

## Isolation of Neisseria gonorrhoeae from Females

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**OBJECTIVE:** The diagnosis of gonorrhoeae in females has always posed a problem for the clinician. Female patients infected with gonorrhoeae are often asymptomatic. There is seldom a readily observable discharge as is usually presented with male patients. The Gram stain that is usually satisfactory in males is the method most often used with females as it is cheap and requires little equipment. Many clinics have been disappointed with culture techniques as the results are often ambiguous. This laboratory undertook to study the use of selective media and various specimens in the diagnosis of gonorrhoeae in females.

**DESCRIPTION:** We were fortunate in that selected patients seen in a venereal disease control clinic were made available for study to this laboratory by the Ministry of Health, Thailand. At this clinic females are given pelvic examinations. Those with any suggestive evidence of venereal diseases were examined further. For our studies, swabs were obtained from the cervix, urethra, and/or rectum. Smears were made from cervical exudates for Gram stains which were made and interpreted by technicians at the Venereal Disease Control Clinic.

**PROGRESS:** Of 424 individual specimens examined, 65 (15.33%) were positive for intra and extra-cellular Gram negative diplococci when examined by Gram stain technique. Culture in this laboratory on Thayer-Martin chocolate media with V.C.N. inhibitor and Isovitalex revealed 158 (37.2%) specimens positive for Neisseria gonorrhoeae. There were 9 (4.12%) specimens positive on Gram stain that were negative at culture. These findings are demonstrated in Figure 1.

An evaluation of various media was made during this study. Thayer-Martin chocolate media with Isovitalex and V.C.N. proved to give better recovery of N. gonorrhoeae than other media used. These included GC base with haemoglobin powder, supplement B, and 5% dextrose; Mueller-Hinton with Isovitalex and V.C.N. and GC base media with Isovitalex. The latter two media were manufactured without haemoglobin in order to facilitate the identification of 'T' strains of N. gonorrhoeae. We found this not to be a difficult problem and felt that the incorporation of haemoglobin was important in obtaining maximum growth.

In an attempt to determine the best specimen for maximum recovery of N. gonorrhoeae, specimens were obtained from the cervix, urethra, and rectum. Greatest recovery from individual specimens occurred from the cervix with 10.2% of 422 specimens revealing N. gonorrhoeae from this site alone. Rectal specimens were positive with 1.54% of 133 specimens, followed by 0.69% of 289 specimens from the urethra. Combinations of two sites revealed 39.44% of 289 specimens with N. gonorrhoeae from both the cervix and urethra and 33.83% of 133 specimens from both the cervix and rectum.

An interesting observation regarding serum antibiotics was made in connection with this study. Since antibiotics can be purchased in drug stores in Bangkok without a physician prescription, many females regularly take them as a prophylactic device. They are seldom under a clinician's guidance and this

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laboratory wanted to evaluate the efficiency of this self-therapy. No histories were taken in this preliminary study but most of the subjects admitted taking "pills" or "shots" even though they had no symptoms.

Serum was obtained from 79 patients and was examined for anti-bacterial activity against Bacillus cereus v. mycoides (ATCC 11778) and Staphylococcus aureus (ATCC 6538P). Of 56 patients with negative cultures for N. gonorrhoeae, one half (28) had a significant serum antimicrobial titer. Seventeen patients (30.3%) with proven gonococcal infections had serum antimicrobial activity while 6 patients infected had no indication of serum antibiotics. This data is presented in Table 1.

**SUMMARY:** Our data indicates that the Gram stain of cervical exudates is a poor technique for the diagnosis of gonorrhoeae. Only 41.1% of the positive diagnosis resulted from such smears. If it is possible to culture two sites, our data indicates that the cervix and urethra are the areas most probable to harbor N. gonorrhoeae.

We believe that additional studies should be undertaken to examine the effects or threshold levels of serum antibiotics on N. gonorrhoeae. Long term use of ineffective antimicrobials of insufficient serum levels of antibiotics may prevent recovery or the organism on artificial media. Such a study is presently being designed by this laboratory.

Table 1.  
Serum Antimicrobial Activity

<u>Subjects examined</u>	<u>Subjects with serum antimicrobial activity</u>	<u>Subjects with gonorrhoeae</u>	<u>Serum antimicrobial activity &amp; gonorrhea</u>	<u>No serum antimicrobial activity &amp; gono.</u>
56	28	23	17	6

**FIGURE NUMBER 1**  
**COMPARISON OF METHODS OF GONORRHOEAE DIAGNOSIS**

