Ignored trichomonal infestation diagnosed by Papanicolaou smear

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Abstract

Objective—To compare the occurrence of *Trichomonas vaginalis* as demonstrated by culture and by Papanicolaou (PAP) smears in a sexually transmitted disease (STD) clinic.

Setting—The largest out-patient venereological clinic in Denmark.

Subject and methods—As the prevalence of trichomonal infestation has decreased considerable in recent years direct microscopy of vaginal wet mounts is no longer performed routinely. Instead the screening diagnostic procedure is based on culture. We have retrospectively collected data on culture-negative women with *Trichomonas vaginalis* organisms present in cervical smears, taken on a routine basis to exclude atypical cells, and compared with the clinical findings.

Results—Since 1992 a total of 17 women were found to harbour *Trichomonas vaginalis* in cervical smear. A vaginal discharge was described in 10 women, six of whom had concomittant unspecific vaginitis. However, four women had unexplained vaginal discharge that could have been related to infestation with *Trichomonas vaginalis*. In addition one asymptomatic woman had a male partner with persistent urethritis.

Conclusion—The prevalence of trichomoniasis is underestimated in women attending the clinic if the diagnosis is based on culture alone. PAP smears may be helpful in demonstrating characteristic trichomonal organisms. In general we do not recommend the PAP smear be used to diagnose STDs. However the finding of trichomonal organisms in smears should prompt a repeated culture and direct microscopy of vaginal wet mount.

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Keywords: *trichomonas vaginalis*; culture; Papanicolaou

Introduction

As history and physical examination do not appear to be reliable indicators of infestation with *Trichomonas vaginalis* the diagnosis of trichomoniasis is in our clinic mainly based on a sensitive culture screening procedure using Diamond medium.^{1,2} We do not any longer on a routine basis perform direct microscopy of

wet mounts from women with vaginitis. However, characteristic trichomonal organisms have been observed in cervical smears indicating that the diagnosis is missed in a number of culture-negative women. The history and clinical findings in these trichomonal-smears positive women is presented.

Patients and methods

In all women attending the clinic a PAP smear is routinely taken to exclude cervical dysplasia. If morphologically characteristic *Trichomonas vaginalis* organisms are found during the microscopic examination it is noted by the pathologist. Only organisms, which are sufficiently well preserved for identification, are recorded. Women presenting with vaginal discharge will have direct microscopic examinations of methylene blue stained smears from cervix, urethra and vagina. In addition relevant cultures are taken in order to diagnose gonorrhoea, chlamydia, trichomoniasis, candidiasis and unspecific vaginitis (*Gardnerella vaginalis* associated vaginitis). Trichomonal organisms are cultured in Diamond medium.¹ Owing to the very low prevalence of trichomonal infestations since 1992, direct microscopy of wet preparations of vaginal specimens is no longer performed on a routine basis. Retrospectively the files of women with PAP smears positive for *Trichomonas vaginalis* from 1992 to 1994 were evaluated to find out whether the finding might have had significant clinical implications.

Results

The number of women with trichomoniasis has decreased steadily since 1984 and during a three years period (1992-94) only three cases were identified by culture (table). In contrast the prevalence of unspecific vaginitis has increased dramatically since 1984 (table).

In the period 1992-1994 a total of 17 women had trichomonal microorganisms identified in cervical smears (fig), and none of these women had a positive culture for *Trichomonas vaginalis*. Six women (35%) had vaginal discharge and malodour that was associated with concomittant unspecific vaginitis. Four of these six women received metronidazole 500 mg twice daily for seven days. Four women had unexplained persistent vaginal discharge. None of these women were treated. One woman had vaginal discharge that was related to a simultaneous chlamydial infection and unspecific vaginitis. Five women had no

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Number of women with trichomoniasis, unspecific vaginitis and candidiasis in a 11 years period from 1984 to 1994

	Trichomoniasis	Candidiasis	Unspecific vaginitis
1984	239	236	43
1985	191	209	71
1986	103	320	67
1987	52	353	155
1988	10	248	163
1989	13	236	140
1990	4	264	201
1991	16	265	179
1992	1	179	255
1993	1	197	233
1994	1	160	244

abnormal findings at examination; however, one of these had a male sexual partner with chronic urethritis, and two women had had unsafe sex with multiple partners during the last six months. In only two women a frothy greenish-yellow vaginal discharge was described, one of whom received metronidazole for an unspecific vaginitis.

Discussion

A decrease in the prevalence of *Trichomonas vaginalis* infestations has occurred during the last 10 years. This probably reflects the general trend observed for other sexual transmitted diseases.³ A decline in the incidence of

trichomoniasis has also been noted in other countries including the UK, but not as dramatically as seen in our clinic.⁴ Instead the non-sexually transmitted unspecific vaginitis has replaced trichomoniasis as the leading cause of vaginal discharge in women attending our clinic. An explanation of this phenomenon is still lacking.

As it is generally accepted that the most sensitive method of detecting *Trichomonas vaginalis* is culture, this diagnostic technique has been adopted in our clinic as the screening procedure.⁵ Direct microscopy of wet mount was in addition used previously, when trichomonal infestation was more prevalent. Direct microscopy was found to be the least sensitive compared with culture and PAP smear.³ In the present study very strict criteria were used for the identification of *Trichomonas vaginalis* in PAP smears, making it likely that the number of women with trichomonal infestation have been considerable larger than the 17 presented. Thus trichomoniasis has been overlooked in several women. This might have clinical implications as 23% of the women with trichomonal-positive PAP smears had otherwise unexplained vaginal discharge.

Thus our data suggest that PAP smear may not detect *Trichomonas vaginalis* in a considerable number of culture-negative women. Based on data presented we have changed our diagnostic strategy and have reintroduced a routine vaginal wet smear examination in all women with discharge and in addition our treatment strategy has been revised so that women with trichomonal-positive PAP smears, as well as their sexual partners, will receive anti-trichomonal treatment.

One important lesson of our study is that when a sexually transmitted disease becomes extremely rare, nearly non-existent, the danger exists of overlooking the disease both in the laboratory and in the clinical setting. We would like to emphasise that PAP smears should not replace culture in the diagnosis of trichomoniasis.

Trichomonal organisms are lying separately or in proximity with squamous cells. Primary magnification × 100. (Papanicolaou stain.)

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