatory seats, but he gave no evidence to support this view. Whittington (1957) carried out experiments on the possibility of infection being transmitted in this way. She showed that *T. vaginalis* can survive for some time on lavatory seats, and is sometimes deposited on the seat by infected patients. The possibility of accidental infection by this means may therefore exist in some cases.

Lanceley and McEntegart (1953) regarded trichomoniasis as a venereal disease in the majority of cases, but believed that there was evidence to suggest that some infections were accidental, and warned against careless technique in vaginal examinations because they believed that infection could be spread by this means.

Other possible sources of infection that have been suggested include douche nozzles, enema syringes, towels, underwear, internal sanitary towels, and surgical instruments. Transmission by these means has never been proved.

Some investigators have regarded the intestine as the source of infection, believing that intestinal trichomonads could become adapted to the vagina. There is, however, no evidence that they can be successfully established in the human vagina (Stabler, Feo, and Rakoff, 1940). Nor is there any positive evidence to suggest that oral trichomonads will produce vaginal disease. The majority opinion at the Rheims Symposium rejected the view that contamination occurred from alimentary or animal origins.

Finally, it has been suggested that infection might be acquired by drinking infected water or eating infected food, or that it can be transmitted in swimming-pools or swimming-baths by infected water. Little or no positive evidence has been produced to support these views, and the balance of probability seems to be against such methods of transmission.

To summarize, therefore, the published evidence suggests that the most frequent method of transmission of *T. vaginalis* is by the sexual act, though in a small proportion of cases infection may be acquired by other means.

### Present Investigation

The object of this communication is to present further evidence in support of the belief that *T. vaginalis* infections are usually venereally transmitted.

The patients all attended the departments for venereal diseases at three large London teaching hospitals—the London Hospital, St. Thomas's Hospital, and St. Bartholomew's Hospital. Each patient was thoroughly examined for evidence of genital infection by clinical and bacteriological methods and for evidence of other disease by physical examination. *T. vaginalis* was looked for in wet smears of the urethral or vaginal secretions, using the 1/12-in. (2-mm.) objective of the microscope with either normal or dark-ground illumination. Cultures, using the medium described by Feinberg and Whittington (1957) were also performed in most cases. In a small number of cases the centrifuged deposit of urine was also examined microscopically for trichomonads.

### Results

This is an analysis of 56 male patients with *T. vaginalis* urethritis, whose female sexual contacts were available for examination, making a total of 112 subjects. The male patients in the series were selected in the sense that they were seen first and diagnosed as having a urethritis caused by *T. vaginalis*. Their female sexual partners were then requested to attend for examination, and were all found to have *T. vaginalis* vaginitis. Thus, *T. vaginalis* was demonstrated in both partners in 56 couples, who admitted to sexual intercourse together.

Thirty of the couples attended the London Hospital, 23 couples St. Thomas's Hospital, and 3 St. Bartholomew's Hospital.

The average age of the men was 33 years and of the women 24 years. Thirty of the women stated that they were the wives of their sexual partners, and 24 said that they were friends. In two cases the liaison was described as casual, and intercourse was said to have occurred on one occasion only.

Only two of the couples stated that they regularly used chemical contraceptives, and in both cases these were used in association with an occlusive diaphragm. Six couples claimed that they always used a condom, and that intercourse had not taken place without it. The remaining 48 couples either took no precautions at all or used various methods of contraception on isolated occasions only.

Five of the women stated that they were virgins until they had intercourse with their present partners. All five of the men concerned admitted to previous sexual experience. The five women all stated that they had symptoms from their infestation, and that these came on from 5 to 28 days after their first intercourse.

In six of the couples gonococcal urethritis or cervicitis was found to be present in addition to the infestation with *T. vaginalis*. Five men were subsequently found to have strictures of the urethra when urethroscopy was performed as part of the tests of cure. All the five were attending the London Hospital, and it is interesting and instructive that it was only at that hospital that urethroscopy formed part of the routine tests of cure.

The men were given posterior irrigations with either a 1 in 8,000 solution of oxycyanide of mercury or potassium permanganate or a 1 in 10,000 solution of dequalinium chloride ("dequadin"). The women were

treated with acetarsol vaginal pessaries, using two pessaries each night for 14 successive nights. Abstinence from sexual intercourse was advised in all cases. No attempt has been made to assess the results of treatment owing to the high defaulter rate and the inadequate period of follow-up in many of the couples.

### Discussion

Many authors have, in the past, considered trichomonal vaginitis as a venereal disease (Trussell, 1947; Bauer, 1957; Chappaz, 1957; Durel and Roiron, 1957; Keutel, 1957). Many, but by no means all, make a practice of investigating the sexual partners of patients infected with *T. vaginalis*. One of the reasons for neglecting to do so may be the difficulty, at a single examination, of demonstrating the parasite in male patients who are contacts of women with *T. vaginalis*. However, with improved diagnostic facilities and techniques it is being found more often in men.

The parasite is undoubtedly one of the causes of non-gonococcal urethritis, but it may be present in the male urethra without causing symptoms or signs, or a mild urethral discharge may be overlooked by the patient. Whittington (1957) and Nicol (1958) have demonstrated that the routine use of cultural methods, employing the Feinberg-Whittington medium, increased the number of cases of trichomonal urethritis diagnosed in a venereal disease clinic, and recommended this method as a routine aid to diagnosis. The examination of an early morning "scrape" from the urethral wall and the investigation of the centrifuged deposit of urine are also likely to increase the number of positive cases.

From the evidence presented here it seems reasonable to conclude that *T. vaginalis* infestations are venereally transmitted in most cases. It is probable that infection sometimes arises from other sources, just as authentic cases of syphilis and gonorrhoea acquired in a non-venereal manner are well known. If it is accepted that the condition is a venereal disease, the sexual partners of all patients with *T. vaginalis* infections should be examined, and, if necessary, treated. Sexual intercourse should not take place until the parasite has been eradicated from the genital tract of both partners. These measures may lead to some improvement in the unsatisfactory results at present obtained with the various forms of treatment.

### Summary and Conclusions

*Trichomonas vaginalis* was demonstrated in the female sexual partners of 56 males with *T. vaginalis* urethritis.

The evidence that *T. vaginalis* causes venereal infection is reviewed, and it is suggested that the evidence presented further supports this theory.

Patients with *T. vaginalis* infections should be referred to venereal disease clinics so that the necessary history of sexual contacts can be obtained. These contacts can then be traced, examined, and treated if they are found to be infected with *T. vaginalis*.

Sexual intercourse should be forbidden until *T. vaginalis* is eradicated from the genital tracts of both partners.

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## RECOGNITION OF EMOTIONAL DISTURBANCE AND THE PREVENTION OF SUICIDE

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More than 5,000 persons die annually by their own hand in England and Wales, and there is reason to suppose that their number will increase as the age structure of the population changes (Swinscow, 1951). There is no doubt about the size of the problem of suicide or of its claims for attention.

Sainsbury (1955) examined the social factors which favour suicide and suggested fields of study which might lead to the prevention of suicide through a programme of mental hygiene, but can any substantial proportion of the present toll of suicides be prevented now by medical action? The answer must depend upon how many potential suicides show signs which are recognizable as danger signals calling for medical help, how many of these danger signals are recognized as such, and how many would-be suicides, if recognized as emotionally ill, are then responsive to psychiatric treatment.

With these questions in mind the coroners' records of the suicides which occurred throughout Wales in the five years 1951-5 were examined. During the five years 881 suicides occurred among the permanent residents of the 12 Welsh counties (excluding Monmouthshire). Objection can be made to the validity of some kinds of information obtained from these sources. Witnesses may have been unintelligent, uninformed, unobservant, or biased. Despite this difficulty, however, it is probable that evidence regarding the behaviour, the demeanour, and the medical treatment of the suicides was substantially true.

The information so obtained fell into two classes—the earlier medical condition within about the last year of the suicides' life, and the condition some hours or minutes before death.

### The Earlier Condition

Of the 881 suicides, 689 (78.2%) were known to have been under a doctor's care during the months before they died, and many of these were treated for conditions which appeared to have probably been related to psychiatric illnesses. Hypochondriasis, headaches, depression, or merely "nerves" were commonly reported. There is therefore reason for believing that many of the suicides were emotionally ill within the last month of their life. Of the 689, 122 (17.7%) had been referred to a psychiatrist, and 92 of these had been in a mental hospital, nearly two-thirds of them within their last year of life. The time which elapsed between their discharge from hospital and their death is shown in Table I.

TABLE I.—Time Which Elapsed Between Discharge from Hospital and Death

Time	No. of Suicides	Average No. per Month (Up to 1 Year)
< 1 month . . . . .	23	23
1 month to 6 months . . . . .	26	5.2
6 months to 1 year . . . . .	10	1.7
Over 1 year . . . . .	33	
Total . . . . .	92	

The largest group of suicides died more than a year after they left hospital, but these of course included persons discharged from hospital several years before. There was a very rapid decrease in the number of ex-patient suicides with the passage of time after their discharge. The most dangerous time was immediately after discharge. This finding agrees with the observations of Shneidman and Farberow (1957).

Among the 881 suicides only 46 (5.2%) were reported to have made an earlier attempt; it has been remarked elsewhere (Stengel, 1952) that most people who commit suicide are successful at the first attempt. Some of the suicides had shown the clearest signs of profound depression. Though the numbers of these are probably not complete they are still a substantial part of the total number: 81 (9%) had expressed a wish for death, and 55 of them had said that they intended to kill themselves.

### Condition Immediately Before Death

The demeanour and behaviour of the suicides when they were last seen alive were routinely recorded in the inquest reports. The witnesses had been nearly always in close contact with the suicides, and a number of corroborative accounts by different and sometimes unconnected observers gave a picture which was probably substantially reliable. The state described was that which was apparent at most a few hours, and often only a few minutes, before death.

It is possible to group in a few categories the reported conditions just before death. These are shown in Table II.

As might be expected the largest group were depressed when they were last seen alive. The group comprising those emotionally disturbed, though not depressed, included a few who were clearly paranoid. Some were worried, mostly by domestic difficulties. Some had quarrelled immediately before their death. These last were of the kind described by Batchelor (1954). Their death was an angry impulsive response to frustration, and their attitude was typified by a