

Key: 1142

original: {'main-diagnosis': 'acute pyelonephritis', 'differential\_diagnosis': ['Urinary Tuberculosis', 'Urinary Tract Tumor', 'Urinary System Stones', 'acute pyelonephritis']}

gpt-4: 1. **\*\*Summarize the medical case.\*\*** The patient is an 88-year-old female who has been experiencing fatigue for a week, fever, chills, and dysuria for 3 days. She has a history of hypertension. Her symptoms worsened 3 days ago, with chills, fever, general muscular soreness, and discomfort. She has cloudy urine and discomfort in the lower back. Despite treatment with Levofloxacin, the fever recurred. Her physical examination shows no significant abnormalities. Laboratory tests show increased neutrophils, monocytes, C-reactive protein, total bilirubin, direct bilirubin, indirect bilirubin, interleukin-6, serum amyloid A, procalcitonin, and decreased lymphocytes. Urine tests show the presence of leukocytes, red blood cells, epithelial cells, casts, and ketone bodies. Ultrasound shows normal kidneys and bladder. 2. **\*\*Medical case Analysis\*\*** The patient's symptoms of fever, chills, and dysuria, along with the laboratory findings of increased neutrophils, monocytes, C-reactive protein, interleukin-6, serum amyloid A, procalcitonin, and the presence of leukocytes, red blood cells, epithelial cells, casts in the urine suggest an infection in the urinary tract. The presence of casts in the urine also suggests a kidney involvement. The ultrasound findings do not show any abnormalities, ruling out structural abnormalities or tumors. 3. **\*\*Select the 2 Best Possible Diseases\*\*** Based on the symptoms and laboratory findings, the two most likely diseases are Urinary System Stones and Acute Pyelonephritis. 4. **\*\*Select the best possible disease\*\*** After rechecking the case, the best possible disease is Acute Pyelonephritis. 5. **\*\*Format the Disease\*\*** = **\*\*Best possible Disease\*\***: Acute Pyelonephritis -**\*\*Reasons\*\***: 1. The patient's symptoms of fever, chills, and dysuria are common in urinary tract infections, which can lead to pyelonephritis if the infection ascends to the kidneys. 2. The laboratory findings of increased neutrophils, monocytes, C-reactive protein, interleukin-6, serum amyloid A, procalcitonin, and the presence of leukocytes, red blood cells, epithelial cells, casts in the urine suggest an infection and inflammation in the kidneys, which is consistent with pyelonephritis. 3. The absence of structural abnormalities or tumors in the ultrasound findings rules out Urinary Tract Tumor and Urinary Tuberculosis. 4. Although the presence of red blood cells in the urine could suggest Urinary System Stones, the absence of pain and the presence of fever and other signs of infection make Acute Pyelonephritis a more likely diagnosis.

llama3.1: Here are the step-by-step solutions to the medical case: **\*\*1. Summarize the medical case:\*\*** The patient is an 88-year-old elderly female who presents with fatigue for 1 week, fever, chills, and dysuria for 3 days. Her past medical history includes hypertension for 8 years. Physical examination reveals no significant abnormalities except mild tenderness to percussion in both kidney areas. Laboratory examinations show elevated C-reactive protein (CRP), white blood cell count (WBC), and neutrophil percentage. Blood biochemistry tests reveal normal liver function but slightly elevated creatinine levels. Urine analysis shows weakly positive ketone bodies, 1+ occult blood, and 2+ leukocyte esterase. Imaging examination via color Doppler ultrasound reveals no abnormalities in the kidneys or bladder. **\*\*2. Medical case Analysis:\*\*** \* Physical examination: + Mild tenderness to percussion in both kidney areas suggests possible renal involvement. + No significant abnormalities in other systems (e.g., cardiovascular, respiratory) suggest that the primary issue is likely related to the urinary system. \* Laboratory examinations: + Elevated CRP and WBC indicate an inflammatory response, which could be due to infection or inflammation in the urinary tract. + Slightly elevated creatinine levels may indicate impaired renal function. \* Urine analysis: + Weakly positive ketone bodies suggest possible metabolic acidosis. + 1+ occult blood and 2+ leukocyte esterase are indicative of a urinary tract infection (UTI). \* Imaging examination: + Normal findings in the kidneys and bladder do not rule out UTIs or other conditions affecting the urinary system. **\*\*3. Select the 2 Best Possible Diseases:\*\*** Based on the analysis, the two most likely diseases are: 1. **\*\*Acute Pyelonephritis\*\***: This condition is characterized by an inflammatory response in the renal parenchyma due to a bacterial infection. The elevated CRP and WBC, along with the presence of leukocyte esterase and occult blood in the urine, support this diagnosis. 2. **\*\*Urinary Tract Tumor\*\***: Although less likely than acute pyelonephritis, a urinary tract tumor (e.g., renal cell carcinoma) could also explain the patient's symptoms, particularly if there is a mass effect or obstruction causing impaired renal function. **\*\*4. Select the best possible disease:\*\*** After

rechecking the case, I would select **Acute Pyelonephritis** as the best possible disease. The presence of fever, chills, and dysuria, along with elevated CRP and WBC, strongly suggests an infectious etiology. Additionally, the mild tenderness to percussion in both kidney areas could indicate inflammation or infection in the renal parenchyma. **5. Format the Disease:** = **Best possible Disease:** Acute Pyelonephritis - **Reasons:** + Elevated CRP and WBC indicating an inflammatory response. + Presence of leukocyte esterase and occult blood in the urine, suggesting a urinary tract infection. + Mild tenderness to percussion in both kidney areas, possibly indicating inflammation or infection in the renal parenchyma.

**gemma2: ## Medical Case Analysis** **1. Summary:** An 88-year-old female presents with fatigue, poor appetite, chills, fever (38.7°C), dysuria, cloudy urine, lower back discomfort, and generalized muscle soreness. She received intravenous Levofloxacin treatment but experienced a recurrence of fever. Physical examination revealed no significant abnormalities except for mild tenderness in the kidney areas. Laboratory tests show elevated white blood cell count, C-reactive protein (CRP), interleukin-6 (IL-6), serum amyloid A (SAA), and indirect bilirubin. Urine analysis shows leukocyte esterase 2+, red blood cells 1+, and casts. Ultrasound of the kidneys and bladder showed no abnormalities. **2. Medical Case Analysis:** **Physical Examination:** Mild tenderness in kidney areas suggests possible inflammation or infection. However, it's not specific to any particular disease. **Laboratory Examination:** Elevated WBC count, CRP, IL-6, SAA indicate an active inflammatory response, suggestive of infection or autoimmune conditions. Elevated indirect bilirubin could point towards liver involvement, potentially due to inflammation or obstruction. Leukocyte esterase and red blood cells in urine suggest urinary tract infection (UTI). **Imaging Examination:** Normal ultrasound findings exclude kidney stones or tumors as the primary cause of symptoms. **3. Two Most Likely Diseases:** 1. **Acute Pyelonephritis:** The combination of fever, chills, dysuria, cloudy urine, elevated WBC count, CRP, IL-6, SAA, and leukocyte esterase in urine strongly suggests an acute kidney infection (pyelonephritis). 2. **Urinary Tract Infection (UTI):** The presence of dysuria, cloudy urine, leukocyte esterase, and red blood cells in the urine points towards a UTI. While less severe than pyelonephritis, it can still cause systemic symptoms like fever and chills. **4. Best Possible Disease:** = **Acute Pyelonephritis:** - Elevated CRP, IL-6, SAA, and WBC count indicate a significant inflammatory response consistent with an infection affecting the kidneys. - The presence of dysuria, cloudy urine, and leukocyte esterase in urine further support the diagnosis of pyelonephritis as the more likely cause of her symptoms. **5. Note:** While UTI is also possible, the severity of the patient's symptoms and laboratory findings point towards a more serious infection like acute pyelonephritis. Further investigations might be needed to confirm the diagnosis and guide treatment.

Key: 1150

original: {'main-diagnosis': 'acute pyelonephritis', 'differential\_diagnosis': ['Urinary tract tuberculosis', 'Urinary tract tumors', 'Urinary system stones', 'acute pyelonephritis']}

gpt-4: 1. **Summarize the medical case.** The patient is a 58-year-old female with a history of diabetes. She has been experiencing fever and bilateral back pain for the past 2 days. She also reports frequent urination, urgency, acid distension, burning sensation, poor appetite, and fatigue. Despite self-administering oral cephalosporin antibiotics, her fever has not been controlled. Physical examination reveals tenderness at the pressure points of both ureters. Laboratory tests show elevated white blood cell count, neutrophil count, monocyte count, C-reactive protein, and liver enzymes. Urine tests show proteinuria, glycosuria, and leukocyturia. Ultrasound reveals an anechoic area in the left kidney. 2. **Medical case Analysis** - **Urinary tract tuberculosis**: This condition usually presents with urinary symptoms, systemic symptoms like fever, and abnormal urine tests. However, the patient's urine test does not show any red blood cells, which are usually present in this condition. Also, the patient's ultrasound does not show any typical signs of urinary tract tuberculosis like calcification or irregular bladder wall. - **Urinary tract tumors**: This condition can cause urinary symptoms and systemic symptoms like fever. However, the patient's ultrasound does not show any mass or growth in the urinary tract, which is usually present in this condition. - **Urinary system stones**: This condition can cause back pain, urinary symptoms, and fever if there is an infection. The patient's ultrasound shows an anechoic area in the left kidney, which could be a stone. Also, the patient's urine test shows leukocyturia, which could indicate an infection. - **Acute pyelonephritis**: This condition usually presents with back pain, fever, and urinary symptoms. The patient's laboratory tests show elevated white blood cell count and C-reactive protein, which indicate an infection. The patient's urine test shows leukocyturia, which is common in this condition. Also, the patient's ultrasound shows an anechoic area in the left kidney, which could be due to inflammation. 3. **Select the 2 Best Possible Diseases** Based on the patient's symptoms, laboratory tests, and ultrasound, the two most likely diseases are urinary system stones and acute pyelonephritis. 4. **Select the best possible disease** After rechecking the case, the best possible disease is acute pyelonephritis. 5. **Format the Disease** = **Best possible Disease**: Acute Pyelonephritis - **Reasons**: - The patient's symptoms of fever, back pain, and urinary symptoms are typical of acute pyelonephritis. - The patient's laboratory tests show elevated white blood cell count and C-reactive protein, which indicate an infection. - The patient's urine test shows leukocyturia, which is common in acute pyelonephritis. - The patient's ultrasound shows an anechoic area in the left kidney, which could be due to inflammation caused by acute pyelonephritis.

llama3.1: Here's the step-by-step solution to the medical case: **1. Summarize the medical case:** The patient is an elderly female, 58 years old, presenting with fever accompanied by back pain for 2 days. She has a history of diabetes and developed symptoms such as frequent urination, urgency, acid distension, and burning sensation while urinating. The physical examination revealed tenderness at the pressure points of both ureters but no edema in the lower limbs. Laboratory tests showed elevated white blood cell count ( $14.9 \times 10^9/L$ ), C-reactive protein (104.12 mg/L), and abnormal urine test results, including 1+ proteinuria, weakly positive glucosuria, and 3+ leukocyte esterase. Imaging examination via color Doppler ultrasound revealed a normal kidney shape and size with no apparent dilation in the ureters. **2. Medical case Analysis:** \* The patient's symptoms of fever, back pain, frequent urination, urgency, acid distension, and burning sensation while urinating are indicative of an urinary tract infection (UTI). \* The laboratory tests show elevated white blood cell count and C-reactive protein, which is consistent with an inflammatory process. \* The abnormal urine test results, including 1+ proteinuria, weakly positive glucosuria, and 3+ leukocyte esterase, suggest a urinary tract infection or inflammation. \* The imaging examination via color Doppler ultrasound shows normal kidney shape and size but no apparent dilation in the ureters. **3. Select the 2 Best Possible Diseases:** Based on the medical case analysis, the two most likely diseases are: 1. **Acute pyelonephritis**: This is a type of urinary tract infection that affects the kidneys. The patient's symptoms of fever, back pain, frequent urination, urgency, acid distension, and burning sensation while urinating are consistent with acute pyelonephritis. 2. **Urinary system stones**: Although not explicitly mentioned in the case, kidney stones can cause similar symptoms

such as flank pain, hematuria, and urinary frequency. \*\*4. Select the best possible disease:\*\* After rechecking the case, I would select: \* \*\*Acute pyelonephritis:\*\* This is a type of urinary tract infection that affects the kidneys. The patient's symptoms of fever, back pain, frequent urination, urgency, acid distension, and burning sensation while urinating are consistent with acute pyelonephritis. \*\*5. Format the Disease:\*\* = \*\*Best possible Disease:\*\* Acute Pyelonephritis - \*\*Reasons:\*\* 1. The patient's symptoms of fever, back pain, frequent urination, urgency, acid distension, and burning sensation while urinating are consistent with acute pyelonephritis. 2. The laboratory tests show elevated white blood cell count and C-reactive protein, which is consistent with an inflammatory process. 3. The abnormal urine test results, including 1+ proteinuria, weakly positive glucosuria, and 3+ leukocyte esterase, suggest a urinary tract infection or inflammation. \*\*Best possible Disease:\*\* Acute Pyelonephritis - \*\*Reasons:\*\* 1. The patient's symptoms of fever, back pain, frequent urination, urgency, acid distension, and burning sensation while urinating are consistent with acute pyelonephritis. 2. The laboratory tests show elevated white blood cell count and C-reactive protein, which is consistent with an inflammatory process. 3. The abnormal urine test results, including 1+ proteinuria, weakly positive glucosuria, and 3+ leukocyte esterase, suggest a urinary tract infection or inflammation.

gemma2: ## Medical Case Analysis \*\*1. Summary:\*\* A 58-year-old female with a history of diabetes presents with fever (38°C), bilateral back pain, frequent urination, urgency, dysuria, acid distension, burning sensation, poor appetite, and fatigue. She self-administered cephalosporin antibiotics for one day without improvement. Physical examination reveals tenderness at the ureteral pressure points but no other significant findings. Laboratory tests show elevated white blood cell count (WBC), C-reactive protein (CRP), and liver enzymes. Urine analysis shows pyuria (white blood cells in urine) and glucose. Ultrasound reveals a small anechoic area in the left kidney. \*\*2. Medical Case Analysis:\*\* \* \*\*Physical Examination:\*\* Tenderness at the ureteral pressure points strongly suggests urinary tract involvement, potentially inflammation or obstruction. \* \*\*Laboratory Examination:\*\* \* Elevated WBC and CRP indicate an active inflammatory process. \* Elevated liver enzymes (ALT, AST) could be due to infection or medication side effects. \* Glucose in urine suggests diabetes mellitus, which can increase the risk of urinary tract infections. \* \*\*Imaging Examination:\*\* The anechoic area in the left kidney on ultrasound warrants further investigation. It could represent a cyst, abscess, or other pathology. \*\*3. Two Most Likely Diseases:\*\* Based on the presented information, the two most likely diseases are: \* \*\*Acute Pyelonephritis:\*\* This is an infection of the kidneys, often caused by bacteria ascending from the urinary tract. Symptoms like fever, back pain, frequent urination, and dysuria align with this diagnosis. Elevated WBC, CRP, and pyuria further support this possibility. \* \*\*Urinary Tract Stones:\*\* Kidney stones can cause severe pain, especially in the flank region (back), and may lead to obstruction and infection. The tenderness at the ureteral pressure points could indicate stone passage or irritation. \*\*4. Best Possible Disease:\*\* Considering all factors, \*\*Acute Pyelonephritis\*\* appears to be the most likely diagnosis. \*\*5. Formatted Disease:\*\* = \*\*Best possible Disease:\*\* Acute Pyelonephritis - \*\*Reasons:\*\* - Fever, back pain, frequent urination, urgency, dysuria, and fatigue are classic symptoms of acute pyelonephritis. - Elevated WBC and CRP indicate an active inflammatory response consistent with infection. - Pyuria (white blood cells in urine) further supports the diagnosis of urinary tract infection. While kidney stones cannot be ruled out entirely, the presence of fever and systemic inflammation points more strongly towards acute pyelonephritis as the primary cause of her symptoms. Further investigations like urine culture and possibly imaging studies to visualize the kidneys and ureters would help confirm the diagnosis and guide treatment.

Key: 1158

original: {'main-diagnosis': 'acute renal failure', 'differential\_diagnosis': ['Chronic renal insufficiency', 'Digestive system disease', 'acute renal failure']}

gpt-4: 1. **\*\*Summarize the medical case.\*\*** The patient is a 55-year-old male who presented with a rash on his limbs and abdomen that has been present for 23 days and lower limb edema that has been present for 2 weeks. The rash is symmetrical, raised, and does not fade when pressed. The edema is pitting and more severe on the left side. The patient also reports chest tightness, shortness of breath, abdominal distension, and poor appetite. He has been taking Valsartan Amlodipine for blood pressure control for a week. Laboratory tests show elevated levels of C-reactive protein, aspartate aminotransferase, alkaline phosphatase, lactate dehydrogenase, glucose, urea, creatinine, uric acid, phosphorus, magnesium, and chloride. The patient's red blood cell count, hemoglobin, hematocrit, and albumin/globulin ratio are low. Ultrasound shows a mixed echo in the left kidney parenchyma and a low echo attached to the anterior wall of the right internal jugular vein. 2. **\*\*Medical case Analysis\*\*** The patient's symptoms, along with the laboratory and imaging findings, suggest a problem with the kidneys. The rash, edema, chest tightness, shortness of breath, and abdominal distension could be signs of fluid overload, which can occur in kidney disease. The elevated levels of urea, creatinine, and uric acid indicate impaired kidney function. The mixed echo in the left kidney parenchyma could be a sign of a kidney lesion, and the low echo in the right internal jugular vein could indicate a blood clot, which can occur in kidney disease due to changes in the blood's clotting factors. 3. **\*\*Select the 2 Best Possible Diseases\*\*** Based on the patient's symptoms and test results, the two most likely diseases are Chronic renal insufficiency and Acute renal failure. 4. **\*\*Select the best possible disease\*\*** The best possible disease for this patient is Chronic renal insufficiency. 5. **\*\*Format the Disease\*\*** = **\*\*Best possible Disease\*\***: Chronic renal insufficiency - **\*\*Reasons\*\***: 1. The patient's symptoms of rash, edema, chest tightness, shortness of breath, and abdominal distension are consistent with fluid overload, which can occur in chronic renal insufficiency. 2. The patient's elevated levels of urea, creatinine, and uric acid indicate impaired kidney function, which is a hallmark of chronic renal insufficiency. 3. The patient's ultrasound shows a mixed echo in the left kidney parenchyma, which could be a sign of a kidney lesion, a common finding in chronic renal insufficiency. 4. The patient's low echo in the right internal jugular vein could indicate a blood clot, which can occur in chronic renal insufficiency due to changes in the blood's clotting factors.

llama3.1: Here are the step-by-step solutions to the medical case: **\*\*1. Summarize the medical case:\*\*** The patient is an elderly male, 55 years old, presenting with a rash on limbs for 23 days and lower limb edema for 2 weeks. The rash is symmetrical, raised above the skin surface, and does not fade when pressed. Despite treatment with topical medication, the condition did not improve. The patient also developed pitting edema in the lower limbs, accompanied by chest tightness and shortness of breath. Laboratory examinations revealed elevated C-reactive protein (CRP), alanine aminotransferase (ALT), aspartate aminotransferase (AST), lactate dehydrogenase (LDH), and creatinine levels. Imaging examination showed normal kidney shape and size, but with a mixed echo in the left kidney parenchyma. **\*\*2. Medical case Analysis:\*\*** \* Physical examination: + Scattered red rashes on limbs and trunk + Pitting edema in lower limbs + Elevated blood pressure (154/92 mmHg) \* Laboratory examinations: + Elevated CRP, ALT, AST, LDH, and creatinine levels + Normal white blood cell count and differential + Mild anemia (RBC  $3.2 \times 10^{12}/L$ , HGB 108 g/L) \* Imaging examination: + Normal kidney shape and size + Mixed echo in the left kidney parenchyma **\*\*3. Select the 2 Best Possible Diseases:\*\*** Based on the medical case analysis, the two most likely diseases are: 1. **\*\*Chronic renal insufficiency\*\***: Elevated creatinine levels (638  $\mu\text{mol}/L$ ), normal kidney shape and size, but with a mixed echo in the left kidney parenchyma suggest chronic kidney damage. 2. **\*\*Acute renal failure\*\***: Elevated CRP, ALT, AST, LDH, and creatinine levels, along with pitting edema and shortness of breath, indicate acute kidney injury. **\*\*4. Select the best possible disease:\*\*** After rechecking the case, I would select: 1. **\*\*Chronic renal insufficiency\*\***: The patient's age (55 years), elevated creatinine levels, and normal kidney shape and size suggest a more chronic process. Additionally, the mixed echo in the left kidney parenchyma may indicate early signs of kidney damage. **\*\*5. Format the Disease:\*\*** = **\*\*Best possible Disease\*\***: Chronic renal insufficiency - **\*\*Reasons\*\***: + Elevated creatinine levels (638  $\mu\text{mol}/L$ ) + Normal kidney shape and

size, but with a mixed echo in the left kidney parenchyma + Patient's age (55 years)

gemma2: ## Medical Case Analysis \*\*1. Summary:\*\* A 55-year-old male presents with a 23-day history of scattered red rashes on his limbs and abdomen that haven't responded to topical treatment. One week ago, he developed pitting edema in both lower limbs, worse on the left side, accompanied by chest tightness, shortness of breath, abdominal distension, and poor appetite. He denies cough, phlegm, frequent urination, urgency, or urinary pain. \*\*2. Medical Case Analysis:\*\*  
\*\*Physical Examination:\*\*  
\* \*\*Rashes:\*\* Indicate a possible allergic reaction or inflammatory process.  
\* \*\*Edema:\*\* Suggests fluid retention, potentially due to heart failure, kidney disease, or liver disease.  
\* \*\*Chest tightness and shortness of breath:\*\* Could be related to pulmonary edema (fluid in the lungs) often seen in heart failure.  
\* \*\*Abdominal distension:\*\* May indicate ascites (fluid buildup in the abdomen), common in cirrhosis or advanced heart failure.  
\* \*\*Laboratory Examination:\*\*  
\* \*\*Elevated CRP:\*\* Indicates inflammation, supporting the presence of an underlying disease process.  
\* \*\*Elevated AST and ALT:\*\* Suggest liver dysfunction, potentially contributing to fluid retention and edema.  
\* \*\*Elevated Urea and Creatinine:\*\* Strong indicators of kidney dysfunction.  
\* \*\*Elevated Uric Acid:\*\* Could be associated with various conditions, including kidney disease.  
\* \*\*Low Hemoglobin and Hematocrit:\*\* Indicate anemia, which can occur in chronic diseases like renal insufficiency.  
\* \*\*Imaging Examination:\*\*  
\* \*\*Color Doppler Ultrasound:\*\* Normal findings in the kidneys themselves. However, a low echo attached to the right internal jugular vein with a filling defect suggests potential thrombosis (blood clot), which could contribute to edema and circulatory issues.  
\*\*3. Two Most Likely Diseases:\*\*  
1. \*\*Chronic Renal Insufficiency:\*\* The elevated creatinine and urea levels strongly suggest kidney dysfunction. The anemia, edema, and other symptoms are also consistent with chronic renal insufficiency.  
2. \*\*Acute Kidney Injury (AKI):\*\* While the patient's history suggests a longer-term issue, the sudden onset of edema and shortness of breath could indicate an acute exacerbation or superimposed AKI on top of pre-existing kidney disease.  
\*\*4. Best Possible Disease:\*\* = \*\*Chronic Renal Insufficiency\*\* - The combination of elevated creatinine and urea levels, along with anemia and other symptoms, points towards chronic kidney dysfunction as the primary diagnosis. - While acute kidney injury is possible, the patient's history suggests a longer-term problem.  
\*\*Important Note:\*\* This analysis is based solely on the provided information. A definitive diagnosis can only be made by a qualified medical professional after a thorough physical examination, review of the patient's complete medical history, and potentially further investigations.

Key: 1166

original: {'main-diagnosis': 'chronic kidney disease', 'differential\_diagnosis': ['Acute Kidney Injury', 'chronic kidney disease']}

gpt-4: 1. **\*\*Summarize the medical case.\*\*** The patient is a 65-year-old male with a history of diabetes, hypertension, coronary heart disease, and angina. He has been experiencing increased blood creatinine levels for 2 years, fatigue, and abdominal distension for 8 months. He has also had edema in both lower limbs and foamy urine. Despite treatment, his symptoms have not improved significantly. His laboratory tests show elevated levels of creatinine, urea, potassium, and decreased levels of sodium, among others. His ultrasound shows no significant abnormalities in the kidneys but a significant amount of liquid in the abdominal cavity. 2. **\*\*Medical case Analysis\*\*** The patient's history of diabetes and hypertension, along with the presence of edema, foamy urine, and elevated creatinine levels, suggest kidney disease. The fatigue and abdominal distension could be due to the accumulation of waste products in the body due to decreased kidney function. The elevated levels of urea and creatinine in the blood biochemistry test further support this. The ultrasound results showing no significant abnormalities in the kidneys suggest that the disease may be chronic rather than acute. 3. **\*\*Select the 2 Best Possible Diseases\*\*** Based on the patient's symptoms, medical history, and test results, the two most likely diseases are: - Chronic Kidney Disease (CKD) - Acute Kidney Injury (AKI) 4. **\*\*Select the best possible disease\*\*** After reevaluating the case, the best possible disease is Chronic Kidney Disease (CKD). 5. **\*\*Format the Disease\*\*** = **\*\*Best possible Disease\*\***: Chronic Kidney Disease (CKD) - **\*\*Reasons\*\***: - The patient has a history of diabetes and hypertension, both of which are risk factors for CKD. - The patient has been experiencing increased blood creatinine levels for 2 years, which suggests a long-term decrease in kidney function. - The patient's symptoms, such as fatigue, abdominal distension, and edema, are consistent with CKD. - The laboratory tests show elevated levels of creatinine and urea, and decreased levels of sodium, which are indicative of decreased kidney function. - The ultrasound results show no significant abnormalities in the kidneys, which is more consistent with CKD than AKI.

llama3.1: Here are the step-by-step solutions to the medical case: **\*\*1. Summarize the medical case:\*\*** The patient is a 65-year-old elderly male with a history of diabetes, hypertension, coronary heart disease, and angina for over 8 years. He has been experiencing fatigue, abdominal distension, decreased urine output, and edema in both lower limbs for 8 months. His blood creatinine level has been elevated at over 200 umol/L for 2 years, with no significant improvement despite treatment for diabetic nephropathy. **\*\*2. Medical case Analysis:\*\*** \* Physical examination: + Chronic illness + Edema and distension in both lower limbs + Coarse breath sounds in both lungs + Distended abdomen without tenderness or rebound tenderness \* Laboratory examination: + Elevated blood creatinine (931 umol/L) + Normal kidney function tests (e.g., urea, electrolytes) + Mild anemia (HGB 116 g/L) + Slightly elevated ESR and CRP \* Imaging examination: + Color Doppler ultrasound: Both kidneys have smooth contours, clear corticomedullary differentiation, and uniform echotexture. No obvious dilatation of the bilateral ureters or abnormal blood flow signals detected. **\*\*3. Select the 2 Best Possible Diseases:\*\*** Based on the medical case analysis, the two most likely diseases are: 1. **\*\*Chronic Kidney Disease (CKD)\*\***: \* Elevated blood creatinine levels for over 2 years \* Edema and distension in both lower limbs + Mild anemia + Slightly elevated ESR and CRP 2. **\*\*Acute Kidney Injury (AKI)\*\***: \* Recent worsening of symptoms, including decreased urine output and abdominal distension + Elevated blood creatinine levels with no significant improvement despite treatment **\*\*4. Select the best possible disease:\*\*** After rechecking the case, I would select: 1. **\*\*Chronic Kidney Disease (CKD)\*\***: \* The patient's history of diabetes, hypertension, and coronary heart disease increases his risk for CKD + Elevated blood creatinine levels for over 2 years suggest a chronic process + Edema and distension in both lower limbs are common symptoms of CKD **\*\*5. Format the Disease:\*\*** = **\*\*Best possible Disease\*\***: Chronic Kidney Disease (CKD) - **\*\*Reasons\*\***: 1. History of diabetes, hypertension, and coronary heart disease increases risk for CKD 2. Elevated blood creatinine levels for over 2 years suggest a chronic process 3. Edema and distension in both lower limbs are common symptoms of CKD

gemma2: **## Medical Case Analysis** **\*\*1. Summary:\*\*** A 65-year-old male with a history of diabetes, hypertension, coronary heart disease, and angina presents with progressively worsening

fatigue, abdominal distension, decreased urine output, and foamy urine over the past 8 months. He has a history of elevated creatinine levels (over 200  $\mu\text{mol/L}$ ) for two years, initially treated with traditional Chinese medicine and then considered "diabetic nephropathy" without significant improvement.

**2. Medical Case Analysis:**

**Physical Examination:**

- Pale conjunctiva suggests anemia, potentially related to chronic kidney disease.
- Coarse breath sounds in both lungs could indicate fluid buildup (pleural effusion) or heart failure, common complications of advanced kidney disease.
- Distended abdomen with no tenderness suggests ascites, a hallmark symptom of end-stage renal disease.
- Moderate edema in both lower limbs is consistent with fluid retention due to impaired kidney function.

**Laboratory Examination:**

- Significantly elevated creatinine (931  $\mu\text{mol/L}$ ) and urea (42.27  $\text{mmol/L}$ ) strongly indicate acute or chronic kidney injury.
- Elevated uric acid (381  $\mu\text{mol/L}$ ) is common in renal failure as the kidneys are unable to excrete it effectively.
- Anemia (Hb 116 g/L, RBC  $3.8 \times 10^{12}/\text{L}$ ) is likely due to decreased erythropoietin production by damaged kidneys.
- Elevated albumin (40.3 g/L) and prealbumin (177.2 mg/L) levels could indicate malnutrition or inflammation associated with chronic kidney disease.
- Increased inflammatory markers like CRP (8.13 mg/L) and IL-6 (19.50 pg/mL) suggest ongoing systemic inflammation, potentially contributing to kidney damage.

**Imaging Examination:**

- Ultrasound shows normal kidney size and echotexture, but the presence of significant ascites in the abdominal cavity is a key finding consistent with advanced renal failure.

**3. Select the 2 Best Possible Diseases:**

Based on the clinical presentation, laboratory findings, and imaging results, the two most likely diseases are:

- Acute Kidney Injury (AKI)
- Chronic Kidney Disease (CKD)

**4. Select the best possible disease:**

While both AKI and CKD are possibilities, the patient's history of elevated creatinine for two years before the recent worsening symptoms points more towards **chronic kidney disease**. The presence of ascites further supports this diagnosis.

**5. Format the Disease:**

**= Best Possible Disease:** Chronic Kidney Disease

**Reasons:**

- Elevated creatinine levels (931  $\mu\text{mol/L}$ ) for two years prior to current presentation strongly suggest chronic kidney damage.
- History of diabetes and hypertension, both major risk factors for CKD.
- Presence of ascites, a common complication of end-stage renal disease.



Key: 1174

original: {'main-diagnosis': 'urinary tract infection', 'differential\_diagnosis': ['Urinary tract tuberculosis', 'Urinary tract tumors', 'Urolithiasis', 'urinary tract infection']}

gpt-4: 1. **\*\*Summarize the medical case.\*\*** The patient is a 51-year-old female who presented with frequent urination, urgency, painful urination, and gross hematuria for the past 4 hours. She was previously healthy and has no significant medical history. She was given anti-infection treatment in the emergency department. Physical examination was largely unremarkable. Laboratory tests showed elevated white blood cells, neutrophils, and decreased lymphocytes and monocytes in the blood. Urine tests showed protein, bilirubin, nitrite, leukocyte esterase, and occult blood, with increased white and red blood cells. Urine culture showed no bacterial growth. Ultrasound of the kidneys and bladder was normal. 2. **\*\*Medical case Analysis\*\*** The patient's symptoms and laboratory findings suggest a urinary tract infection. The presence of leukocyte esterase, nitrite, and increased white blood cells in the urine are indicative of an infection. However, the urine culture showed no bacterial growth, which is unusual for a urinary tract infection. The presence of protein and bilirubin in the urine, along with the patient's symptoms, could also suggest a urinary tract tumor. However, the ultrasound did not show any abnormalities in the kidneys or bladder. 3. **\*\*Select the 2 Best Possible Diseases\*\*** Based on the patient's symptoms and test results, the two most likely diseases are urinary tract infection and urinary tract tumors. 4. **\*\*Select the best possible disease\*\*** After rechecking the case, the best possible disease is urinary tract infection. 5. **\*\*Format the Disease\*\*** = **\*\*Best possible Disease\*\***: Urinary tract infection - **\*\*Reasons\*\***: 1. The patient's symptoms of frequent urination, urgency, painful urination, and gross hematuria are common in urinary tract infections. 2. The presence of leukocyte esterase, nitrite, and increased white blood cells in the urine are indicative of an infection. 3. The patient was given anti-infection treatment in the emergency department, suggesting that the initial diagnosis was an infection. 4. Despite the negative urine culture, it is possible that the bacteria causing the infection were not detected due to the antibiotics administered in the emergency department.

llama3.1: I'll solve the medical case step by step. **\*\*1. Summarize the medical case:\*\*** A 51-year-old middle-aged female patient presents with frequent urination, urgency, painful urination accompanied by gross hematuria for 4 hours. She has no previous history of kidney problems or other significant medical conditions. The emergency department administered anti-infection treatment, but the urine culture test shows no bacterial growth. **\*\*2. Medical case Analysis:\*\*** **\*\*Physical examination:\*\*** No obvious renal tenderness or percussion pain, and no edema in both lower limbs. **\*\*Laboratory examination:\*\*** + Routine blood test: Normal white blood cell count, slightly elevated neutrophil percentage, and normal C-reactive protein (CRP) level. + Urine test: pH 6.0, yellowish-brown color, slight turbidity, specific gravity 1.015, 2+ proteinuria, nitrite positive, leukocyte esterase 3+, occult blood 3+, and white blood cells >30/HP. **\*\*Imaging examination:\*\*** Color Doppler ultrasound shows normal kidneys with no separation in the collecting system, no dilation of ureters, and no abnormal echo or blood flow signal. **\*\*3. Select the 2 Best Possible Diseases:\*\*** Based on the medical case analysis, the two most likely diseases are: 1. **\*\*Urinary tract infection (UTI):\*\*** \* The patient presents with symptoms of UTI, such as frequent urination, urgency, painful urination, and gross hematuria. \* The urine test shows nitrite positive, leukocyte esterase 3+, and occult blood 3+, which are indicative of a bacterial infection. 2. **\*\*Urolithiasis:\*\*** \* The patient presents with symptoms of kidney stones, such as painful urination and hematuria. \* The imaging examination shows normal kidneys, but the ultrasound might not be sensitive enough to detect small stones. **\*\*4. Select the best possible disease:\*\*** After rechecking the case, I would select **\*\*Urinary tract infection (UTI)\*\*** as the best possible disease. **\*\*5. Format the Disease:\*\*** = **\*\*Best possible Disease:\*\*** Urinary tract infection - **\*\*Reasons:\*\*** + The patient presents with symptoms of UTI. + The urine test shows nitrite positive, leukocyte esterase 3+, and occult blood 3+, which are indicative of a bacterial infection. + The imaging examination does not show any abnormalities that would suggest urolithiasis.

gemma2: **## Medical Case Analysis** **\*\*1. Summarize the medical case:\*\*** A 51-year-old female presents with sudden onset of frequent urination, urgency, painful urination (dysuria), and gross hematuria lasting for 4 hours. She received initial treatment in the emergency department with antibiotics (Cefozopran Sodium, Re Du Ning Injection, Levofloxacin Injection). Her past medical

history is unremarkable. Physical examination reveals no significant abnormalities. Laboratory tests show elevated white blood cell count (WBC), neutrophils, and C-reactive protein (CRP), suggesting an inflammatory response. Urinalysis reveals positive nitrite, leukocyte esterase, occult blood, and numerous red blood cells and white blood cells, strongly indicating a urinary tract infection (UTI). Urine culture is negative for bacterial growth. Ultrasound examination of the kidneys, ureters, and bladder shows normal findings with no evidence of stones or tumors. \*\*2. Medical Case Analysis:

\*\*\*Physical Examination:\*\* A lack of tenderness in the renal area and absence of edema suggests that the issue is not primarily related to kidney disease. \*\*\*Laboratory Examination:\*\* \* Elevated WBC, neutrophils, and CRP indicate an inflammatory response consistent with infection. \* Urinalysis findings (positive nitrite, leukocyte esterase, occult blood, numerous RBCs and WBCs) strongly suggest a UTI. \*\*\*Imaging Examination:\*\* Normal ultrasound findings rule out urolithiasis and urinary tract tumors as the primary cause of her symptoms. \*\*3. Select the 2 Best Possible Diseases:\*\* Based on the presented information, the two most likely diseases are: 1. \*\*Urinary Tract Infection (UTI):\*\* This is the most probable diagnosis given the patient's symptoms, laboratory findings (elevated WBC, positive urinalysis), and negative urine culture. The initial antibiotic treatment may have already started to address this infection. 2. \*\*Interstitial Cystitis:\*\* While less likely than a UTI, interstitial cystitis can present with similar symptoms like frequent urination, urgency, and painful urination. The absence of bacterial growth in the urine culture could point towards a non-infectious cause. \*\*4. Select the best possible disease:\*\* Considering the strong evidence pointing towards an active inflammatory response and the classic presentation of UTI symptoms, \*\*Urinary Tract Infection (UTI)\*\* is the most likely diagnosis. \*\*5. Format the Disease:\*\* = \*\*Best Possible Disease:\*\* Urinary Tract Infection (UTI) - \*\*Reasons:\*\* - Patient presents with classic UTI symptoms: frequent urination, urgency, dysuria, and gross hematuria. - Elevated WBC count and CRP indicate an inflammatory response consistent with infection. - Positive urinalysis findings (nitrite, leukocyte esterase, occult blood, numerous RBCs and WBCs) strongly suggest a UTI. - Negative urine culture may be due to the initial antibiotic treatment already starting to clear the infection.

Key: 1182

original: {'main-diagnosis': 'glomerulonephritis', 'differential\_diagnosis': ['Hepatitis B-related nephropathy', 'Diabetic nephropathy', 'Systemic lupus erythematosus nephritis', 'Patients often have symptoms such as fever, rash, joint pain, and hematological involvement. Positive serum anti-nuclear antibody, anti-ds-DNA, anti-SM antibody, and decreased serum complement levels. The immunopathology of renal biopsy shows 'full house'. Active renal biopsy is still needed for a definitive diagnosis.', 'Allergic purpura nephritis', 'Primary small vasculitis-related renal damage', 'glomerulonephritis']}]

gpt-4: 1. **\*\*Summarize the medical case.\*\*** The patient is a 76-year-old male with a history of hypertension. He has been experiencing swelling in both lower limbs for over half a month, which has gradually worsened and is now accompanied by swelling of both hands and eyelids. Despite treatment with Spironolactone and Chinese herbal medicine, the swelling has not improved. Laboratory tests show decreased levels of lymphocytes, red blood cells, hemoglobin, hematocrit, albumin, globulin, and prealbumin. The patient's total cholesterol and low-density lipoprotein cholesterol are elevated. The urine test shows the presence of protein and blood, and an increased count of red blood cells, epithelial cells, and bacteria. The ultrasound shows that the right kidney is slightly smaller than the left, and the prostate is enlarged. 2. **\*\*Medical case Analysis\*\*** The patient's symptoms of swelling in the lower limbs, hands, and eyelids, along with the laboratory findings of decreased albumin and globulin, suggest a condition that affects the kidneys' ability to filter waste and excess fluids from the blood. The presence of protein and blood in the urine further supports this. The elevated total cholesterol and low-density lipoprotein cholesterol levels may indicate a metabolic disorder. The ultrasound findings of a smaller right kidney and an enlarged prostate may be related to the patient's age and hypertension history. 3. **\*\*Select the 2 Best Possible Diseases\*\*** Based on the patient's symptoms and test results, the two most likely diseases are 'Diabetic nephropathy' and 'glomerulonephritis'. 4. **\*\*Select the best possible disease\*\*** After reevaluating the case, the best possible disease is 'glomerulonephritis'. 5. **\*\*Format the Disease\*\*** = **\*\*Best possible Disease\*\***: Glomerulonephritis - **\*\*Reasons\*\***: 1. The patient's symptoms of swelling in the lower limbs, hands, and eyelids are consistent with edema, a common symptom of glomerulonephritis. 2. The laboratory findings of decreased albumin and globulin, along with the presence of protein and blood in the urine, suggest kidney damage, which is characteristic of glomerulonephritis. 3. The ultrasound findings of a smaller right kidney may be a result of chronic kidney disease caused by glomerulonephritis.

llama3.1: Here are the step-by-step solutions to the medical case: **\*\*1. Summarize the medical case:\*\*** The patient is an elderly male (76 years old) presenting with swelling of both lower limbs for over half a month, accompanied by swelling of both hands and eyelids. The swelling symptoms have gradually worsened despite treatment with Spironolactone and Chinese herbal medicine. The patient has a history of hypertension. **\*\*2. Medical case Analysis:\*\*** **\*\*Physical examination:\*\*** Eyelid edema and moderate swelling of both lower limbs. **\*\*Laboratory examination:\*\*** + Routine blood test: Normal white blood cell count, slightly low lymphocyte percentage, normal platelet count, and elevated C-reactive protein (CRP). + Blood biochemistry test: Normal liver function tests, slightly low albumin, and normal kidney function tests. + Urine test: 3+ occult blood, normal specific gravity, and no significant abnormalities in other parameters. **\*\*Imaging examination:\*\*** Color Doppler ultrasound of the kidneys shows a slight decrease in size of the right kidney with increased parenchymal thickness, but no apparent dilation of the bilateral ureters. **\*\*3. Select the 2 Best Possible Diseases:\*\*** Based on the medical case analysis, the two most likely diseases are: 1. **\*\*Systemic lupus erythematosus nephritis\*\***: The patient's symptoms (swelling of both lower limbs, eyelid edema, and history of hypertension) could be related to systemic lupus erythematosus (SLE). The laboratory findings of normal white blood cell count, slightly low lymphocyte percentage, and elevated CRP are consistent with SLE. Additionally, the imaging examination shows a slight decrease in size of the right kidney, which is not uncommon in SLE. 2. **\*\*Allergic purpura nephritis\*\***: The patient's symptoms (swelling of both lower limbs, eyelid edema) could also be related to allergic purpura nephritis. The laboratory findings of normal white blood cell count and slightly low lymphocyte percentage are consistent with this condition. **\*\*4. Select the best possible disease:\*\*** After rechecking the case, I would choose **\*\*Systemic lupus erythematosus nephritis\*\*** as

the best possible disease. \*\*5. Format the Disease:\*\* = \*\*Best possible Disease\*\*: Systemic lupus erythematosus nephritis - \*\*Reasons\*\*: + The patient's symptoms (swelling of both lower limbs, eyelid edema) could be related to systemic lupus erythematosus (SLE). + Laboratory findings of normal white blood cell count, slightly low lymphocyte percentage, and elevated CRP are consistent with SLE. + Imaging examination shows a slight decrease in size of the right kidney, which is not uncommon in SLE.

gemma2: ## Medical Case Analysis \*\*1. Summary:\*\* An elderly male patient (76 years old) presents with progressive lower limb edema that has worsened over the past month despite treatment with spironolactone and Chinese herbal medicine. He also reports swelling in his hands and eyelids. His medical history includes hypertension. Physical examination reveals eyelid edema and moderate swelling of both lower limbs. \*\*2. Medical Case Analysis:\*\* \* \*\*Physical Examination:\*\* The presence of pitting edema in the extremities, particularly the face (eyelids), suggests fluid retention and a possible underlying kidney issue. \* \*\*Laboratory Examination:\*\* \* \*\*Blood Biochemistry:\*\* Elevated total protein and albumin levels suggest dehydration or decreased protein synthesis by the liver. \* \*\*Urine Analysis:\*\* The presence of red blood cells in the urine (hematuria) is concerning and could indicate glomerular damage. The elevated white blood cell count suggests inflammation within the urinary tract. \* \*\*Blood Count:\*\* Elevated creatinine level indicates impaired kidney function. \* \*\*Imaging Examination:\*\* \* \*\*Color Doppler Ultrasound:\*\* The ultrasound reveals slightly smaller right kidney with increased parenchymal echotexture, suggesting potential scarring or disease. The left kidney is larger but also shows increased echogenicity. No dilation of the ureters is noted. \*\*3. Select the 2 Best Possible Diseases:\*\* Based on the information provided, the two most likely diseases are: \* \*\*Glomerulonephritis:\*\* The presence of hematuria and proteinuria (elevated albumin) in the urine analysis strongly suggests glomerular damage, a hallmark of glomerulonephritis. \* \*\*Primary Small Vasculitis-Related Renal Damage:\*\* The increased echogenicity of the kidneys on ultrasound could indicate inflammation and scarring within the renal vasculature, consistent with primary small vasculitis. \*\*4. Select the Best Possible Disease:\*\* Considering the combination of hematuria, proteinuria, and kidney echogenicity changes, \*\*Glomerulonephritis\*\* appears to be the most likely diagnosis. \*\*5. Format the Disease:\*\* = \*\*Best possible Disease\*\*: Glomerulonephritis - \*\*Reasons\*\*: - The presence of hematuria and proteinuria in the urine analysis strongly suggests glomerular damage. - The elevated creatinine level indicates impaired kidney function, which is often associated with glomerulonephritis. - While the ultrasound findings could be suggestive of vasculitis, the combination of urinary abnormalities points more directly to glomerulonephritis. \*\*Important Note:\*\* This analysis is based solely on the provided information and should not be considered a definitive diagnosis. Further investigations, including renal biopsy if necessary, are crucial for confirming the diagnosis and determining the specific type of glomerulonephritis involved.

Key: 1190

original: {'main-diagnosis': 'glomerulonephritis', 'differential\_diagnosis': ['Hepatitis B-related nephropathy', 'Diabetic nephropathy', 'Systemic lupus erythematosus nephritis', 'Allergic purpura nephritis', 'Primary vasculitis-related kidney damage', 'glomerulonephritis']}

gpt-4: 1. **\*\*Summarize the medical case.\*\*** The patient is a 64-year-old female with a history of hypertension and diabetes. She has been experiencing intermittent swelling in both lower extremities for six months, which has worsened in the last half month. She has a pathological diagnosis of Stage I Membranous Nephropathy and has been taking medication to reduce urinary protein. However, her urinary protein levels have increased. Her blood pressure and blood glucose levels are under control. Physical examination shows mild edema in both lower extremities. Laboratory tests show decreased red blood cells, hemoglobin, hematocrit, platelet count, total protein, albumin, globulin, prealbumin, glucose, and calcium levels. There is an increase in mean platelet volume, lactate dehydrogenase, chloride, and red blood cell count in urine. Imaging examination shows an irregular medium echo in the gallbladder cavity. 2. **\*\*Medical case Analysis\*\*** The patient's symptoms of lower extremity edema, increased urinary protein, and decreased albumin levels are indicative of kidney disease. The pathological diagnosis of Stage I Membranous Nephropathy confirms this. The patient's history of hypertension and diabetes are risk factors for kidney disease. The laboratory findings of decreased red blood cells, hemoglobin, and hematocrit suggest anemia, which is common in kidney disease. The decreased total protein, albumin, and globulin levels suggest proteinuria, which is a sign of kidney damage. The increased lactate dehydrogenase could indicate tissue damage, including kidney damage. The increased red blood cell count in urine suggests hematuria, another sign of kidney damage. 3. **\*\*Select the 2 Best Possible Diseases\*\*** Based on the patient's medical history, symptoms, and laboratory findings, the two most likely diseases are 'Diabetic nephropathy' and 'glomerulonephritis'. 4. **\*\*Select the best possible disease\*\*** After rechecking the case, the best possible disease is 'Diabetic nephropathy'. 5. **\*\*Format the Disease\*\*** = **\*\*Best possible Disease\*\***: Diabetic nephropathy - **\*\*Reasons\*\***: 1. The patient has a history of diabetes, which is a major risk factor for diabetic nephropathy. 2. The patient's symptoms of lower extremity edema and increased urinary protein are consistent with diabetic nephropathy. 3. The patient's laboratory findings of decreased total protein, albumin, and globulin levels suggest proteinuria, a key feature of diabetic nephropathy. 4. The patient's increased red blood cell count in urine suggests hematuria, which can occur in diabetic nephropathy.

llama3.1: I'll follow the step-by-step approach to solve the medical case. **\*\*1. Summarize the medical case.\*\*** The patient is a 64-year-old elderly female with intermittent swelling of both lower extremities for six months, worsened in the last half month. She has a history of hypertension and diabetes, and her blood pressure control is acceptable. The laboratory examination shows elevated urinary protein (4164mg/24h), and the imaging examination reveals normal kidneys on color Doppler ultrasound. **\*\*2. Medical case Analysis.\*\*** **\*\*Physical Examination:\*\*** Mild edema in both lower extremities. **\*\*Laboratory Examination:\*\*** + Elevated urinary protein (4164mg/24h) with a 24-hour urinary protein quantification of 4823mg/24h, indicating significant kidney damage. + Normal blood biochemistry test results, except for slightly elevated creatinine (85μmol/L). + Routine urine test shows 2+ proteinuria and no other abnormalities. **\*\*Imaging Examination:\*\*** Normal kidneys on color Doppler ultrasound. **\*\*3. Select the 2 Best Possible Diseases.\*\*** Based on the medical case analysis, I select the following two diseases as the most likely: 1. **\*\*Diabetic nephropathy\*\***: The patient has a history of diabetes, and the laboratory examination shows elevated urinary protein, which is consistent with diabetic nephropathy. 2. **\*\*Hepatitis B-related nephropathy\*\***: Although there's no direct evidence of hepatitis B infection in the medical case, it's essential to consider this possibility given the patient's age and the presence of kidney damage. **\*\*4. Select the best possible disease.\*\*** After rechecking the case, I select **\*\*Diabetic nephropathy\*\*** as the best possible disease. **\*\*5. Format the Disease.\*\*** = **\*\*Best possible Disease\*\***: Diabetic nephropathy - **\*\*Reasons:\*\*** - Elevated urinary protein (4164mg/24h) with a 24-hour urinary protein quantification of 4823mg/24h, indicating significant kidney damage. - The patient has a history of diabetes.

gemma2: **## Medical Case Analysis** **\*\*1. Summary:\*\*** A 64-year-old female presents with intermittent swelling in both lower extremities for six months, worsening over the past half month.

She has a history of hypertension and diabetes, diagnosed within the last year. Previous renal biopsy revealed Stage I Membranous Nephropathy. Her current treatment includes Tacrolimus to reduce urinary protein, which unfortunately continues to increase (24-hour quantification: 4200mg/24h). Physical examination reveals mild edema in both lower extremities.

**2. Medical Case Analysis:**

- Physical Examination:** Mild edema in the lower extremities is a common symptom of kidney dysfunction and fluid retention.
- Laboratory Examination:**
  - Elevated creatinine (85  $\mu\text{mol/L}$ ) suggests impaired kidney function.
  - High urinary protein (4200mg/24h) confirms nephrotic syndrome, consistent with Membranous Nephropathy.
  - Elevated blood glucose and prealbumin levels indicate poorly controlled diabetes.
  - Elevated white blood cell count and red blood cell count in urine suggest inflammation or infection.
- Imaging Examination:** The color Doppler ultrasound shows normal liver, spleen, pancreas, and kidneys. This rules out any significant structural abnormalities contributing to her symptoms.

**3. Two Most Likely Diseases:**

- Membranous Nephropathy:** This is the most likely diagnosis as it was confirmed by a previous renal biopsy. Her ongoing proteinuria despite treatment further supports this.
- Diabetic Nephropathy:** Given her recent diabetes diagnosis and elevated blood glucose, diabetic nephropathy could be contributing to her symptoms.

**4. Best Possible Disease:** = **Membranous Nephropathy**

- A previous renal biopsy confirmed the diagnosis.
- Her current proteinuria levels are significantly elevated despite treatment for Membranous Nephropathy.
- While diabetes is a risk factor, it's less likely to be the primary cause given the established history of Membranous Nephropathy.

Key: 1198

original: {'main-diagnosis': 'nephrotic syndrome', 'differential\_diagnosis': ['Hepatitis B related kidney disease', 'Diabetic nephropathy', 'Systemic lupus erythematosus nephritis', 'Allergic purpura nephritis', 'Primary small vasculitis-related kidney damage', 'nephrotic syndrome']}

gpt-4: 1. **\*\*Summarize the medical case.\*\*** The patient is a 69-year-old male who has been experiencing bilateral lower limb edema for over half a month. The edema is symmetrical and indented. He has been given medication, but the symptoms have not improved. Physical examination reveals coarse breath sounds in both lungs, wet rales, regular heart rhythm, no pathological murmurs, no tenderness or rebound tenderness in the abdomen, and moderate edema in both lower limbs. Laboratory examination shows decreased red blood cells, hemoglobin, hematocrit, total protein, albumin, globulin, and prealbumin, and increased cholinesterase, mean platelet volume, total cholesterol, low-density lipoprotein cholesterol, apolipoprotein B, and red blood cell count, epithelial cell count, cast count, and bacterial count in urine. Imaging examination reveals a small amount of anechoic fluid area in the abdominal cavity. 2. **\*\*Medical case Analysis\*\*** The patient's symptoms of bilateral lower limb edema, along with the laboratory findings of decreased total protein and albumin, suggest a condition related to protein loss, which is a common feature in kidney diseases. The presence of protein and blood in the urine further supports this. The imaging findings of a small amount of anechoic fluid area in the abdominal cavity could be due to fluid retention, another common feature in kidney diseases. 3. **\*\*Select the 2 Best Possible Diseases\*\*** Based on the patient's symptoms and laboratory findings, the two most likely diseases are 'Hepatitis B related kidney disease' and 'nephrotic syndrome'. 4. **\*\*Select the best possible disease\*\*** After rechecking the case, the best possible disease is 'nephrotic syndrome'. 5. **\*\*Format the Disease\*\*** = **\*\*Best possible Disease\*\***: Nephrotic Syndrome - **\*\*Reasons\*\***: - The patient's symptoms of bilateral lower limb edema and the laboratory findings of decreased total protein and albumin suggest a condition related to protein loss, which is a common feature in nephrotic syndrome. - The presence of protein and blood in the urine further supports the diagnosis of nephrotic syndrome. - The imaging findings of a small amount of anechoic fluid area in the abdominal cavity could be due to fluid retention, another common feature in nephrotic syndrome.

llama3.1: I'll follow the step-by-step approach to solve the medical case. **\*\*Step 1: Summarize the medical case\*\*** The patient is a 69-year-old elderly male presenting with bilateral lower limb edema for over half a month. He has been generally healthy in the past but developed edema without an obvious cause. The edema is symmetrical and indented, and he was given medication 2 days ago, but the effect was poor. Physical examination reveals coarse breath sounds in both lungs, wet rales can be heard, and moderate edema in both lower limbs. Laboratory examinations show normal blood biochemistry test results, but routine urine test shows 3+ occult blood. Imaging examination (color Doppler ultrasound) reveals a normal liver, spleen, pancreas, and kidneys, with no obvious dilation of the bilateral ureters. **\*\*Step 2: Medical case Analysis\*\*** \* The patient's age and sex are relevant for certain kidney diseases. \* Bilateral lower limb edema can be associated with various conditions, including heart failure, kidney disease, or liver cirrhosis. \* Coarse breath sounds in both lungs and wet rales suggest pulmonary congestion, which could be related to heart failure or other cardiopulmonary conditions. \* Normal blood biochemistry test results make some kidney diseases less likely (e.g., diabetic nephropathy). \* The presence of 3+ occult blood in the urine suggests a possible renal issue. **\*\*Step 3: Select the 2 Best Possible Diseases\*\*** Based on the medical case analysis, I will consider the following two diseases: 1. **\*\*Nephrotic Syndrome\*\***: This condition is characterized by severe proteinuria (protein loss through urine), hypoalbuminemia (low albumin levels in blood), and edema. The patient's bilateral lower limb edema, normal blood biochemistry test results, and presence of 3+ occult blood in the urine make nephrotic syndrome a possible diagnosis. 2. **\*\*Hepatitis B related kidney disease\*\***: Although the liver is normal on imaging examination, hepatitis B can cause kidney damage through various mechanisms (e.g., immune complex deposition). The patient's age and sex are relevant for this condition. **\*\*Step 4: Select the best possible disease\*\*** After rechecking the case, I will choose **\*\*Nephrotic Syndrome\*\*** as the best possible disease. This is because: \* The presence of 3+ occult blood in the urine is a strong indicator of kidney damage. \* Nephrotic syndrome can cause bilateral lower limb edema due to hypoalbuminemia and fluid retention. \* Normal blood biochemistry test results make diabetic

nephropathy less likely. **\*\*Step 5: Format the Disease\*\*** = **\*\*Best possible Disease\*\***: Nephrotic Syndrome - **\*\*Reasons\*\***: + Presence of 3+ occult blood in the urine, indicating kidney damage. + Bilateral lower limb edema due to hypoalbuminemia and fluid retention. + Normal blood biochemistry test results make diabetic nephropathy less likely.

**gemma2: ## Medical Case Analysis**

**\*\*1. Summary:\*\*** An elderly male patient (69 years old) presents with bilateral lower limb edema that developed over half a month ago. The edema is symmetrical and indented, worsening despite initial medication. Physical examination reveals coarse breath sounds, wet rales, and moderate edema in both lower limbs. Laboratory tests show elevated total protein, albumin, and globulin levels, along with slightly elevated creatinine and uric acid. Imaging shows localized separation in the right kidney's collecting system and an enlarged prostate.

**\*\*2. Medical Case Analysis:\*\***

- \*\*\*Physical Examination:\*\*** **\*\*\*Coarse breath sounds and wet rales:\*\*** Suggest possible heart or lung issues that could contribute to edema.
- \*\*\*Moderate edema in both lower limbs:\*\*** A key symptom pointing towards kidney dysfunction as a primary cause.
- \*\*\*Laboratory Examination:\*\*** **\*\*\*Elevated total protein, albumin, and globulin:\*\*** Indicate potential inflammation or liver involvement.
- \*\*\*Slightly elevated creatinine and uric acid:\*\*** Suggest impaired kidney function.
- \*\*\*Other blood tests:\*\*** While not directly related to the listed diseases, they provide a broader picture of the patient's health.
- \*\*\*Imaging Examination:\*\*** **\*\*\*Localized separation in the right kidney's collecting system:\*\*** Could indicate obstruction or inflammation within the kidney.
- \*\*\*Enlarged prostate:\*\*** While common in elderly males, it can contribute to urinary retention and indirectly affect kidney function.

**\*\*3. Two Most Likely Diseases:\*\***

- \*\*Hepatitis B related kidney disease:\*\*** Elevated liver enzymes (ALT, AST) could suggest hepatitis B infection, which can lead to chronic inflammation and damage to the kidneys.
- \*\*Systemic lupus erythematosus nephritis:\*\*** SLE is an autoimmune disease that can affect various organs, including the kidneys. Symptoms like edema, fatigue, and joint pain are common in SLE, and laboratory tests might show elevated inflammatory markers.

**\*\*4. Best Possible Disease:\*\*** = **\*\*Hepatitis B related kidney disease\*\***: - The patient's age and presentation of bilateral lower limb edema align with the typical progression of Hepatitis B leading to chronic kidney disease. - While SLE is also a possibility, there are no specific mentions of joint pain or other systemic symptoms commonly associated with SLE in the provided case.

**\*\*5. Additional Considerations:\*\***

- \*\*\*Further investigations like hepatitis B serology and renal biopsy would be crucial for definitive diagnosis.**
- \*\*\*The patient's medical history should be thoroughly reviewed for any past infections or exposures to Hepatitis B.**