

Survey of the use of selective culture for *Neisseria gonorrhoeae* in specimens from the female genital tract sent by general practitioners to a microbiology laboratory

TOM GILLESPIE

IAN MCKAY

SUMMARY

A retrospective survey of the number of cultures found to be positive for *Neisseria gonorrhoeae* in genital specimens from female patients sent by general practitioners (GPs) over a three-year period was carried out. The organism could be detected in only four specimens out of over 28 000 specimens sent. Specifically, additional selective culture for *N gonorrhoeae* had been carried out in 8529 of these specimens. An estimate of the cost savings achievable if this laboratory was no longer to culture routinely for *N gonorrhoeae* was made. GPs should be aware of their local laboratory's normal practice when processing such specimen and should request specific culture if appropriate. The low number of specimens from which *N gonorrhoeae* could be cultured might suggest that GPs are referring 'at-risk' patients to genitourinary medicine clinics already.

Keywords: *Neisseria gonorrhoeae*; sexual health; genitourinary medicine.

Introduction

Neisseria gonorrhoea may cause genitourinary disease, particularly in young adults with multiple sexual partners. In 20 to 24-year-olds, an incidence of 25.7 cases/100 000 females occurs.¹ Clinical symptoms such as dysuria, frequency of micturition, or purulent discharge may be absent in up to 50% of females.² Complications include pelvic inflammatory disease, infertility, and peri-hepatitis. In 1% to 3% of patients, disseminated infection resulting from haematogenous spread presents as a rash, arthritis, or tenosynovitis. Rarely, endocarditis or meningitis occurs.

Isolation of this organism requires selective culture media, followed by confirmatory biochemical tests. Current practice in the laboratory of the Department of Microbiology at Western General Hospitals is to employ additional selective agar ('New York City' ['NYC'] agar) for paediatric vulval swabs, cervical swabs, and vaginal swabs from women of reproductive age (10 to 55 years) when more than 10 polymorphonuclear leucocytes are seen by microscopy at 100 magnification of a wet preparation of the swab. Our argument is that this may be 'overkill' and a waste of resources. Better targeting of selective culture could be made with subsequent cost savings.

Almost two-thirds of women from whom this organism is isolated present directly to a genitourinary medicine clinic, or are

contacts of known cases, with less than 25% presenting to general practitioners (GPs).^{3,4} Our positivity rate was used to evaluate specific culture for *N gonorrhoeae* in genital specimens received from GPs, and by estimating the resources expended for each positive isolation, a calculation of the costs involved could be made.

Methods

Data were collected using a retrospective computer search. Endocervical, high vaginal, and vulval swabs received from GPs between 1 November 1994 and 31 October 1997 inclusive were counted. Separately, the number of vaginal swabs with moderate to high numbers (more than 10 cells) of polymorphonuclear leucocytes under low-power microscopy (x100 magnification) of a moist preparation of the swab was totalled. Patient details were recovered from request forms accompanying samples growing *N gonorrhoeae*.

Consumable costs were obtained from the manufacturer. The standard unit of a biomedical scientist's (BMS's) time required for each specimen was obtained from the WELCAN UK Workload Measurement System for Pathology.⁵

Results

The number of samples sent from GPs is shown in Table 1. Although specific culture for *N gonorrhoeae* was performed on 4994 endocervical swabs, 3483 vaginal swabs, and 52 paediatric vulval swabs, on only four occasions (4/8529) was this organism isolated. All positive specimens were endocervical swabs from females under 20 years of age. Two of the patients had partners with *N gonorrhoeae*, the others had a vaginal discharge.

Each 'NYC' plate costs 29.6p (1998 prices), producing consumable costs of £2524.58. The time taken by the BMS in processing each plate equals two minutes;⁵ therefore, 284 hours of BMS time must be added. At £8.23 per hour, this produces a figure of £1215.48 for each positive culture isolated. This underestimates costs, as any laboratory activity to distinguish non-pathogenic species is not included.

Discussion

As we found the overall incidence of positive gonococcal cultures from female genital specimens received from GPs to be 0.014%, there would appear to be a case for more selective gonococcal culture in this population's samples. Released savings could benefit the clinician as a smaller cost per specimen. However, a figure of £1215.48 per positive culture may be justifiable.

Previously, 46% of GPs reported requesting tests for *N gonorrhoeae* in endocervical swabs from patients with a sexually transmitted disease (STD).³ Although the number of patients presenting to their GPs with a history of STD during this period is unknown, our low positivity rate questions the need for routine

T Gillespie, MRCPath, senior registrar; and I McKay, MRCPGP, hospital practitioner, Department of Clinical Microbiology, Western General Hospitals NHS Trust, Edinburgh.

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Table 1. Number of genital swabs received from GPs from 1 November 1994 to 31 October 1997 inclusive.

	Total sent	Number with moderate to large numbers of leucocytes seen on microscopy of wet preparation	Total <i>Neisseria gonorrhoeae</i> positive
1.11.94–31.10.95			
Endocervical	1630	–	2
HVS	6856	807	0
Paediatric			
Vulval	231	9	0
1.11.95–31.10.96			
Endocervical	1742	–	2
HVS	7933	1282	0
Paediatric			
Vulval	238	22	0
1.11.96–31.10.97			
Endocervical	1622	–	0
HVS	7808	1394	0
Paediatric			
Vulval	303	21	0
Cumulative totals			
Endocervical	4994	–	4
HVS	22 597	3483	0
Paediatric			
Vulval	772	52	0

HVS = high vaginal swabs.

request and culture. An endocervical swab is confirmed as the most appropriate specimen for detecting gonococcal infection in this population. According to the clinical details provided, gonorrhoea was suspected in two of the cases. Subsequent questioning of the GPs revealed that in one other case a diagnosis of pelvic inflammatory disease was suspected; but gonococcal isolation was unexpected in the final patient and would have been missed if culture for *N gonorrhoeae* had been omitted.

General practitioners should be aware of their local laboratory's normal procedure for dealing with specimens from the genitourinary tract, as *N gonorrhoeae* culture may not be carried out routinely. The low positivity rate in this survey might suggest that GPs already refer patients with suspected gonococcal infection to genitourinary medicine clinics. This contradicts the Scottish Needs Assessment Programme report, where less than 50% of GPs referred patients with suspected sexually transmitted infections to genitourinary medicine clinics.³ In our opinion, if GPs decide not to refer, an endocervical swab should be sent with a specific request for gonococcal culture.

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Address for correspondence

Dr Tom Gillespie, Department of Clinical Microbiology, Western General Hospitals, Crewe Road, Edinburgh EH4 2XU.