Detection of gonorrhoea in women

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Summary

A retrospective survey of 210 female patients with gonorrhoea who attended the West London Hospital during 4 months of 1973 showed that nine out of ten were diagnosed by tests taken at the first examination.

Ten patients were diagnosed at third or subsequent examinations, but nine of them had defaulted for more than one month before the diagnosis was made, and the tenth gave a clear history of later infection.

Three-quarters of the patients came because of known contact with infected males, and less than a quarter of patients who came for this reason were not infected.

After one negative post-treatment test, all recurrences were associated with prematurely resumed sexual intercourse or contact with fresh infection.

It is concluded that routine repetitive testing is unproductive, and that the tracing of contacts is of paramount importance.

Introduction

The results of sequential genital examination of the female for gonorrhoea have been reported infrequently, despite its considerable economic and sociological importance. The best previous figures from this country indicate that three tests are required to avoid missing the diagnosis in one patient in ten (Catterall, 1970). These findings could be used as an argument in favour of epidemiological treatment. Figures from the United States suggest that techniques have considerably improved since then, especially with the introduction of selective culture media (Schmale, Martin, and Domescik, 1969; Caldwell, Price, Pazin, and Cornelius, 1971; Schroeter and Lucas, 1972).

The following survey is based on records from 1973 at a large clinic in West London dealing with sexually transmissible diseases. Other epidemiological, clinical, and microbiological factors which might relate to the diagnosis and management of the condition are reported, so too is the post-treatment procedure undertaken to determine cure.

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Method

All newly registered female patients found to have gonorrhoea at the Department of Genito-Urinary Medicine at the West London Hospital during January, April, July, and October, 1973, were retrospectively assessed by examination of their case records.

Diagnostic tests were taken from patients in the lithotomy position, and cervico-vaginal examination was carried out using a bivalve speculum. Vaginal tests were taken for *Trichomonas vaginalis* and *Candida albicans*, and cervical and urethral tests were taken for *N. gonorrhoeae*. Rectal and pharyngeal tests were not carried out routinely at this time. All material was examined by direct microscopy and by culture: Feinberg-Whittington medium was used for *T. vaginalis*, Sabouraud's medium for *C. albicans*, and a modified Thayer-Martin selective medium (G.C. Selective Medium, Oxoid Ltd.) for *N. gonorrhoeae*, using a single plate inoculated on opposite halves from endocervix and urethra. Specimens were obtained with cotton-wool swabs. Inoculated selective medium plates reached the incubator in 2 to 5 min., when they were placed in a candle extinction jar; the candle was not lit until the jar had been filled (10 plates), which could vary between 30 min. and 6 hrs. The candle-jars were removed to the laboratory at the end of the day, and incubation was continued at 36–37°C. for 48 hrs. In those cases in which smears were positive, plates showing no growth were incubated for a further 24 hrs. Colonies were identified by oxidase reagent and identification was confirmed by direct immunofluorescence.

Results

210 patients were found to have gonorrhoea; 161 of them (77 per cent.) presented at the request of their partners, either by word of mouth, or with a contact slip, or they attended together; these patients are all referred to as contacts. 109 patients (52 per cent.) had symptoms, mostly discharge, pruritus, or dysuria, which were rarely severe and then only in the presence of vaginitis due to another cause.

Oral contraception was used by 114 (54 per cent.) and an intrauterine contraceptive device (IUCD) by only eleven (5 per cent.); however, 48 per cent. of patients without gonorrhoea were using oral contraception during the same period. Similar proportions of women without gonorrhoea were using oral contraceptives and IUCD.

Trichomoniasis was diagnosed in 65 patients (31 per cent.), compared with 13 per cent. in the clinic overall during 1973. Candidosis was present in 82 (39 per cent.) patients with gonorrhoea, but its isolation in the follow-up period meant that in only 66 (31 per cent.) patients it was found in the first three tests; the overall isolation rate in 1973 was 28 per cent.

The rate of detection of gonorrhoea is shown in Table I. The diagnosis was made by Gram-stained smear in 120 cases (57 per cent.) and culture was negative (with subsequent confirmation of the slide diagnosis) in fifteen (7 per cent.). In seventeen cases (8 per cent.) the diagnosis depended on the urethral specimen. Tests of fifty contacts of gonorrhoea who attended in the same period but in whom the organism was not found showed a distribution with a mode of three tests on each patient, which indicates that contacts were not discharged before they had been adequately examined.

TABLE I *Detection of gonorrhoea in 210 women*

Examination	Cervical and urethral tests		
	Positive smears	Positive cultures	Total patients
1st	110	171	184
2nd	5	14	16
3rd	2	7	7*
4th	2	2	2*
5th	1	1	1*
Total	120	195	210

*These patients were probably infected after the first two tests

Recurrences are shown in Table II against the number of post-treatment examinations carried out and the frequency distribution of negative tests on patients presumed to be cured; although 24 patients

TABLE II *Post-treatment examination of 210 women with gonorrhoea*

Number of attendances	Patient examinations	Recurrent gonorrhoea (positive tests)	Other patients (negative tests)
0	—	—	24
1	186	5	34
2	147	3	29
3	115	1	51
4	63	0	38
5	25	1	13
6	11	0	5
7	6	1	5
Total	553	11	199

did not return at all for follow-up, the mode was again three tests on each patient. Altogether eleven patients (5 per cent.) had recurrent infection, but all in whom this was found after one negative test admitted subsequent sexual exposure.

Discussion

This survey shows that gonorrhoea in women can be diagnosed from cervical and urethral secretions in nine out of ten cases at the first examination. Diagnosis by Gram-stained smear permits immediate treatment, but this proved possible in little more than half the patients so that two attendances for diagnosis and treatment were often necessary.

Any assessment of the detection rate for gonorrhoea in women must ensure that patients attend for examination within a reasonable length of time without re-exposing themselves to infection. Significantly, nine of the ten patients diagnosed after two negative tests had left an interval of at least 1 month and in some cases 4 months (mean $2\frac{1}{2}$ mths) before the test which proved positive. It is not possible to be sure that infection did not escape previous detection in these patients, perhaps because it was present only in the rectum or pharynx, but they are more likely to have been infected subsequently and form a well-defined group who should be regarded as presenting for fresh investigation. The one girl diagnosed at a third test within 1 month gave a clear history of infection after the second test. Thus, these ten patients (4.5 per cent.) were diagnosed at what was really their presenting examination, making a total of 194 patients (92.5 per cent.) in whom gonorrhoea was detected at their initial test, the remaining sixteen (7.5 per cent.) being detected at the second examination.

Fifty (24 per cent.) of the 211 patients who attended as contacts were not found to be infected, and none of the eighteen who defaulted before they had undergone the customary three examinations later returned as contacts. The small number in this group, which must comprise some patients who were not actually exposed to infection as well as some who eradicated it immunologically, suggests that infectivity for male-female transfer is very high, even allowing for bias from source contacts.

From the clinical aspect, the likelihood of infection being found in a contact of gonorrhoea (as defined above) proved extremely high: 76 per cent. of contacts were found to be infected, and these formed 77 per cent. of the total number of cases. No greater stress could be laid on the importance of contact tracing.

The other interesting correlation was between gonorrhoea and trichomoniasis, which has been described previously (Tsao, 1969; Catterall, 1970). This could be explained on the hypothesis that trichomonal infection is transient in the male, who

transmits the organism before it is spontaneously eliminated; similarly, the short incubation period of gonorrhoea leaves little time for infection to be spread before the patient is obliged to seek treatment for urethral discharge. Thus, rapid transmission is a prerequisite for the survival of both conditions. Surprisingly, only about two-thirds of the 32 per cent. of patients who had trichomoniasis complained of symptoms, so the associated infection was not as reliable a reason for presentation as might have been hoped.

Growth failure in the cultures of patients with confirmed smear results may have been due to technical problems with incubator temperature or CO₂ concentration, but probably resulted from the sensitivity of a few strains to the antimicrobial agents in the selective medium; this has been demonstrated by the simultaneous inoculation of plates containing selective and non-selective media.

The recurrence rate of 5 per cent. remained constant throughout the 4 months sampled. None of these patients used an IUCD. Although there remains no way of distinguishing between reinfection and relapse due to inadequate treatment with any

certainty, clinical indications for further examination were present in all patients found to have gonorrhoea again after one negative post-treatment examination: the three found infected at their second examination had all resumed sexual intercourse, so too had the girl with recurrence detected at her third examination, but in addition she had declined to disclose her contact. Finally, the remaining two patients returned after long intervals (10 weeks and 1 year) specifically because of contact with fresh infection. Asymptomatic male gonorrhoea should declare itself in this group, but the recurrence rate found suggests the incidence must be very low.

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