

TRICHOMONAS VAGINALIS IN URETHRITIS OF THE MALE*†

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The effectiveness of penicillin in the rapid elimination of the gonococcus has served to focus attention on a group of diseases under the name of non-specific or non-gonococcal urethritis. It is a not infrequent diagnosis: published reports give the incidence of this group as varying from 12.4 per cent. to a maximum of 70 per cent. of urethritides (*Bull. U.S. Army med. Dep.*, 1947; Crouch, Reese, and Boudreau, 1953; Parrino, 1954; Babione and Graham, 1952; Durel and Siboulet, 1954; Harkness, 1950).

The causes of the condition are not clearly defined. For many years speculation has centred in the possibilities of bacterial infection. Evidence has been based on the culturing of a predominant bacterium. In more recent times a virus and organisms of the pleuro-pneumonia group have been incriminated. But these same organisms have been reported in the urogenital tracts of men who gave no history of infection and were clinically well (Garvin, 1950; Wagner, Morse, and Kuhns, 1953; Ambrose and Taylor, 1953; Willcox, Howard, and Findlay, 1954; Willcox, 1955; Day and Arm, 1955; Feo, Fetter, Peoples, and Morton, 1956; Nicol and Edward, 1953; Shepard, 1954). Although *Trichomonas vaginalis* has been found in such cases, the idea that this organism might be responsible has stimulated little interest. This lack of interest is the more remarkable because of the incidence of this parasite in the general male population and in male patients with non-gonococcal urethritis in particular (Bauer, 1942; Feo, 1944; Seneca and Ides, 1953; Leca, 1951; Kozłowski, 1951; Sorel, 1952; Lanceley, 1953; Jíra, Rössler, and Svejcar, 1955). Notwithstanding the fact that many men harbouring the flagellate are symptom-free, there are cases that attract attention.

It is the purpose of this paper to emphasize the role of *Trichomonas vaginalis* as an aetiological agent in cases of non-gonococcal urethritis.

Materials and Methods

The studies reported here cover the years 1954–1955 and were carried out in the Urology Clinic of the Jefferson Medical College Hospital. They comprise exclusively ambulatory patients complaining of urethral discharge and concomitant symptoms. This was a somewhat selected group, patients with upper urinary tract infections or other concurrent urologic pathology being excluded.

The study techniques at times varied with the type of case under observation. However, all subjects had detailed histories taken and physical examinations performed at the first visit. In addition, a smear of the urethral discharge was Gram-stained, and a moist-slide preparation was examined for *T. vaginalis*. This was followed by the standard multi-glass urine test. As a result of these initial procedures the patients were separated into two main groups: those suffering from gonorrhoea and those diagnosed as cases of non-gonococcal urethritis. In the latter group standard clinical procedures and laboratory methods were employed to arrive at more exact diagnoses and to differentiate the various associated organisms. The detailed bacteriological study of these cases was the subject of a previous paper (Feo, Fetter, Peoples, and Morton, 1956). The clinical status and progress of each patient was re-evaluated at each return visit following treatment, and the necessary examinations were repeated.

Results

In the 2-year period under review, 183 male patients with manifest urethral discharge were examined. In 108 the urethral discharge yielded gonococci, six patients returning with a re-infection within a period of 2 to 10 months. The remaining 75 patients had non-gonococcal urethritis, including nine cases of residual non-gonococcal infections. The incidence of positive results are summarized in Tables I and II (overleaf). It is not proposed to comment further on the gonorrhoeal cases or the *Trichomonas*-negative patients suffering from non-gonococcal urethritis. The clinical features and courses of these patients paralleled the many similar reports in the literature.

However, the most interesting and significant part of the present observations concerns the number of

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TABLE I
CLASSIFICATION OF 183 PATIENTS WITH URETHRAL DISCHARGE

Race	Diagnosis	Cases		Age Group (yrs)				Marital Status		
		Number	Per cent.	Under 20	20-29	30-39	40 and over	Married	Single	Other
White ..	Gonococcal	22	53.7	2	11	5	4	3	16	3
	Non-gonococcal	19	46.3	0	7	8	4	6	12	1
	<i>Trichomonas</i> — negative positive	17 2	10.5	0	1	0	1	1	1	0
Negro ..	Gonococcal	86	60.6	5	49	24	8	35	47	4
	Non-gonococcal	56	39.4	4	20	19	13	29	20	7
	<i>Trichomonas</i> — negative positive	27 29	51.8	2	8	9	10	18	8	3

TABLE II
DISTRIBUTION OF CASES STUDIED

Diagnosis	Cases	
	Number	Per cent.
Gonococcal	108	59
Non-gonococcal	75	41
<i>Trichomonas vaginalis</i>	33	18
Non-gonococcal <i>Trichomonas</i> -positive	31	41

men harbouring *T. vaginalis*. The flagellate was unequivocally present in 33 patients. The incidence was 18 per cent. of all men studied, and 41 per cent. of the non-specific cases, six of whom were complicated by a chronic prostatitis, two presented an acute epididymitis, three others were suffering from a mild form of stricture, and two were associated with the gonococcus. It is noteworthy that twelve of the 33 *Trichomonas*-positive men persistently and continuously harboured the flagellate for periods of 3 to 20 months. These patients were not among those with the aforementioned complications and were intensively studied as cases of urethritis primarily due to the presence of *T. vaginalis*.

In keeping with the findings of other observers, a low incidence of *T. vaginalis* was seen in the patients suffering from gonorrhoea. In only two cases were the organisms associated together. In five other cases a small, pleomorphic Gram-negative extra- and intra-cellular diplococcus was mistaken for the gonococcus.

Clinical Features.—Of the 33 *T. vaginalis* positive cases, 31 occurred in Negroes and two in white patients. The youngest was 16 years old, the oldest 70, and the majority were over 30 years of age. Of interest and some significance was the high incidence of infection in married men (Table I).

The onset of symptoms varied from 1 to 3 weeks from the time of exposure. Although the character

of the symptoms and signs of infection were mild, they set a pattern of persistency. The majority complained of a discharge seen chiefly in the morning upon arising, at times accompanied by an itchy feeling or some discomfort in the penis and mild dysuria.

The type of discharge was not diagnostic. It was slight to moderate in amount, greyish in colour, and of a thin or mucoid nature. Occasionally it was muco-purulent. The examination of the urine showed a clear second glass, the first glass containing few to moderate numbers of light shreds against a clear or hazy background. However, this test was not found to assist diagnosis.

Laboratory Observations.—The moist-slide preparations showed few epithelial elements, moderate numbers of leucocytes, and few to many actively motile trichomonads. The stained preparations, in addition, showed Gram-positive rods and cocci, diphtheroids, occasional Gram-negative rods, and at times the pleomorphic, small diplococci, usually staining Gram-negative. As reported in a previous study (Feo, Fetter, Peoples, and Morton, 1956) the bacteriological cultures yielded results which were equivocal. The organisms isolated were, in order of frequency, *Staphylococcus albus*, diphtheroids, alpha- and beta-haemolytic streptococci, *Escherichia coli*, PPLO, *Staphylococcus citreus*, and proteus species. In many cases more than one species was isolated from the same discharge. These clinically similar cases, under continuous treatment for periods of 3 to 17 months, showed a variety of bacterial isolates in multiple and sundry combinations. Except for the persistency of the flagellate there was no proof that any one bacterium could be incriminated.

Treatment.—The patients were treated with one or more courses of assorted antibiotics. In addition, some had sulpha-therapy in conjunction with local

irrigations, soundings, and prostatic massage. Seven of the 33 *Trichomonas*-positive patients were under continuous treatment for 6 to 20 months with no improvement in the urethral discharge. Others defaulted after 1 to 5 months of therapy. Many of the defaulters did not return to the clinic when assured of the non-gonococcal nature of their complaint, apparently no longer concerned over the early morning "drop". In such cases the mental attitude and hygienic training of the patient is an important factor in determining the presence and severity of the symptoms.

Discussion

Many references are to be found in the literature discussing the relative values of the various antibiotics in the treatment of gonorrhoea. Most workers have made a strong case for the use of penicillin and a high success rate in gonorrhoea was also found in the present study. However, residual non-gonococcal discharges are a problem today. In the nine cases of post-gonococcal urethritis, a residual discharge was noted for a period of 2 weeks to 5 months. Although penicillin causes the sudden disappearance of the gonococcus, resolution of the inflammatory process is slower. In some cases this interval is further prolonged by the presence of dual infections. But, given time and aided by the administration of one or other of the broad-spectrum antibiotics, they are resolved. However, this does not result when the patient is diagnosed as a non-gonococcal case harbouring *T. vaginalis*.

The data presented indicate that *T. vaginalis* is to be considered as an aetiological cause in cases of persisting urethritis. This is true notwithstanding the number of asymptomatic men harbouring the protozoon. Abstinence and the use of prophylactics did not result in a clearing of the urethral discharge or disappearance of the trichomonads. Although the men under observation denied unprotected sexual contacts, it must be admitted that many of the patients were being re-infected by their wives or consorts. Nevertheless, it is to be anticipated that such cases will occur and the important factor is to know the present therapeutic limitations. In this study seven *Trichomonas*-positive patients (9.3 per cent.) of the 75 cases of non-gonococcal urethritis were treated for periods of 6 to 20 months. This

prolonged treatment, running the gamut of therapeutic agents with no symptomatic relief, is to be avoided. Until an oral or parenteral drug is available to eliminate the flagellate, thereby causing cessation of the morning "drop", the clinician should be cognizant of its aetiological role and reassure the patient before psychic trauma ensues. In two of the seven above-mentioned patients, the mental strain of the persistent discharge resulted in a serious personality problem.

Summary

(1) A total of 183 male patients complaining of urethral discharge was examined.

(2) In 108 (59 per cent.) gonorrhoea was found. *Trichomonas vaginalis* was harboured in 33 patients (18 per cent.), only two in association with the gonococcus.

(3) Of the 75 patients suffering from non-gonococcal urethritis, the percentage incidence of *Trichomonas*-positive cases was 41, of which twelve patients persistently and continuously harboured the flagellate for periods of 3 to 20 months.

(4) In 9.3 per cent. of the cases of non-gonococcal urethritis, *Trichomonas vaginalis* was considered to be the sole cause of the persisting infection.

(5) The clinical features of the *Trichomonas*-positive cases are discussed.

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