

## ***Neisseria spp.***

### ***General Characteristics of Neisseria spp.***

#### **Aerobic**

**Gram-negative** cocci often arranged in pairs (**diplococci**) with **adjacent sides flattened** (like coffee beans) **Oxidase positive**, Most **catalase positive** Non motile. Acid from oxidation of carbohydrates, not from fermentation .

#### ***Important Human Pathogens***

***Neisseria gonorrhoeae***

***Neisseria meningitidis***

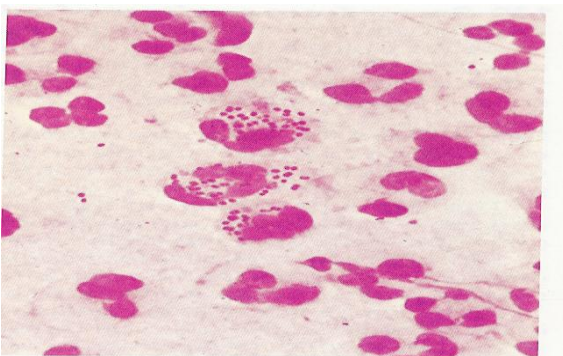
Organism	Diseases
<i>N. gonorrhoeae</i>	Urethritis, cervicitis, salpingitis, pelvic inflammatory disease, proctitis, bacteremia, arthritis, conjunctivitis, pharyngitis
<i>N. meningitidis</i>	Meningitis, meningococcal sepsis, bacteremia, pneumonia, arthritis, urethritis
Other <i>Neisseria</i> species	Opportunistic infections

#### ***N. gonorrhoeae***

Obligate parasite of human urogenital tract.

Morphology: Gram -ve diplococci (bean shaped).

Culture: enriched media (lysed blood or chocolate), moist aerobic atmosphere +5-10% CO<sub>2</sub>. Temp.35-37°C.

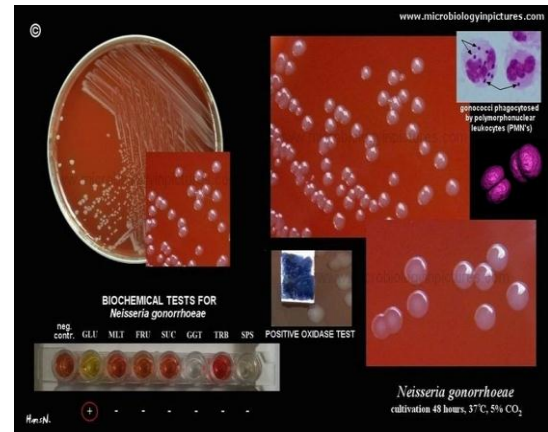


**Gram stain of *N.gonorrhoea***

**Susceptible to drying and cooling**, so **immediate culture** of specimen onto **pre-warmed selective** (e.g., modified Thayer-Martin, Martin-Lewis agars) **and non-selective media** (chocolate blood agar) with **moist atmosphere containing 5% carbon dioxide**

**Some strains inhibited** by vancomycin (in many selective agars) and toxic substances like fatty acids and trace metals in protein hydrolysates and agar found in nonselective media

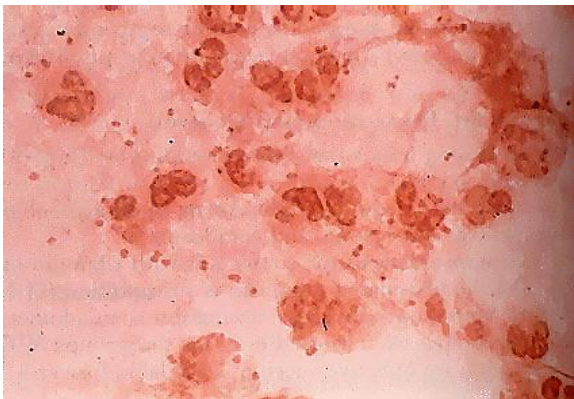
Five morphologically **distinct colony types** (formerly T1 through T5) that can undergo phase transition are no longer considered to be a useful distinction, colony translucent, round, convex, bluish grey, with smooth glistening surface.



### ***Neisseria meningitidis***

Encapsulated small, gram-negative diplococci

Second most common cause (behind *S. pneumoniae*) of **community-acquired meningitis** in previously healthy adults; swift progression from good health to life-threatening disease.



Diagnosis: **CSF + blood culture**

**CSF**: WBC, RBCs

Gram stain: bacteria & cells

Culture deposit into blood & chocolate agars and glucose broth & cooked meat media

Incubate in air + 5%CO2

Id : sugar utilization + latex

For partially treated meningitis: detection of bacterial antigen by: latex agglu, CCIE.. for common serogroups of meningitis pathogens.