

# Cervical cytology in non-specific genital infection

## *An aid to diagnosis*

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Non-specific urethritis (NSU) is a common condition among men (CMO's Report, 1972). Sub-group A *Chlamydia* can be isolated from the urethra in some of these men, and from the genito-urinary tract of a proportion of their female partners (*Lancet*, 1973). However, facilities for *Chlamydia* culture are available in only a few centres and the diagnosis of non-specific genital infection (NSGI) lacks precision in most female patients.

Cervical smears for cytological examination taken from women attending clinics for the treatment of sexually-transmitted diseases may show the presence of inflammatory changes in the epithelial cells. It was thought that these changes might correlate with the presence of NSGI in women, and a group of patients was studied to test this hypothesis.

### Material and methods

Female contacts of men suffering from NSU attending the clinic between October 1, 1969, and August 30, 1970, were initially included in the study. In all cases, a detailed history was taken and a general physical examination carried out. Blood was taken for cardiolipin Wassermann reaction and Reiter protein complement-fixation test. A fresh wet preparation of vaginal secretion was examined microscopically for *Trichomonas vaginalis* using a  $\times 40$  objective and a bright field condenser, and material was inoculated into Feinberg-Whittington medium. *Candida albicans* infection was excluded by examining Gram-stained smears of vaginal secretion and by culture on Sabouraud's medium. A cervical smear was taken with an Ayre's spatula and immediately fixed in ether/alcohol for staining by Papanicolaou's method and examination by an experienced cytologist. Urethral and cervical secretions were examined both by Gram-staining, and after transport to the laboratory in Stuart's medium, by culture on McLeod's chocolate agar to exclude *Neisseria gonorrhoeae* infection. If any of the above procedures indicated the presence of a specific infection, the patient was withdrawn from the study.

Those patients remaining were matched with controls, each of whom had no evidence, on full investigation as above, of any sexually-transmitted disease. Women known to be contacts of men with sexually-transmitted disease were excluded. Controls were matched for age, marital status, and ethnic group.

The cytological criteria for inflammatory changes in a cervical smear were based mainly on the altered morphology of the epithelial cells (Wachtel, 1969). The presence of leucocytes was considered to be an unreliable criterion in view of the variations seen between normal individuals and at different stages of the menstrual cycle, although a marked excess of pus cells was not entirely ignored when assessing the inflammatory reaction. The degree of inflammatory change, graded on an arbitrary scale ( $-$ ,  $\pm$ ,  $+$ ,  $++$ ,  $+++$ ), was assessed mainly on the frequency of parabasal cells (evidence of reactive hyperplasia) together with the atypical and degenerative changes seen in these cells. All smears were examined 'blind' by the cytologist, who was told only the date of the last menstrual period and whether the patient was taking an oral contraceptive.

### Results

After excluding those women with specific sexually-transmitted diseases, 47 patients who were contacts of men with NSU remained in the study. 34 were single, eleven married, and two separated. Their ages ranged from 16 to 49 yrs (mean of 22.8). 46 were Caucasians and one was Asian; there were no Negroes.

Cervical smears showed inflammatory changes in 33 of the 47 NSU contacts (70.2 per cent.) and in eleven of the 47 controls (23.4 per cent.). This difference is highly significant ( $P < 0.001$ ). In the Table (overleaf) the patients are grouped according to the severity of the inflammatory changes. No attempt was made to analyse the findings according to whether the women were primary or secondary contacts as it was often difficult to be certain to which category a patient belonged.

TABLE *Distribution of patients according to severity of inflammatory changes in the cervical smears*

Inflammation	-	±	+	++	+++	Total
NSU contacts	14	2	22	7	2	47
Control patients	36	5	4	2	0	47

### Discussion

This study shows that, in women who are contacts of men with NSU, cervical smears often show inflammatory changes in the epithelial cells. Such changes can be readily recognized by an experienced cytologist, and appear to form a useful indication of probable NSGI in women.

Cervical smears are taken from female patients attending most clinics for the treatment of sexually-transmitted diseases as these women have a high incidence of carcinoma of the cervix (Wachtel, 1973). Thus the procedure outlined involves no extra cost and very little extra laboratory time. Further assessment is required to see if the inflammatory changes decrease after treatment, and whether they correlate with *Chlamydia* isolation.

### Summary

Routine cervical smears showed inflammatory changes in the epithelial cells in 70 per cent. of 47 female contacts of men with non-specific urethritis. This proportion is significantly more than the 23 per cent. showing inflammatory changes in 47 control patients. It is suggested that the presence of such inflammatory

changes may aid in the diagnosis of non-specific genital infection in women.

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### References

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### La cytologie cervicale dans les infections génitales non spécifiques. Une aide au diagnostic

#### SOMMAIRE

L'examen de routine des étalements cervicaux a montré des changements de type inflammatoire dans les cellules épithéliales chez 70 pour cent de 47 femmes ayant été en contact avec des hommes atteints d'urétrite non spécifique. Cette proportion est significativement plus élevée que les 23 pour cent de modifications inflammatoires trouvées chez 47 malades témoins. Ceci suggère que la présence de telles modifications inflammatoires peut être une aide dans le diagnostic des infections génitales non spécifiques chez la femme.