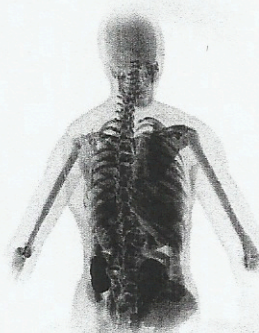




King Saud University
College of Medicine
Medical Education Department

RENAL BLOCK

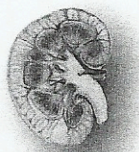
CASE NO. (2)



“Pain while going to the bathroom”

Scenario:

Lama, a 35 year old woman, not known to have any medical illness before presented to emergency room with one day history of Right flank pain, and fever. She vomited once this morning and noticed that it is very painful to pass urine.





On examination:

She is in pain. His vitals are as follows:

Vitals	Safia	Normal Range
Blood pressure	134/75 mmHg	130/80 mmHg
Pulse	113/min	60-100/min
Temperature	39.1 °C	36.6-37.2 °C

Percussion over right flank produces pain

Cardiovascular examination is normal

Abdominal examination is unremarkable. There is no dependant edema





Investigation

Complete blood count:

WBC 13,000

RBC 4.5

Hb 14

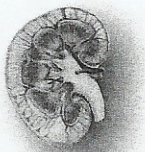
Neutrophil 87%

Urine analysis:

- **Urine analysis:** Revealed presence of pus cells along with the following findings:

Examination Made	Result	Normal values	Clinical significance
Color	Yellow	Amber yellow	Normal
Character	turbid	clear	Infection
PH	6.0 acidic	4.8-8.0	Normal
Specific gravity	1.020	1.015-1.025	Normal
Protein	+ +	(-)	Infection
Sugar	(-)	(-)	Normal
Red blood cells	0-3 hpf	(-)	Infection
WBC cells	Many (> 100/h pf)	(-) few (3-4 HPF)	Infection
Epithelial cells	few	(-)	Infection
Amorphus phosphate	few	(-)	Infection
Bacteria	many	(-)	Infection

- **Urine culture:** Positive for bacteria E. coli.
- Serum creatinine 65 $\mu\text{mol/l}$
- Urea= 3
- K= 3.9
- Na= 137
- H_2CO_3 = 25
- Ultra sound of the kidneys reveal normal size kidney with no other abnormality.

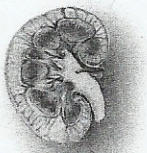


Second Session



Treatment:

Lama was admitted in the hospital. She was started on intravenous ceftriaxone and intravenous fluids.





Tutor guide:

Introduction:

This is a case of acute upper urinary tract infection (pyelonephritis).

Learning Issues

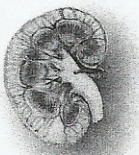
- Differentiate between various types of urinary tract infection.
- Explain the pathophysiology of urinary tract infection.
- Identify organisms causing urinary tract infection.
- Recall the histopathology of pyelonephritis
- Identify diagnostic factors for urinary tract infection.
- Outline a general approach to the management of acute urinary tract infection.

SESSION 1

Distribute page -1

Lama, a 35 year old woman, not known to have any medical illness before presented to emergency room with one day history of right flank pain, and fever. She vomited once this morning and noticed that it is very painful to pass urine.

The students should start to ask questions about what has happened to the patient. They will think of urinary tract infection early in the discussion or other causative factors for such presentation, which should trigger some questions about what they would want to know in terms of a focused history. At an appropriate point in the discussion, when they need more information from the history. The students will soon want to know what the physical examination showed. At that point.





Distribute page -2

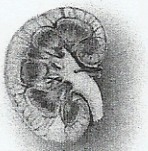
Vitals	Safia	Normal Range
Blood pressure	134/75 mmHg	110/70
Pulse	113/min	60-100/min
Temperature	39.1 °C	36.6-37.2 °C

Percussion over right flank produces pain

Cardiovascular examination is normal

Abdominal examination is unremarkable. There is no dependant edema

At this stage, the students will ask about the meanings of the positive findings in the examination and its values. Anything that is not clear should become learning issues. The students should consider what laboratory data they need, and will probably request it.





Distribute Page 3:

Investigations:

Complete blood count:

WBC 13,000

RBC 4.5

Hb 14

Neutrophil 87%

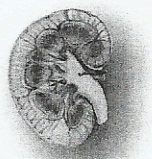
Urine analysis:

- **Urine analysis:** Revealed presence of pus cells along with the following findings:

Examination Made	Result	Normal values	Clinical significance
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- Serum creatinine 65 $\mu\text{mol/l}$
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- K= 3.9
- Na= 137
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- Ultra sound of the kidneys reveal normal size kidney with no other abnormality.

At this stage and after the distribution of the page 3 The interpretation of these data should trigger learning issues in the students. They should at this stage finalize the learning issues regarding this case. This is the end of the first session, at this stage tutor should assure that the student learning issues, are in the line of case learning objectives.





Second session

Distribute Page 4

Treatment:

- Hospital admission.
- IV fluids
- IV ceftriaxone

Session 2:

At this stage and after the students went for searching and studying all the topics related to the case, they are trying to report all data about the case to solve the problem of the patient and decide if the management that took place for the patient is enough or not.

At the end of the session the evaluations of the students, tutor along with the case presentation must be consider.





Topics for group facilitator:

A **urinary tract infection (UTI)** is a bacterial infection that affects any part of the urinary tract. When bacteria get into the bladder or kidney and multiply in the urine, they cause a UTI. The most common type of UTI is a bladder infection which is also often called cystitis. Another kind of UTI is a kidney infection, known as pyelonephritis, and is much more serious.

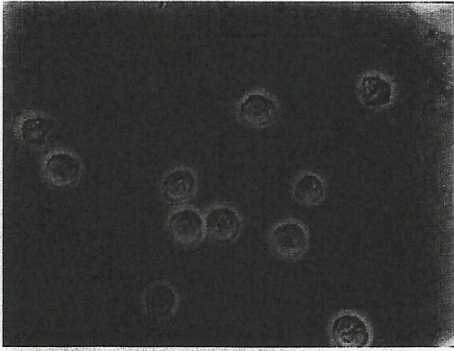
Symptoms for bladder infections

- Frequent urination along with the feeling of having to urinate even though there may be very little urine to pass.
- Nocturia: Need to urinate during the night.
- Urethritis: Discomfort, irritation or pain at the urethral meatus or a burning sensation throughout the urethra with urination (dysuria).
- Pain in the midline suprapubic region.
- Pyuria: Pus in the urine or discharge from the urethra.
- Hematuria: Blood in urine.
- Pyrexia: Mild fever
- Cloudy and foul-smelling urine
- Increased confusion and associated falls are common presentations to Emergency Departments for elderly patients with UTI.
- Some urinary tract infections are asymptomatic.

For kidney infection

- All of the above symptoms.
- Emesis: Vomiting is common.
- Back, side (flank) or groin pain.
- Abdominal pain or pressure.
- Shaking chills and high spiking fever.
- Night sweats.
- Extreme fatigue.





Multiple bacilli (rod-shaped bacteria, here shown as black and bean-shaped) shown between white cells at urinary microscopy. This is called bacteriuria and pyuria, respectively. These changes are indicative of a urinary tract infection.



Diagnosis

A patient with dysuria (painful voiding) and urinary frequency generally has a spot mid-stream urine sample sent for urinalysis, specifically the presence of nitrites, leukocytes or leukocyte esterase. If there is a high bacterial load without the presence of leukocytes, it is most likely due to contamination. The diagnosis of UTI is confirmed by a urine culture.



Treatment

Uncomplicated UTIs

Most uncomplicated UTIs can be treated with oral antibiotics such as trimethoprim, cephalosporins, nitrofurantoin, or a fluoroquinolone (e.g., ciprofloxacin). A single 2-3MG dosage of oral antibiotics such as tetracycline or amoxicillin is often used to treat UTIs that may be passed back and forth between partners. The single dosage is best complimented by the traditional 7 day treatment.

Acute Pyelonephritis

If the patient has symptoms consistent with pyelonephritis, intravenous antibiotics may be indicated. Regimens vary, and include quinolones (e.g. ciprofloxacin). In the past, they have included aminoglycosides (such as gentamicin) used in combination with a beta-lactam, such as ampicillin or ceftriaxone. These are continued for 48 hours after fever subsides. The patient may then be discharged home on oral antibiotics for a further 10-14 days.

