

ABNORMAL CYTOLOGY INDICATING SEXUALLY TRANSMITTED DISEASES IN WOMEN ATTENDING FAMILY WELFARE CLINICS

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SUMMARY

Cytological manifestations of six sexually transmitted diseases were studied in 2260 women from family welfare clinics. The prevalence rate of individual diseases was as following: *Trichomonas vaginalis*-6.5%, *Monilia*-6.2%, *Gardnerella vaginalis*-13.8%. Cytopathological changes suggestive of *Chlamydia trachomatis*, Human papilloma virus, and Herpes simplex virus were observed in 9.2%, 4.4%, and 1.6% of cases respectively. Cervical intraepithelial neoplasia, grades II and III, was observed significantly more often in association with viral cytopathology ($P < 0.05$). Analysis in relation to contraceptive use revealed that monilia was slightly more common with hormonal methods. Apart from the diagnosis of neoplasias the Papanicolaou's smear can therefore be useful in indicating six sexually transmitted diseases. Although not confirmatory, it is a useful screening procedure, particularly when other diagnostic tests for individual diseases are not available or are expensive as is the case in most developing countries.

INTRODUCTION

Several literature reports have described typical changes in cervical Papanicolaou stained smears from women with sexually transmitted diseases (STDs). Some of these have been reported as associated findings while some authors have evaluated the cervical smear as a diagnostic method for individual STDs (Dorman et al,

1983; Kiviat et al, 1985; Sekhri et al, 1989). We realised that as many as six STDs could have typical cytopathological manifestations in the cervical smear and this could be used as a screening test. In developing countries diagnostic tests for STDs are not easily available and are also very expensive and performed in few selective centres. Moreover the cervical smear is the only test which through a single investigation can be useful in the diagnosis of *Trichomonas vaginalis* (TV) (Spence et al, 1980), *Monilia* (MON) (Thin et al, 1975), *Gardnerella vaginalis*

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Accepted for Publication on 11/12/90*

(GV)(Kiviat et al, 1985), Chlamydia trachomatis (CHL) (Gupta et al, 1979, Borges et al, 1984), Condyloma or Human papilloma virus (HPV) (Meisels, 1976) and Herpes simplex virus (HSV) (Morse et al, 1974) in addition to the diagnosis of precancerous and cancerous lesions of the genital tract. In the paper we have analysed the frequency of cytological manifestations characteristics of these six STDs as observed in cervical smears collected during a routine screening programme.

MATERIAL AND METHODS

This analysis includes cervical smears from 2260 women who attended the Institute's family welfare clinics between January 1983 to June 1987. A woman was classified as a contraceptive user if she had used the method for at least 6 months within the previous 6 months were classified as changeovers. The cytological classification of STDs was based on typical cytopathological findings described in literature as mentioned earlier.

All inflammatory smears which did not show changes typical of any STD were simply classified as Inflammatory smears (INF).

The type of inflammatory response was

assessed in 400 smears, 50 of each type, by counting the different types of inflammatory cells in five nonadjacent high power fields showing maximal inflammatory changes.

A different type of cell described by Kiviat et al (1985) as a transformed lymphocyte and having vacuolated cytoplasm, central large nucleus, and prominent nucleoli was also evaluated.

RESULTS

The percentage of inadequate smears during the study period was 5%. However in all such cases, smears were repeated and no case was excluded for this reason. Out of 2260 cases 730 had cytological features of one or more STDs, giving an overall prevalence rate of 32.3%. The rates for different abnormalities are given in Table I. CLue cells were most common i.e. 13.8%. Cytopathology indicating viral infections was also observed commonly, HPV in 4.4% and HSV in 1.6% of all cases, and both were significantly more common with CIN II and III. Doderlein's bacteria were reduced in all coccobacilli were markedly increased. The transformed lymphocyte was seen most commonly with inflammatory smears and in smears

TABLE I.
RELATIVE FREQUENCY OF ABNORMAL SMEARS INDICATING
DIFFERENT STDs AND STD WITH CIN

| TYPE | ALL STD CASES (n=730) | STD WITH CIN (n=133) |
|------|--------------------------|-------------------------|
| T V | 149 (20.4%) | 30 (22.5%) |
| MON | 141 (19.3%) | 16 (12.0%)* |
| G V | 312 (42.7%) | 60 (45.1%) |
| CHL | 215 (29.5%) | 45 (33.8%) |
| HPV | 100 (13.7%) | 58 (43.6%)** |
| HSV | 37 (5.0%) | 33 (24.8%)** |

* $P < 0.05$, significantly less

** $P < 0.05$, significantly more

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II)

TABLE III

PREVALENCE OF ABNORMAL SMEARS IN WOMEN IN RELATION TO THE TYPE OF CONTRACEPTION

| TYPE OF METHOD | TV NO(%) | MON NO(%) | GV NO(%) | CHL NO(%) | HPV NO(%) | HSV NO(%) |
|--------------------------|--------------|--------------|----------------|----------------|--------------|--------------|
| NON USERS (n=787) | 70 (8.9%) | 40 (5.0%) | 98 (12.4%) | 107 (13.5%) | 43 (5.4%) | 18 (2.2%) |
| CU IUD (n=1136) | 64 (5.6%) | 78 (6.8%) | 167 (14.7%) | 86 (7.5%) | 48 (4.2%) | 15 (1.3%) |
| INERT IUD (n=155) | 7 (4.5%) | 8 (5.1%) | 27 (17.4%) | 14 (9.0%) | 1 (0.6%) | 2 (1.2%) |
| HORMONES (n=128) | 6 (4.6%) | 12 (9.3%) | 13 (10.1%) | 4* (3.1%) | 4 (3.1%) | 1 (0.7%) |
| CHANGE OVER @2 (n=54) | | 3 (5.5%) | 7 (12.9%) | 4 (7.4%) | 4 (7.4%) | 1 (1.8%) |

* P < 0.05, significantly less

@ Numbers too small

Referance

1) Bang R.A., Bang A.T., Baitule M., Choudhary Y., Sarmukadam S. and Tale O.,
The Lancet 1:85, 1989

with cytoplasmic inclusions, suggestive of CHL (Table II). The association of cervical intraepithelial neoplasia (CIN) with STDs was significant. Out of 2260 cases, 172(7.6) had CIN, and out of these 133 (5.9%) were associated with STDs ($P < 0.05$). Out of total of 54 cases of CIN II and III, 34(62.9%) were associated with viral STDs ($P < 0.05$). No differences were observed with respect to the occurrence of CIN and different types of contraceptives how-

ever the numbers were small.

The distribution of various STDs according to contraceptive use of 6 months or more is given in Table III.

There was a tendency towards a higher incidence of Moniliasis in users of hormonal contraceptives as compared to the nonhormonal group, and changes suggestive of Chlamydia were significantly less. There were no statisti-

TABLE II. THE PERCENTAGE OF SMEARS SHOWING VARIOUS TYPES OF INFLAMMATORY RESPONSE

| CYTOLOGICAL DIAGNOSIS | NEG | INFL | TV | MON | GV | CHL | HPV | HSV |
|---------------------------------|-----|-------|------|------|------|-------|-------|------|
| POLY MORPHS > 75/HPF | 16% | 74%* | 58%* | 48%* | 48%* | 52%* | 26%* | 22% |
| PLASMA CELLS > 3/HPF | 8% | 44%* | 36%* | 14%* | 20% | 14% | 4% | 12% |
| LYMPHOCYTES > 3/HP | 28% | 70%* | 40% | 36% | 38% | 50%* | 16%** | 20% |
| TRANSFORMED LYMPHOCYTES > 3/HPF | 8% | 38%* | 10% | 2% | 22%* | 36%* | 10% | 10% |
| HISTOCYTES > 10/HPF | 6% | 40%* | 18%* | 12% | 14% | 6% | 12% | 8% |
| DODERLEIN'S BACILLI | 22% | 10%** | 16%* | 8%* | 24% | 10%** | 14% | 4%** |
| +++ OTHER COCCO-BACILLI | 6% | 10% | 18%* | 8% | 92%* | 4% | 14% | 16%* |

* $P < 0.05$, significantly more *** $P < 0.05$, significantly less

TABLE III. OREVALENCE OF ABNORMAL SMEARS IN WOMEN IN RELATION TO THE TYPE OF CONTRACEPTION

| TYPE OF TV METHOD | MON NO (%) | GV NO (%) | CHL NO (%) | HPV NO (%) | HSV NO (%) | NO (%) |
|----------------------|------------|-----------|-------------|-------------|------------|-----------|
| NON USERS (n=787) | 70 (8.9%) | 40 (5.0%) | 98 (12.4%) | 107 (13.5%) | 433 (5.4%) | 18 (2.2%) |
| CU IUD (n=1136) | 64 (5.6%) | 78 (6.8%) | 167 (14.7%) | 86 (7.5%) | 48 (4.2%) | 15 (1.3%) |
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| CHANGE OVER @ (n=54) | 2 (3.7%) | 3 (5.5%) | 7 (12.9%) | 4 (7.4%) | 4 (7.4%) | 1 (1.8%) |

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cally significant differences in prevalence rates of different STDs according to age or parity although viral cytopathology occurred more frequently in women of younger age and parity.

A significant proportion of women had abnormal smears suggesting two associated STDs (19.2%), three STDs (3.0%), and four STDs (1.6%), a single STD being present in the remaining cases (76.2%). The most commonly associated abnormalities were HPV, HSV, and GV.

DISCUSSION

This analysis has shown that a large proportion of young women attending the family welfare clinics showed cytopathological changes suggestive of STDs in cervical smears in the absence of significant clinical signs and symptoms. These women belonged to the lower socio-economic classes where monogamous marital relationships are conventional and STDs are a taboo. It is therefore probable that nonsexual modes of transmission due to unhygienic conditions like common toilets and inadequate water supply may have partly contributed to the high prevalence. However it is not possible to determine this extent from the study. The association of CIN II and III with STDs was significant and helped us to identify a group of women who are at an increased risk of developing investigation. The role of cytology in definitive diagnosis of some STDs is controversial, however its usefulness in the diagnosis of TV, GV, HPV, and HSV has been amply demonstrated. The diagnosis of CHL appears to be more controversial and some recent reports indicate a high rate of false negatives and false recent reports indicate a high rate of false negatives and false positives (Shiina, 1981; Quinn et al, 1987). However recently Sekhri et al (1989) have demonstrated the utility of cervical cytology in screening for CHL, MON can be better demonstrated by a wet vaginal smear but a microscope is not easily available to most gynecologists in India. The other confirmatory tests like immunofluorescence, bacterial or viral cultures, and serology are beyond the

scope of the average physician in a developing country. Since the Papanicolaou smear is used for cancer detection in many centres more frequently than all other tests we believe that this opportunity of indicating the possibility of six STDs through one test should not be lost. This will help in the early detection and control of STDs. Bang et al (1989) observed that the prevalence of certain gynecological diseases and STDs was upto 92% in a rural Indian population. Although bacteriological and serological studies were not conducted in the present study the prevalence of cytological changes due to STDs was high, i.e. 32.3%, and indicates the need for reporting these changes particularly when other investigational facilities are not available. Cytology cannot substitute any definitive diagnostic method, but it may be the only tool available for the poor patients and should not be ignored.

ACKNOWLEDGEMENTS

We are thankful to V. Kiro, S. Sawarkar, C. Thosar and other paramedical staff for their assistance during the study and to S. Hatkar for typing the manuscript.

REFERENCES

1. Bang R.A., Bang A.T., Baitule M., Choudhary Y., Sarmukadam S. and Tale O.
2. Borges R.J., Carmona D., Machado H. and Esparza J. *Cytol* : 28 : 471, 1984
3. Dorman S.A., Damos L.M., Wilson D.J. *J. Clin. Pathol.* : 79 : 421, 1983
4. Gupta P.K., Lee E.F., Erozan Y.S., Frost J.K., Geddes S.T., and Donovan P.A. *Acta Cytol* : 23 : 315, 1979.
5. Kiviat N.N., Peterson M., Kinney-Thomas. *JAMA* : 253 : 997, 1985
6. Meisels A., Fortin R. *Acta Cytol* 20 : 505, 1976
7. Morse A.R., Coleman D.V., Gardner S.D. *J. Obstet. Gynec. Brit C'wealth* 81:393, 1974
8. Sekhri A., Faou A.E., Tardieu J., Antz M., Fabre M. *Acta Cytol* : 32 : 805, 1989
9. Shiina Y. *Acta Cytol* : 29 : 683, 1981.
10. Spence M.R., Hollander D.H., Smith J., Mc Caig Sewell D., and Brockman M. *Sex Transm Dis* : 7:168, 1980
11. Thin R.N.T., Atia W., Parker J.D.J. *Brit. J. Vener. Dis* : 51:116, 1975
12. Quinn TC, Gupta PK, Burkman RT, Kappus EW, Barbacci M, Spence MR. 157 : 394, 1987.