

TRICHOMONIASIS -- INCIDENCE IN PILL USERS AND ASSOCIATED PAP SMEAR ABNORMALITIES

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Summary

The occurrence of *Trichomonas vaginalis* in pill-users and non-users was studied from 1,163 cervico-vaginal smears. There were twice as many pill-users as non-users and a significant number of asymptomatic carriers. The cytologic findings ranged from normal through inflammatory and dyskaryotic changes to those with malignant features. The majority, however, belonged to the benign end of the spectrum of epithelial atypias. The significant observations are the greater incidence of Trichomoniasis in pill-users and the presence of persistent epithelial dyskaryosis in about 8% of cases.

INTRODUCTION

It is estimated that *Trichomonas vaginalis* is responsible for about 75% of leukorrhoeas and vulvo-vaginitides and that 20-25% of women are asymptomatic carriers of this protozoan(1) which is generally accepted as a sexually transmitted genito-urinary pathogen. In view of the varying PAP Smear appearances encountered with this organism, a study was undertaken to compare the incidence of trichomoniasis in women on oral contraceptives with that in women not on oral contraceptives, to determine the frequency of occurrence of significant epithelial atypia, including malignancy of the cervix. The findings together with the percentage of symptomless carriers are documented in this paper.

MATERIALS AND METHODS

Vaginal and cervical smears examined over a period of five years from family planning clinics and hospitals were stained by the routine PAPANICOLAOU method and screened for *T. vaginalis*. The smears were classified into those showing:—

- a) No significant abnormality
- b) Inflammatory changes only
- c) Mild, moderate and severe epithelial dyskaryosis
- d) The presence of malignant cells

RESULTS

A total of 1,163 smears showed the presence of *T. vaginalis*. 62% were from women on the pill while 29.5% came from those practising no

form of contraception. 8.5% of women used other methods of contraception.

The presenting symptom in the majority of cases was vaginal discharge with pruritis of the vulva. 40% of women had vaginitis, cervicitis and cervical erosion, alone or in combination, while 0.4% were clinically suspected to have cervical malignancy. 32.9% had no symptoms whatsoever. Cytologic appraisal showed no significant abnormality in 24.9% of smears, inflammatory changes in 41.6%, varying degrees of squamous epithelial dyskaryosis in 33.0% and cervical malignancy of squamous cell type in 0.5%. The clinical and cytologic findings are summarised in Tables I and II respectively.

DISCUSSION

The incidence of trichomoniasis of the female genital tract is understated from the examination of PAP Smears only. A truer estimate can be obtained by direct smear examination and culturing the vaginal discharge or aspirate for the characteristic motile and flagellated protozoan.

The pathogenicity of the organism varies with the strain and certain host factors which include state of resistance, genital health and menstrual phase. It appears that tissue injury favours the growth of the organism and the raised pH of the vaginal and cervical secretions during and just prior to menstruation is optimal for growth(2). We found that a significant number of women (32.9%) harboured the organism without any complaints and that 24.9% had normal smears, the only abnormal

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Table I Clinical Data of *T. vaginalis* positive smears.

Method of Contraception	Patients		CLINICAL FINDINGS									
	No.	%	Pruritis Vulvae	Vaginal discharge	Vaginitis, Cervicitis erosion	Suspected malignancy	No abnormality	No.	%	No.	%	No.
Pill	722	62.0	512	44.0	528	45.4	320	27.5	4	0.3	194	16.7
IUCD	52	4.5	12	1.0	16	1.4	10	0.8	2	0.1	28	2.4
Condom	22	1.9	10	0.8	8	0.7	4	0.3	-	-	12	1.0
Diaphragm	8	0.7	-	-	2	0.2	-	-	-	-	6	0.5
Tubal ligation	16	1.4	-	-	6	0.5	6	0.5	-	-	12	1.0
Nil	343	29.5	3	0.2	166	14.3	128	11.0	-	-	133	11.4
Total	1163	100	537	46.0	726	62.5	468	40.1	6	0.4	385	33.0

Table II Cytologic Classification of *T. vaginalis* positive smears.

Method of Contraception	Patients		Normal Smears		Inflammatory Smears		EPITHELIAL DYKARYOSIS			Malignancy Positive Smears			
	No.	%	No.	%	No.	%	Mild	Moderate	Severe	No.	%		
Pill	722	62.0	140	12.0	295	25.4	98	94	8.1	90	7.7	5	0.4
IUCD	52	4.5	12	1.0	30	2.6	6	2	0.2	1	0.1	1	0.1
Condom	22	1.9	8	0.7	14	1.2	—	—	—	—	—	—	—
Diaphragm	8	0.7	6	0.5	2	0.2	—	—	—	—	—	—	—
Tubal ligation	16	1.4	10	0.9	6	0.5	—	—	—	—	—	—	—
Nil	343	29.5	114	9.8	136	11.7	80	10	0.9	3	0.3	—	—
Total	1163	100	290	24.9	483	41.6	184	106	9.2	94	8.1	6	0.5

finding being the presence of the protozoan. *T. vaginalis* can therefore produce an infestation without clinical or cytological evidence of inflammation. More commonly however, it produces an infection attacking the surface epithelium of the vagina and cervix. Cytologically, this is reflected by a smear that is "dirty" with much exudate, necrotic debris, fragmented cytoplasm and nuclei or epithelial cells. Polymorphonuclear leukocytes abound in an acute infection. The organisms are seen as greenish-gray, round, oval or elliptical bodies measuring 8–24 microns, with an eccentric, faint nucleus. When conditions are hostile, they recede into the glands, urethra and endocervix and during the latent phase may cause no symptoms or smear abnormalities.

In the chronic stage of infection, particularly in endocervicitis, aside from the usual inflammatory tissue reactions, epithelial atypia of varying severity is encountered. In fact, at this stage, organisms are few and the characteristic epithelial changes alert one to look for trichomonads. Though the overall smear pattern is similar to other non-specific infections, peculiar to *T. vaginalis* infection are the greater variation in nuclear size, pyknosis and karyorrhexis in superficial and parabasal squamous cells, eosinophilia or altered staining reaction of the cytoplasm, particularly of parabasals which are seen in large numbers. Peri-nuclear halo is a characteristic finding though by no means exclusive for *T. vaginalis*. Another frequent feature seen with Trichomonal infection, in cervico-vaginal smears is the colonization of single epithelial cells by clusters of leukocytes. We noted this in 62% of smears containing the pathogen. In an analysis of 1000 cases, Hypes and Ladewig(3) report that in Trichomonal in-

fection, 89% had leukocytic clusters, while in those free from infection only 1% had such clusters and suggest this cytological finding to be a presumptive diagnosis of Trichomoniasis in cytologic screening.

Of clinical importance however is the degree of epithelial atypia described as dyskaryosis which we have in 33.0% of smears. While 24.9% of these were of mild to moderate degree that regressed to normal in three to twelve months after treatment, about 8.1% showed marked squamous dyskaryosis which was worrying. In this group only 2% reverted to normal after treatment. Of the remaining 6.1% with persistent severe dyskaryosis, it is difficult to decide whether they represent a degree of cervical dysplasia on which a Trichomonal infection supervened or whether they represent a pathogenic effect of the organism. Koss and Wolinska(4) noted a greater incidence of Trichomoniasis in women with carcinoma-in-situ of the cervix than in the population at large. In our series we found four associated with in-situ carcinoma and two with invasive squamous carcinoma of the cervix. It is more likely that dysplasia and neoplasia reduce the epithelial resistance to infection. There is no conclusive evidence to ascribe a neoplastic potential to *T. vaginalis*. While a causative relationship between oral contraceptives and vaginal candidiasis was suggested by Catterall(5), there is little in the literature relating Trichomoniasis with the pill. In the present study, the incidence of Trichomoniasis in pill users is more than twice that in non-users. Factors such as socio-economic status, genital hygiene and sexual promiscuity, particularly under contraceptive cover, have to be considered before a causative association can be postulated.

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