

## Cystitis (Lower UTI):

Epidemiology **Uncomplicated UTI** → More common in women (95%), from 18 – 45 years old, due to Sexual intercourse.

### Complicated UTI

#### Male:

- Persistent bacterial infection of the prostate.
- Surgery
- BPH
- Catheterization of the urinary tract
- Diabetes mellitus
- Presence of bladder stone

#### Pregnant women:

*progesterone, obstruction*

#### Children

#### Elderly

## Etiological Agents:

- Gram positive bacteria:
  - Enterococcus fecalis
  - **Staphylococcus saprophyticus** (causes **honeymoon cystitis** “only in female”)
  - **Group B streptococci** (mainly pregnant women and diabetics)
- Gram negative bacteria:
  - **Enterobacteriaceae include:**
    - **E.coli** is the most common (60%) cause of cystitis.
    - Klebsiella pneumoniae
    - Proteus spp.
    - *P.aeruginosa*.
  - **Pseudomonas aeruginosa.** (usually with nosocomial cases)
- Fungi: Candida (not common):

## Laboratory Diagnosis:

- **Specimen collection:** Most important sample is midstream urine.
- **Urine culture:**
  - Important to identify bacterial cause and antimicrobial sensitivity.
  - Patient has bacteriuria > **10<sup>5</sup> CFU/ml** --> **Definite UTI**
- **Microscopic examination:**
  - About 90% of patients have > **10 WBCs/mm<sup>3</sup>**
  - Blood cells, parasites or crystals can be seen
- **Chemical screening tests:**
  - **Nitrates:** an enzyme producing by Gram -ve bacteria.
  - **Leukocyte esterase:** producing by WBCs

## Clinical presentation:

- Dysuria (painful urination or micturation)
- Frequency (frequent voiding)
- Urgency (an imperative call for toilet)
- Hematuria (blood in urine)
- **Usually no fever**
- Pain and tenderness on the **suprapubic area.**

## Laboratory Diagnosis:

**Complicated UTI:** Treatment period: **10-14 days**

**Uncomplicated UTI:** Treatment period: **3 days.**

**Drug of choice:**

**Trimethoprim/sulfamethoxazole/Ciprofloxacin**

**Ampicillin** “not used anymore due to increasing in **E-coli resistant**”

**Nitrofurantoin**, for lower UTI. Can't be used in **upper UTI.**