

Trichomonal Infection in a cytological screening programme in India.

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Summary: The study was aimed at investigating the incidence of trichomonal infection in 16,218 women cytologically screened and also epidemiological factors associated with the protozoan infestation. The prevalence rate of trichomonal vaginal (TV) infection was found to be 3.2% among population screened and was associated with cervical dysplasia in 13.5% of cases. The infection was seen in 27.5% of women with clinical lesions on the cervix which harbour large number of early cases of cervical cancer. Further *T. vaginalis* was seen maximum in contact bleeding cases (10.8%) and even in 1.63% of totally asymptomatic women. The infection appears to be in the initial stage in such cases which were picked up by cytology.

Introduction

Trichomonal infection has been found to be most prevalent of all reproductive tract infections (RTI) in women of this part of the country and may be associated with poor genital hygiene of women belonging to low socio-economic class. Since majority of women of our country come from the lower strata, the trichomonal vaginal infection may assume epidemic proportions if proper detection of the protozoan and its control is not adequately planned to combat the problem.

Since the protozoans are easily recognizable in a cytology smear, a routine cervical cytology carried out for early detection of cervical cancer may help in diagnosing infection both in symptomatic as well as asymptomatic women. This study reports incidence of trichomonal infection in a cytological screening programme carried out at Gynaec OPD of Queen Mary's Hospital, Lucknow, India, during last 25 years (April 1971 - April 1997). The associated factors responsible for infection have also been investigated in detail.

Material and Methods

The study comprised of routine cytological screening in 16,218 women carried out between April 1971 to April 1997 at Queen Mary's Hospital, Lucknow. The incidence

of different reproductive tract infections (RTIs) have been analysed in women screened (viz. *T. vaginalis*, *Candida albicans*, Condyloma and Herpes simplex). A detailed investigation of different factors associated with trichomonal infection has been undertaken to understand the epidemiological behaviour of the protozoan.

The age of the patients ranged from 18 to 70 years and parity from 0 to 12. Prior to bimanual examination, a scrape smear was collected from the squamocolumnar junction of cervix and immediately fixed in absolute alcohol. The smears were stained according to Papanicolaou's technique and cytopathological grading of cervical smears was made according to WHO classification of 1973.

Results

Total number of women screened : 16,218

Following 4 types of reproductive tract infections which are sexually transmitted (STD) have been diagnosed by cervical smear examination-

Trichomonas vaginalis	523 (3.2 %)
Candida albicans	234 (1.4 %)
Condyloma (Human Papilloma virus)	67/11,232 (0.5 %)
Herpes simplex	81 (0.4%)

Table I
Association of T.V. infection with clinical lesions

Type of clinical lesion	No. of cases	T.V. positive	T.V. negative
Erosion cervix	1819	139 (7.5%)	1680 (92.5%)
Hypertrophied cervix	3130	116 (3.7%)	3014 (96.3%)
Cervix bleeds on touch	214	10 (4.67%)	204 (95.4%)
Endocervicitis	167	-	167 (100%)
Cervix suspicious of carcinoma	802	94 (11.7%)	708 (88.3%)
Pelvic inflammatory diseases	219	8 (3.6%)	211 (96.4%)
Vaginitis *	1273	58 (4.5%)	1215 (95.5%)
Healthy cervix	6202	101 (1.63%)	6101 (98.37%)

Diagnosis for Condyloma was initiated in March 1989, hence percentage of the diseased state has been calculated from the total number of 11,232 women screened from that period. Thus trichomonal infection was found to be most commonly encountered RTI than other 3 types (3.2%). Among the viral STDs, the prevalence rate ranged from 0.4 to 0.5%.

This study was undertaken to analyse in detail cytological findings associated with 513 cases of trichomonal vaginal infection and also to investigate different epidemiological factors which may predispose to the protozoan infection.

Cytological evaluation of 523 cases of trichomonal vaginal infection demonstrated:-

Inflammation -	451 (86.4%)
Dysplasia -	71 (13.5%)
Frank cancer-	1 (0.1%)

Dysplastic changes were seen in 13.5% of cases while malignancy was detected in only 1 case (0.1%).

The epidemiological parameters analysed in 16,218 women screened have been presence or absence of local lesions in the genital tract, gynaecological symptoms, age and parity. The clinical findings of the cervix in 16,218 women have been shown in Table I alongwith prevalence rate of trichomonal vaginal (TV) infection in each group. T. vaginalis was optimally seen in women with suspicious cervix (11.7%) followed by erosion of the cervix (7.5%). The protozoan infection was seen in 4.5% of women with cervix bleeding on touch and having vaginitis. Even the infection was found in 101 out of 6202 women (1.63%) who had healthy cervix and were totally asymptomatic. Gynaecological symptoms were present in 1463 out of total 16,218 women. The prevalence rate of TV infection with different symptoms is shown in Table II. The protozoan infestation was found to be maximum in contact bleeding cases (10.8%) followed by vaginal discharge (5.6%) cases. The TV infection was detected in 1.63% of 6202 totally asymptomatic women with healthy cervix. It appears that the infestation was of early onset in these cases and could be detected by cytologic evaluation of cervical smears.

Table II
Relation of T.V. infection with gynaecological symptoms

Symptoms	No. of cases	T.V. positive	T.V. negative
Vaginal discharge	761	43 (5.6%)	718 (94.4%)
Contact bleeding	83	9 (10.8%)	74 (89.2%)
Menorrhagia	462	-	462
Postmenopausal bleeding	157	-	157
Asymptomatic (with healthy cervix)	6202	101 (1.63%)	6101 (98.37%)

Table III
Relation between age and TV infection

Age group	No. of women	No. T.V. positive	No. T.V. negative
Upto 20 years	269	29 (10.8%)	240 (89.2%)
21-30 years	4737	152 (3.2%)	4585 (96.8%)
31-40 years	5279	254 (4.2%)	5017 (95.8%)
Above 40 years	5934	52 (0.8%)	5882 (99.2%)

Agewise distribution of the total 16,218 women is depicted in Table III alongwith the prevalence rate of T.V. infection in each group. The infestation was found to be maximum in younger women upto 20 years (10.8%) and this may be related to the active sexual life. Beyond 20 years, the infection showed fluctuating trend with least prevalence (0.8%) seen in women above 40 years.

Relation of TV infection with parity is shown in Table IV. There was no evidence of infection in any of the nulliparous women but the incidence was maximum in

para 1 subjects (6.5%). The prevalence declined with increasing parity.

Discussion

In the present series, TV infection was found to be most prevalent of all reproductive tract infections examined (3.2%). An incidence of 5.1% was also reported by Sardana et al (1993) in an Indian population. The infection was associated in 13.5% of cases with premalignant changes in the cervix. This should be taken as "warning"

and calls for adequate treatment of the infection to check any risk of malignant transformation of the cells. The study also highlights the two fold utility of cytology in picking up the protozoan infection as well as precancerous manifestations in the cervical epithelium.

Trichomonal infection was found in 27.5% of women with clinical lesions on the cervix which harbour large number of early cases of cervical cancer. Interestingly enough, the infection was seen in 1.63% of women with healthy cervix. The infection appears to be in the initial stage in such cases, cytological detection of which followed by subsequent adequate treatment enables to check further aggravation of the disease.

The prevalence rate of *T. vaginalis* was maximum in women complaining of contact bleeding (10.8%) and vaginal discharge (5.6%). Even 1.63% of the totally asymptomatic group showed TV infestation. Here again the infection appears to be of recent onset but was picked by cytology.

Trichomonal infection was found to be maximum in the younger women upto 20 years after which it showed decline. This appears to be related to active sexual life of the patients. Similarly the parity also had no bearing on the protozoan infection which was optimal in para 1 subjects after which it declined.

Trichomonas vaginalis is one of the commonest sexually transmitted diseases (STD) affecting female genital tract. WHO Report on the global estimation of the protozoan infestation shows 180 million people suffering from the

infection each year (Kreiger, 1981). In India, this may assume epidemic proportions as major population is rural and conservative/orthodox. They do not realize the concept of cleanliness and local hygiene. Unless a well planned community education is established, awareness cannot be created. This becomes more essential in view of reports that approximately 5% of total Indian population is believed to suffer from one or other form of STD (Wasserheit & Holms 1992).

Trichomonal infection was found to have no bearing on growing age and increasing parity. The infestation was maximum in younger women upto 20 years after which it showed a decline. The study highlights the need for a well planned community education on the personal hygiene to combat the disease since it is sexually transmitted.

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References

1. Sardana S, Sehgal A, Roy M, Singh V, Bhatnagar P, Murthy NS, Sodhani P, Agarwal SS. *Acta Cytol* 38(5), 693-697, 1993.
2. Kreiger JN. *Invest Urol* 18, 411-471, 1981.
3. Wasserheit JN and Holmes KK. *Reproductive tract infections; Global impact and Priorities for Women's Reproductive Health*. J.N. Newyork Platinum Press 7-33, 1992.