



“UNMASKING GONORRHEA: GIEMSA STAIN DEMONSTRATION OF NEISSERIA GONORRHOEA IN A MALE WITH PURULENT URETHRITIS”

Dermatology

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ABSTRACT

Neisseria gonorrhoeae, the causative agent of gonorrhea, is a significant public health concern due to its increasing prevalence and antibiotic resistance. This study demonstrates the identification of gonococci using Giemsa stain in a male patient presenting with white purulent urethral discharge and a history of multiple sexual partners. The smear was prepared from urethral discharge and examined microscopically after staining. The results revealed intracellular gram-negative diplococci consistent with Neisseria gonorrhoeae, supporting the clinical diagnosis of gonococcal urethritis. This study highlights the importance of simple and effective diagnostic techniques in the rapid identification of sexually transmitted infections (STIs).

KEYWORDS

Neisseria gonorrhoeae, Giemsa stain, gonorrhea, urethral discharge, sexually transmitted infections (STIs), diagnosis

INTRODUCTION

Gonorrhea, caused by *Neisseria gonorrhoeae*, is one of the most common bacterial sexually transmitted infections (STIs) globally. It primarily affects the urogenital tract, causing symptoms such as purulent urethral discharge, dysuria, and discomfort. Men with gonococcal urethritis typically present with a white or yellow purulent discharge and a history of recent unprotected sexual activity or multiple sexual partners increases the risk of infection (Unemo & Shafer, 2014).^[1]

Laboratory diagnosis of *Neisseria gonorrhoeae* involves direct microscopic examination, culture, and molecular techniques. While Gram staining is the standard method for detecting gonococci, Giemsa staining can also be used as a cost-effective and accessible alternative in resource-limited settings. This study aims to demonstrate the utility of Giemsa stain for detecting gonococci in urethral discharge from a symptomatic male patient.

MATERIALS AND METHODS

Case Presentation

A 32-year-old male patient presented to the outpatient clinic with complaints of white purulent urethral discharge and dysuria for five days. He reported a history of multiple sexual partners and inconsistent condom use. There was no history of prior STI diagnosis or treatment.

Sample Collection

A urethral swab was collected under aseptic conditions from the patient's anterior urethra. The sample was immediately used to prepare a smear on a clean glass slide for microscopic examination.

Giemsa Staining Procedure

1. The smear was air-dried and heat-fixed.
2. The slide was flooded with diluted Giemsa stain (1:10 with phosphate-buffered saline, pH 7.2) for 20 minutes.
3. The slide was rinsed gently with distilled water and allowed to air dry.
4. The stained smear was examined under an oil immersion objective (1000× magnification).

Microscopic Examination

The stained smear was assessed for the presence of intracellular gram-negative diplococci within polymorphonuclear leukocytes (PMNs). Morphological characteristics such as size, shape, and cellular localization were documented.

RESULTS

Microscopic examination of the Giemsa-stained smear revealed numerous polymorphonuclear leukocytes containing pairs of kidney-shaped, intracellular, gram-negative diplococci. [image 1 and 2] The organisms were present predominantly within the cytoplasm of PMNs, consistent with *Neisseria gonorrhoeae* morphology.

Findings:

- Polymorphonuclear leukocytes: Abundant

- Intracellular diplococci: Present, gram-negative morphology
- Extracellular bacteria: Scanty

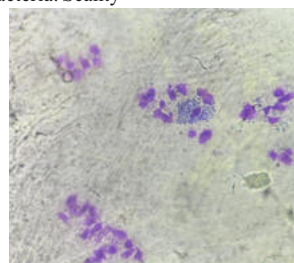


Image 1

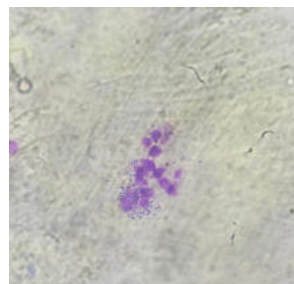


Image 2

DISCUSSION

The identification of *Neisseria gonorrhoeae* in clinical specimens is crucial for prompt diagnosis and treatment. Although Gram staining remains the gold standard for microscopic identification, Giemsa staining can provide comparable results, especially in resource-constrained settings (Miller et al., 2020).^[2]

In this case, the presence of intracellular gram-negative diplococci within PMNs confirmed the diagnosis of gonococcal urethritis. The patient's clinical presentation, combined with the microscopic findings, supports this conclusion. Prompt diagnosis facilitates appropriate antimicrobial therapy, reducing complications such as epididymitis, infertility, and the spread of infection.

The patient's history of multiple sexual partners underscores the need for contact tracing and partner notification to prevent further transmission. Additionally, patient education on safe sexual practices and routine STI screening is essential to reduce the public health burden.

Limitations:

- Giemsa stain may lack the specificity of Gram stain or nucleic acid amplification tests (NAATs).
- False negatives may occur in cases of low bacterial load or chronic infection.

CONCLUSION

This study demonstrates the utility of Giemsa stain as a rapid and effective method for detecting *Neisseria gonorrhoeae* in male patients presenting with urethral discharge. Early diagnosis through simple microscopic techniques aids in the timely initiation of treatment and reduces the risk of complications and further transmission.

Recommendations:

- Routine screening of high-risk populations to identify asymptomatic carriers.
- Promotion of safe sex practices and education to reduce STI transmission.
- Further studies comparing the sensitivity and specificity of Giemsa staining against other diagnostic modalities.

REFERENCES

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