# جامعة المنارة

# كلية: الصيدلة

# اسم المقرر: الكيمياء الحيوية السريرية

# رقم الجلسة (7)

# عنوان الجلسة

# حالات سريرية

# 

**الفصل الدراسي الثاني العام الدراسي2022-2023**

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## الغاية من الجلسة:

مناقشة بعض الحالات السريرية والتدريب على قراءة النتائج وتفسيرها.

**الحالة الأولى:**

A 20-year-old female college student with a sore throat is seen in the student health service. A throat swab is cultured and reported positive for group A β-hemolytic streptococci. She is treated with intramuscular injection of penicillin. Two weeks later, she wakes up in the morning and finds she has decreased urine volume and her urine is dark red. She also has a fever and swelling in her feet. She returns to the student health service, where urine is collected for urinalysis. The following urinalysis results were obtained:

**Physical appearance:**

|  |  |
| --- | --- |
| Color: | red |
| Transparency: | cloudy |

**Chemical screening:**

|  |  |
| --- | --- |
| pH | 6 |
| specific gravity | 1.025 |
| protein (reagent strip) | 100 mg/dL |
| protein (SSA) | 2 + |
| blood | large |
| nitrite | negative |
| leukocyte esterase | negative |
| glucose | negative |
| ketones | trace |
| bilirubin | negative |
| Urobilinogen | normal |

**Microscopic examination:**

|  |  |
| --- | --- |
| RBC | 10-15 per hpf, dysmorphic forms present |
| WBC | 0-2 per hpf |
| Casts | 2-5 red blood cell casts per hpf |
| Crystals | moderate amorphous urates |

1. **List of abnormal findings**
2. **In this case, the proteinuria is probably due to which of the following?**
   1. Glomerular damage
   2. Lower urinary tract disorders
   3. Pre-renal disorders
   4. Tubular damage
3. **The presence of dysmorphic red cells and red cell casts indicates which of the following?**
4. Bleeding due to kidney stone formation
5. Kidney disease located in the glomerulus
6. Kidney infection
7. Probable menstrual contamination
8. **The trace reagent strip reaction for ketone and the presence of amorphous urates in the urine** **sediment of this patient are probably the result of:**
9. A false-positive ketone reaction due to sensitivity of the test
10. Dehydration due to fever with concentration of urine
11. The presence of dysmorphic red cells and red cells casts
12. The presence of protein
13. **Which of the following conditions is exhibited by this patient?**
14. Acute cystitis
15. Acute drug-induced interstitial nephritis
16. Acute glomerulonephritis
17. Acute pyelonephritis
18. Nephrotic syndrome

**الحالة الثانية:**

An 8-year-old- girl complains of feeling like she needs to urinate all the time. Her urine burns when she does void and it is cloudy. She is seen by her pediatrician, where urine is collected for routine urinalysis and culture. The following urinalysis results were obtained:

**Physical appearance:**

|  |  |
| --- | --- |
| Color: | pale |
| Transparency: | cloudy |

**Chemical screening:**

|  |  |
| --- | --- |
| pH | 7.5 |
| specific gravity | 1.010 |
| protein (reagent strip) | trace |
| protein (SSA) | trace |
| blood | negative |
| nitrite | positive |
| leukocyte esterase | positive |
| glucose | negative |
| ketones | negative |
| bilirubin | negative |
| Urobilinogen | normal |

**Microscopic examination:**

|  |  |
| --- | --- |
| RBC | 0-2 per hpf |
| WBC | 50-100 per hpf, clumps of white cells seen |
| Casts | None seen |
| Crystals | moderate amorphous phosphate |
| Bacteria | many rods |

1. **List of abnormal findings**
2. **The positive reagent strip test for nitrite in the patient is probably due to which of the following?**
3. An infection due to gram-negative bacteria
4. An infection due to gram-positive bacteria
5. An infection due to yeast
6. An old urine specimen, unsuitable for examination
7. **The positive reagent strip test for leukocyte esterase in this case is due to the presence of which of the following?**
8. Amorphous phosphates
9. Bacteria
10. Nitrite
11. Protein
12. Red blood cells
13. White blood cells
14. **This patient’s alkaline pH is cause by the presence of which of the following?**
15. Bacteria
16. Leukocyte esterase
17. Nitrite
18. Protein
19. White blood cells
20. **This patient’s proteinuria is probably caused by which of the following:**
21. Glomerular damage
22. Lower urinary tract infection
23. Pre-renal disorders
24. Upper urinary tract infection
25. **Which of the following conditions is exhibited by this patient?**
26. Acute cystitis
27. Acute drug-induced interstitial nephritis
28. Acute glomerulonephritis
29. Acute pyelonephritis
30. Nephrotic syndrome

**الحالة الثالثة:**

A 12-year-old boy has a history of several infections in the past few months. He is now very lethargic and swollen, with generalized edema. He tells his mother that his urine is very foamy when he urinates and that he feels “awful”. He is seen by his pediatrician, and urinalysis is performed with the following results:

**Physical appearance:**

|  |  |
| --- | --- |
| Color: | pale |
| Transparency: | cloudy |
| Foam | abundant, white foam |

**Chemical screening:**

|  |  |
| --- | --- |
| pH | 6 |
| specific gravity | 1.010 |
| protein (reagent strip) | > 2000 mg/dL |
| protein (SSA) | 4 + |
| blood | trace |
| nitrite | negative |
| leukocyte esterase | negative |
| glucose | negative |
| ketones | negative |
| bilirubin | negative |
| Urobilinogen | negative |

**Microscopic examination:**

|  |  |
| --- | --- |
| RBC | 0-2 per hpf |
| WBC | 0-2 per hpf, clumps of white cells seen |
| Casts | 5-10 fatty casts per hpf, 2-5 hyaline casts per hpf |
| Epithelial cells | Few renal epithelial cells, many oval fat bodies present |
| Other | Moderate free fat globules seen |

1. **List of abnormal findings**
2. **The abundant white foam in the urine specimen is due to the presence of which of the following?**
3. Blood
4. Casts
5. Fat
6. Protein
7. **The edema seen in this patient is due to the presence of which of the following?**
8. Blood
9. Casts
10. Fat
11. Protein
12. **oval fat bodies, renal epithelial cells, and free fat in this case indicates which of the following?**
13. A lower urinary tract infection UTI
14. An allergic reaction
15. An upper urinary tract infection UTI
16. Severe renal dysfunction, probably glomerular
17. **Which of the following conditions is exhibited by this patient?**
18. Acute cystitis
19. Acute drug-induced interstitial nephritis
20. Acute glomerulonephritis
21. Acute pyelonephritis
22. Nephrotic syndrome