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Renal and Endocrine MSQs
(Review Q. of human pathology book

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SECTION 12: KIDNEY AND LOWER URINARY TRACT

12.001 By definition, the nephritic syndrome is associated with each of the following EXCEPT:

A. red blood cell casts
B. hematuria
C. mild proteinuria
D. rapid progression to renal failure in weeks
E. elevated BUN and creatinine

D is correct.
Red cell casts, hematuria, mild proteinuria, and elevated BUN and creatinine are classical findings in the typical nephritic syndrome. Patients usually recover within a few weeks. Rapid progression to renal failure is not typical of the nephritic syndrome, but is associated with glomerular crescent formation in rapidly progressive glomerulonephritis.

12.002 The nephrotic syndrome is associated with each of the following EXCEPT:

A. red blood cell casts
B. moderate-to-severe proteinuria
C. membranous nephropathy
D. minimal-change disease
E. normal BUN and creatinine

A is correct.
The nephrotic syndrome consists of proteinuria (≥3.5 g over a 24-hour period). Hypoproteinemia and hyperlipidemia also occur. Unless there are other underlying causes, the BUN and creatinine are not elevated in the typical nephrotic syndrome. There are many causes of the nephrotic syndrome, including membranous nephropathy and minimal-change disease.

12.003 Each of the following cell types is normally found in the glomerulus EXCEPT:

A. endothelial
B. mesangial
C. parietal epithelial
D. visceral epithelial
E. fibroblast

E is correct.
Fibroblasts are not components of a normal glomerulus. Fibroblastic proliferation in the glomerulus is indicative of disease.

12.004 The histologic hallmark of crescentic glomerulonephritis is:

A. endothelial cell proliferation
B. epithelial cell proliferation
C. the 'wireloop'
D. 'apple-green' birefringence
E. basement membrane 'spike' formation

B is correct.
Histology shows the formation of epithelial crescents in the glomeruli as a result of proliferation of parietal epithelial cells and migration of monocytes and macrophages into Bowman's space. The 'wireloop' lesion is classic for glomerulonephritis associated with lupus. Basement membrane 'spike' formation is seen in membranous glomerulopathy. 'Apple-green' birefringence is seen in histologic sections of amyloid stained with Congo red.

12.005 Postrenal acute renal failure is characteristic of which one of the following conditions?

A. minimal-change nephrotic syndrome
B. cystitis
C. congestive heart failure
D. obstructive prostatic hyperplasia
E. polyarteritis nodosa

D is correct.
Postrenal acute renal failure describes renal failure due to a process occurring in the urinary tract beyond the kidneys. The most common process causing this type of acute renal failure is obstructive prostatic hyperplasia. There is usually a history of chronic prostatic urinary obstruction, but infection, edema or some other local occurrence may totally occlude the urethra, leading to acute renal failure.

12.011 A positive chemical test for blood (as measured by the pseudoperoxidase activity of heme-containing proteins) on a routine dipstick urinalysis is consistent with all of the following conditions EXCEPT:

A. myoglobinuria
B. hemoglobinuria
C. bilirubinuria
D. microscopic hematuria (RBC in urine)
E. menstrual bleeding contaminating the urine specimen

C is correct.
Bilirubin does not contain heme.

12.012 Which one of the following statements about malignant hypertension is TRUE?

A. this condition is the result of a malignant neoplasm, usually primary, in the kidney
B. morbidity and mortality are very low
C. most often arises *de novo* in a previously normotensive patient
D. histologically characterized by atherosclerosis
E. characterized by renal failure

E is correct.
Malignant hypertension usually arises in a patient with essential hypertension. The full-blown syndrome is characterized by a diastolic pressure > 130 mmHg, papilledema, encephalopathy, cardiovascular abnormalities, and renal failure.

12.013 Severe proteinuria (also called 'massive' proteinuria or nephrotic-range proteinuria) is defined as a urinary total protein excretion rate of:

A. < 500 mg / day
B. > 30 g / day
C. < 10 µg / day
D. > 3-4 g / day 3.5 g/day
E. < 1 ng / min

D is correct.
The typical definition of nephrotic-range proteinuria is 24-hour excretion of ≥ 3.5 g of protein.

12.014 Each of the following statements about acute tubular necrosis is true EXCEPT:

A. proximal tubule and thick ascending limb of Henle's loop are most frequently affected
B. almost always irreversible
C. may follow myoglobinuria due to crush injury
D. nephrotoxic-induced acute tubular necrosis may result from certain antibiotics (e.g. aminoglycosides)
E. pathogenesis may be related to tubular obstruction

B is correct.
Acute tubular necrosis which results in the necrosis of tubular epithelial cells with preservation of the underlying basement membrane is a potentially reversible process. If the cause of the necrosis is corrected, the tubular epithelial cells may regenerate.

12.015 The nephrotic syndrome is LEAST likely to occur in which one of the following diseases?

A. diabetic nephropathy
B. minimal-change disease
C. poststreptococcal glomerulonephritis
D. membranous glomerulopathy
E. ~~systemic lupus erythematosus~~ focal segmental glomerulosclerosis

C is correct.
The nephrotic syndrome may be a clinical manifestation of all of the diseases listed except poststreptococcal glomerulonephritis. The clinical syndrome typically associated with that disease is the nephritic syndrome.

12.021 Typical histologic alterations seen in glomerular disease include each of the following EXCEPT:

A. cellular proliferation of mesangial cells
B. leukocyte infiltration
C. malignant transformation of endothelial cells
D. hyalinization and sclerosis
E. glomerular basement membrane-thickening

C is correct.
Malignant transformation of glomerular endothelial cells is not a feature of glomerular disease.

12.022 Each of the following statements about membranoproliferative glomerulonephritis is true EXCEPT:

A. high recurrence rate in transplantation
B. light microscopy reveals alterations in the glomerular basement membrane
C. light microscopy reveals cellular proliferation in the glomeruli
D. may present as nephrotic syndrome with RBC casts
E. the classic pattern of glomerular disease in diabetic nephropathy

E is correct.
The classic pattern of glomerular disease in diabetic nephropathy is either diffuse glomerulosclerosis, nodular glomerulosclerosis, or exudative lesions.

12.023 Acute tubular necrosis (ATN) is typically associated with each of the following EXCEPT:

A. ischemic renal injury
B. rhabdomyolysis
C. IgA nephropathy
D. nephrotoxic renal injury
E. shock

C is correct.
IgA nephropathy characteristically is associated with recurrent gross or microscopic hematuria, mild proteinuria and, occasionally, the nephrotic syndrome. ATN is not a feature of this disease.

12.024 Which of the following is typically associated with the development of acute renal failure?

A. unilateral renal stone
B. renal ischemia
C. renal cell carcinoma
D. cystitis
E. proteinuria

B is correct.
Renal ischemia, if severe, can cause acute tubular necrosis and subsequent acute renal failure. If the ischemia is due to hypotension, there may also be a decrease or cessation of glomerular filtration.

12.025 Three key features of the nephrotic syndrome are:

A. azotemia, hypertension and RBC casts
B. cellular 'crescents', linear IgG deposition, and pulmonary hemorrhage
C. pericarditis, cerebritis, and elevated antinuclear antibodies
D. proteinuria, hypoalbuminemia, and edema
E. hyperkalemia, hypokaluria, and nephrolithiasis

D is correct.
The nephrotic syndrome is associated with proteinuria of ≥3.5 g over a 24-hour period. This results in hypoalbuminemia, and a subsequent decrease in plasma osmotic pressure leading to edema.

12.059 Each of the following statements about post-streptococcal glomerulonephritis is true EXCEPT:
A. glomeruli contain group A beta-hemolytic streptococci
B. glomeruli are hypercellular
C. glomeruli contain a neutrophil infiltrate
D. RBC casts are usually present in the urine
E. >95% of children recover without sequelae

A is correct.
There is usually a recent history of a streptococcal infection. The infection subsides, and the circulating antigen–antibody complexes are deposited on the glomerular basement membrane. These complexes cause damage to the glomerulus. The bacteria themselves are not in the glomeruli.

12.060 The definition of the acute nephritic syndrome includes which one of the following?
A. crescents
B. hypoalbuminemia
C. urinary frequency
D. renal colic
E. RBC casts

E is correct.
The nephritic syndrome is defined by mild proteinuria and edema, azotemia, hypertension, and hematuria with RBC casts in the urine.

12.061 White blood cell ~~casts~~ are MOST closely associated with which one of the following?
A. ischemic acute renal failure
B. pyelonephritis
C. acute nephritic syndrome
D. nephrotic syndrome
E. chronic renal failure

B is correct.
Pyelonephritis is an acute suppurative infection of the renal parenchyma. The polymorphonuclear response is marked, and involves the interstitium and tubules predominantly. The leukocytes form a mold or 'cast' of the tubular lumen and are identified in the urine.

12.062 In patients with advanced hepatic failure, renal failure may also develop. This is called the 'hepatorenal syndrome'. Microscopic examination of a renal biopsy from such a patient is MOST likely to show:
A. glomerular crescent formation
B. basement membrane-thickening
C. focal sclerosis
D. endothelial and epithelial proliferation
E. normal structure

E is correct.
The renal failure secondary to hepatic failure is believed to be due to altered blood flow to the renal cortex. There is no intrinsic morphologic or functional cause for the renal failure.

12.063 Each of the following renal diseases involves either antibody or antigen–antibody deposition on the glomerular basement membrane EXCEPT:
A. poststreptococcal glomerulonephritis
B. minimal-change disease
C. membranous nephropathy
D. Goodpasture's disease

B is correct.
In minimal-change disease, there is an absence of immune deposition.

12.031 White blood cell (WBC) casts in the urine suggest:
A. leukemia
B. pyelonephritis
C. cystitis
D. decreased urine pH

B is correct.
White cell casts indicate the presence of WBC within the renal tubules. These cells form a mold or 'cast' of the tubular lumen. The finding of WBC casts in the urine therefore suggests acute infection within the kidney, or pyelonephritis.

12.032 Glomerular disease is suggested by each of the following EXCEPT:
A. nephrotic range proteinuria (> 3.5 g / 24 h)
B. RBC casts in the urine
C. loss of foot processes of podocytes
D. urine with low specific gravity

D is correct.
The specific gravity of the urine is largely a result of tubular epithelial function.

12.033 Acute poststreptococcal glomerulonephritis is typically associated with:
A. glomerular microabscesses
B. granular immune-complex deposits on the glomerular basement membrane
C. diffuse glomerular crescent formation
D. IgA deposits in the glomerular mesangium

B is correct.
In acute poststreptococcal glomerulonephritis, granular deposits of immune complexes are seen along the glomerular basement membrane.

12.034 Clinical features of cystitis include each of the following EXCEPT:
A. dysuria
B. white blood cell casts
C. hematuria
D. urinary frequency

B is correct.
White cell casts indicate the presence of WBC within the renal tubules. These cells form a mold or 'cast' of the tubular lumen. The finding of WBC casts in the urine therefore suggests acute infection within the kidney, or pyelonephritis. These casts are not found in cystitis alone.

12.035 Each of the following features is usually associated with the nephritic syndrome EXCEPT:
A. edema
B. acute renal failure
C. proteinuria
D. RBC casts
E. hypertension

B is correct.
Acute renal failure refers to a rapid deterioration of renal function. This is not a feature of uncomplicated nephritic syndrome.

12.036 Rapidly progressive glomerulonephritis associated with Goodpasture's syndrome is a classic example of which one of the following mechanisms of glomerular injury?
A. nephritis caused by antibodies against 'planted' non-glomerular antigens
B. circulating immune-complex nephritis
C. antiglomerular basement-membrane antibody nephritis
D. nephritis associated with activation of the alternative complement pathway

C is correct.
In Goodpasture's syndrome, antibodies which are directed against intrinsic fixed antigens in the glomerular basement membrane (GBM) are found. They bind along the GBM, inducing a linear immunofluorescent pattern. These antibodies crossreact with pulmonary alveolar basement membrane, producing pulmonary hemorrhage.

12.043 The risk of acute pyelonephritis is significantly increased in all of the following EXCEPT:
A. pregnant women
B. men with prostatic hyperplasia
C. patients with diabetes mellitus
D. children with nephrotic syndrome
E. patients with inserted urinary catheter

D is correct.
Diabetics have an increased susceptibility to infection. Pregnant women, due to pressure of the uterus on the ureters, and men with prostatic hyperplasia both have features of urinary tract obstruction which predisposes to infection. There is no significant increased predisposition to urinary tract infections associated with the nephrotic syndrome.

12.044 Which one of the following renal diseases is characterized by thickening of the glomerular capillary wall with 'spike' formation?
A. minimal-change disease
B. membranous glomerulopathy
C. Henoch–Schonlein purpura
D. diabetic nephropathy
E. IgA nephropathy (Berger's disease)

B is correct.
In membranous glomerulopathy, there is diffuse thickening of the glomerular capillary wall. Electron microscopy reveals irregular dense deposits between the basement membrane and the visceral epithelial cells. Basement membrane material is laid down between the deposits, appearing as irregular spikes protruding from the basement membrane.

12.045 All of the following conditions are associated with the nephrotic syndrome EXCEPT:
A. minimal-change disease
B. membranous glomerulopathy
C. poststreptococcal glomerulonephritis
D. diabetic nephropathy
E. IgA nephropathy (Berger's disease)

C is correct.
Poststreptococcal glomerulonephritis presents with the nephritic syndrome and, although there is mild proteinuria, the nephrotic syndrome is not a feature. All of the other diseases listed may cause the nephrotic syndrome.

12.046 The rapid onset of nephrotic syndrome in a 5-year-old child is MOST likely to be caused by:
A. minimal-change disease
B. membranous glomerulopathy
C. Henoch–Schonlein purpura
D. diabetic nephropathy
E. IgA nephropathy (Berger's disease)

A is correct.
Minimal-change disease (lipoid nephrosis) is responsible for approximately 65% of all cases of nephrotic syndrome in children.

12.047 Which one of the following diseases usually presents as asymptomatic hematuria in patients 15–35 years of age?
A. minimal-change disease
B. membranous glomerulopathy
C. Henoch–Schonlein purpura
D. diabetic nephropathy
E. IgA nephropathy (Berger's disease)

E is correct.
IgA nephropathy is a very frequent cause of recurrent gross or microscopic hematuria. It is probably the most common type of glomerulonephritis worldwide. Mild proteinuria is usually present in the condition. The nephrotic syndrome may occur.

12.048 Antibody-mediated injury is typically involved in which one of the following renal diseases?
A. amyloidosis
B. poststreptococcal glomerulonephritis
C. minimal-change disease
D. nephrolithiasis
E. renal tubular acidosis

B is correct.
In poststreptococcal glomerulonephritis, circulating antigen–antibody complexes are deposited on the glomerular basement membrane, causing activation of the complement system and ultimate injury to the basement membrane.

12.054 A 58-year-old man presents with gross hematuria of 2 days' duration. He states that he has noticed prominent weakness over the past 2 weeks. He also complains of low-grade fever intermittent during the last 4 months. On questioning, the patient notes a vague dull right-sided flank pain over the last 2 weeks. Urinalysis reveals hematuria, but no RBC casts and no proteinuria; BUN and creatinine normal; hemoglobin 18 (normal 14–16) g/dl; hematocrit 54% (normal 42–48%). Which one of the following diseases is MOST likely in this patient?

A. ischemic acute tubular necrosis
B. autosomal-dominant polycystic kidney disease
C. nephrolithiasis
D. Wilms' tumor
E. renal cell carcinoma
F. membranous glomerulopathy

E is correct.

Renal cell carcinoma occurs most frequently in the sixth and seventh decades of life. The usual presentation is hematuria. Flank pain and a palpable mass may also be present. Often, generalized constitutional symptoms occur with renal cell carcinoma and include fever, malaise, weakness, and weight loss. BUN and creatinine are usually normal. Several paraneoplastic syndromes may occur with renal cell carcinoma, including polycythemia. This would explain the elevated hemoglobin and hematocrit.

12.055 A 27-year-old woman presents with a 2-week history of fatigue, a facial rash and a 3-day history of joint pain and swelling in both hands. She is afebrile with a normal pulse and respiration, but her blood pressure is 160/95 mmHg. Previous blood pressure on a routine examination 1 year previously was 115/72 mmHg. Physical examination revealed the following positive findings: a flat erythematous rash over the facial malar eminences, and mild facial edema. Laboratory data included hemoglobin 9.5 (normal 12–16) g/dl with an elevated reticulocyte count; a WBC 3500 (normal 5000–10 000); serum creatinine 2 (normal 0.6–1.1) mg/dl; BUN 45 (normal 7–18) mg/dl. Urinalysis revealed 3+ protein, and 4+ blood with red cells and red cell casts. Serum complement and antinuclear–antibody levels were ordered and are pending. Renal biopsy showed cellular proliferation, but no crescent formation. Which one of the following conditions is the MOST likely in this patient?

A. nephritic syndrome
B. rapidly progressive glomerulonephritis
C. nephrotic syndrome
D. acute renal failure
E. chronic renal failure
F. renal tubular defect
G. urinary tract infection
H. nephrolithiasis

A is correct.

The patient probably has systemic lupus erythematosus (SLE). The findings of hypertension, azotemia, proteinuria, and hematuria with RBC casts define the nephritic syndrome. The absence of crescents on biopsy rules out rapidly progressive glomerulonephritis. The patient probably has diffuse proliferative glomerulonephritis secondary to SLE.

12.069 A 12-year-old boy presents with a main complaint of reddish-brown urine. BUN is 60 (normal 10–20) mg/dl; creatinine 2.1 (normal < 1.0) mg/dl; serum complement is low; complete blood count is normal; electrolytes are normal. Urinalysis shows numerous RBCs and RBC casts. Antistreptolysin O (ASO) titer is elevated. Which one of the following diseases is MOST likely in this patient?

A. acute nephritic syndrome
B. rapidly progressive glomerulonephritis
C. nephrotic syndrome
D. asymptomatic urinary abnormalities
E. urinary tract infection
F. nephrolithiasis

A is correct.
The nephritic syndrome is characterized by hematuria, mild proteinuria, azotemia, hypertension, and mild facial edema. The elevated ASO titer suggests that the patient has poststreptococcal glomerulonephritis.

12.070 Which one of the following diseases usually presents after a gastrointestinal or flu-like episode?

A. Alport's syndrome
B. acute pyelonephritis
C. minimal-change disease
D. hemolytic–uremic syndrome
E. diffuse glomerulosclerosis

D is correct.
Childhood hemolytic–uremic syndrome consists of bleeding manifestations, oliguria, hematuria, a microangiopathic hemolytic anemia and, in some patients, neurologic changes. Typically, there is a sudden onset, usually following a gastrointestinal or flu-like episode.

12.071 A unilateral large abdominal mass in a 3-year-old girl is MOST likely to be which one of the following diseases?

A. renal cell carcinoma
B. transitional cell carcinoma
C. autosomal-dominant polycystic renal disease
D. Wilms' tumor
E. angiolipoma

D is correct.
Children with Wilms' tumor usually present with a large abdominal mass. This is the most common primary renal tumor of childhood, usually occurring between the ages of 2 and 5 years.

12.072 The MOST common postrenal cause of acute renal failure is:

A. exstrophy
B. cystitis
C. transitional cell carcinoma
D. squamous cell carcinoma
E. adenocarcinoma
F. prostatic hyperplasia
G. seminoma
H. embryonal cell carcinoma
I. testicular torsion
J. syphilis

F is correct.
Acute renal failure secondary to postrenal causes is most commonly seen in acute urinary retention secondary to benign prostatic hyperplasia. The enlarged prostate encroaches on the prostatic urethra until complete obstruction occurs.

12.073 Goodpasture's syndrome is generally associated with which one of the following?

A. nephritic syndrome
B. rapidly progressive glomerulonephritis
C. nephrotic syndrome
D. acute renal failure
E. renal tubular defect
F. urinary tract infection
G. nephrolithiasis

B is correct.
In Goodpasture's syndrome, antibodies are present which crossreact with the glomerular basement membrane and the alveolar basement membrane. Typical renal involvement presents as crescentic or rapidly progressive glomerulonephritis.

12.079 Antibiotic-induced azotemia is associated with which one of the following?

A. nephritic syndrome
B. rapidly progressive glomerulonephritis
C. nephrotic syndrome
D. acute renal failure
E. renal tubular defect
F. urinary tract infection
G. nephrolithiasis

D is correct.
Toxic injury to the kidney, usually to the renal tubules, may occur in certain instances secondary to antibiotic therapy. An acute renal failure may occur.

12.080 Diabetes mellitus-associated proteinuria is associated with which one of the following?

A. nephritic syndrome
B. rapidly progressive glomerulonephritis
C. nephrotic syndrome
D. acute renal failure
E. renal tubular defect
F. urinary tract infection
G. nephrolithiasis

C is correct.
Diabetes mellitus, systemic lupus erythematosus and amyloidosis are the most frequent systemic causes of the nephrotic syndrome.

12.081 The alternate pathway of complement activation is associated with which one of the following renal diseases?

A. rapidly progressive glomerulonephritis
B. membranous glomerulopathy
C. type II membranoproliferative glomerulonephritis
D. diabetic glomerulosclerosis
E. acute proliferative glomerulonephritis

C is correct.
Type II membranoproliferative glomerulonephritis is associated with deposition of dense material of unclear composition in the glomerular basement membrane. It is often referred to as 'dense-deposit disease'. In type II membranoproliferative glomerulonephritis, there is a serum factor (C3 nephritic factor) which may activate the alternate complement pathway.

12.082 A 68-year-old man with flank pain, hematuria, an abdominal mass, and normal renal function is MOST likely to have which one of the following diseases?

A. testicular torsion
B. cryptorchidism
C. nodular hyperplasia
D. polycystic kidney disease
E. renal cell carcinoma
F. nephrolithiasis
G. Wilms' tumor
H. teratocarcinoma

E is correct.
Renal cell carcinomas occur most often in the sixth and seventh decades of life. Hematuria is present in almost all cases. Flank pain and a palpable mass may also be present.

12.083 Proteinuria of > 6 g / 24 h is MOST likely to be found in which one of the following conditions?

A. cystitis
B. renal cell carcinoma
C. pyelonephritis
D. focal-segmental glomerulosclerosis
E. adult polycystic kidney disease
F. primary syphilis
G. crescentic glomerulonephritis
H. nephrolithiasis

D is correct.
Around 80% of patients with focal-segmental glomerulonephritis have the nephrotic syndrome. Nephrotic syndrome is, in part, defined by proteinuria > 3.5 g / 24 h.

12.089 All of the following predispose to urinary tract stone formation EXCEPT:

A. hypercalcemia
B. alkaline urine
C. urinary tract obstruction
D. nephrotic syndrome
E. hyperuricemia

D is correct.
In the nephrotic syndrome, there is a massive proteinuria and possible lipiduria. However, there are no urine changes which predispose to the precipitation of salts resulting in stone formation.

12.090 Goodpasture's syndrome is BEST defined as:

A. gastrointestinal hemorrhage and glomerulonephritis
B. hepatosplenomegaly and acute renal failure
C. pulmonary hemorrhage and crescentic glomerulonephritis
D. cardiomegaly and nephrotic syndrome
E. abdominal mass and hematuria

C is correct.
In Goodpastures's syndrome, there are antibodies that crossreact with glomerular and alveolar basement membranes. Clinically, these patients present with pulmonary hemorrhage and rapidly progressive (crescentic) glomerulonephritis.

12.091 Which one of the following is a feature of the acute nephritic syndrome?

A. massive proteinuria
B. urinary oval fat bodies
C. elevated acid phosphatase
D. elevated urine sodium
E. hypertension

E is correct.
The nephritic syndrome consists of mild hypertension, proteinuria, edema, and azotemia.

12.092 Which of the following is characteristic of rapidly progressive glomerulonephritis?

A. renal colic
B. dysuria
C. glomerular crescent formation
D. hypoalbuminemia
E. normal serum creatinine

C is correct.
The formation of widespread epithelial crescents in the glomerulus is a typical histologic finding in rapidly progressive glomerulonephritis. These crescents are formed by the proliferation of parietal epithelial cells together with monocytes and macrophages.

12.093 Creatinine is an endogenous substance released into the blood at a relatively constant rate and produced by metabolism of which one of the following?

A. ingested protein
B. nitrogenous waste products
C. muscle creatine
D. pancreatic amylase
E. liver lactate dehydrogenase

C is correct.
Creatinine is an endogenous substance produced by the metabolism of creatine in muscle and released from muscle into the bloodstream at a relatively constant rate.

12.094 A 12-year-old boy presents with hematuria, occasional RBC casts and a rising creatinine over the last 5 days. Based on the available data, what is the MOST likely diagnosis?

A. membranoproliferative glomerulonephritis type II
B. Goodpasture's syndrome
C. focal-segmental glomerulosclerosis
D. Berger's disease
E. poststreptococcal glomerulonephritis

E is correct.
The most common cause of red cell casts and azotemia in a child is poststreptococcal glomerulonephritis.

12.099 An 18-year-old boy is found to have asymptomatic hematuria with RBC casts on routine premilitary physical examination. Mesangial IgA deposits are seen on renal biopsy. This boy MOST likely has which one of the following conditions?

A. membranous nephropathy
B. minimal-change disease
C. focal-segmental glomerulosclerosis
D. diabetic nephropathy
E. membranoproliferative glomerulonephritis
F. Goodpasture's syndrome
G. Wegener's granulomatosis
H. poststreptococcal glomerulonephritis
I. Berger's disease
J. lupus nephritis

I is correct.
Berger's disease of IgA nephropathy is characterized by IgA deposits in the mesangial area of glomeruli. It is a frequent cause of recurrent gross or microscopic hematuria.

12.100 A 27-year-old woman presents with migratory arthritis, a facial rash and low-grade anemia. Renal biopsy reveals a proliferative glomerulonephritis with IgG, IgM, IgA, and C3 glomerular deposition. 'Wireloops' are also seen. This patient MOST likely has which one of the following?

A. membranous nephropathy
B. minimal-change disease
C. focal-segmental glomerulosclerosis
D. diabetic nephropathy
E. membranoproliferative glomerulonephritis
F. Goodpasture's syndrome
G. Wegener's granulomatosis
H. poststreptococcal glomerulonephritis
I. Berger's disease
J. lupus nephritis

J is correct.
The clinical history suggests a diagnosis of systemic lupus erythematosus. The finding of thickened glomerular capillaries ('wireloops') together with the wide spectrum of glomerular deposits strongly support a diagnosis of lupus nephritis.

12.101 Which one of the following morphologic alterations is characteristic of focal-segmental glomerulosclerosis?

A. disruption of visceral epithelial cells
B. ribbon-like electron-dense deposits in the glomerular basement membrane
C. glomerular epithelial crescent formation
D. 'spike-and-dome' pattern of glomerular basement membrane
E. nodular glomerulosclerosis

A is correct.
In focal-segmental glomerulosclerosis, there is a characteristic disruption of visceral epithelial cells. Also present is hyalinosis and sclerosis due to entrapment of plasma proteins and lipids in foci of increased permeability. There is also a reactive mesangial cell proliferation.

14.078 Which of the following is a variant of breast carcinoma which occurs MORE often in younger women and is MORE likely to be bilateral than conventional invasive ductal carcinoma?

A. lobular carcinoma
B. ductal carcinoma in situ
C. phyllodes tumor (cystosarcoma phyllodes)
D. intraductal papilloma
E. gynecomastia

A is correct.
Lobular carcinoma arises from the terminal ductules of the breast. These tumors are often bilateral and tend to be multicentric.

14.079 Malignant tumor cells remain confined to the duct in which of the following breast cancers?

A. lobular carcinoma
B. ductal carcinoma in situ
C. phyllodes tumor (cystosarcoma phyllodes)
D. intraductal papilloma
E. gynecomastia

B is correct.
Ductal carcinoma in situ refers to non-invasive carcinoma confined to the ductal epithelium.

14.080 A hysterectomy specimen from a 40-year-old woman shows multiple discrete, sharply circumscribed, firm gray-white masses ranging from 5 mm to 8 cm in size. What is the MOST likely diagnosis?

A. leiomyosarcoma
B. leiomyoma
C. endometriosis
D. endometrial stromal sarcoma
E. fibroma

B is correct.
The description is classic for leiomyoma. These are the most common benign tumors found in women. They are present in up to 50% of women during reproductive life. Estrogens stimulate the growth of leiomyomas. The most frequent clinical symptom of leiomyoma is menorrhagia. It is unlikely that leiomyomas become malignant.

14.081 A 35-year-old woman presented to the Infertility Clinic. Her diagnostic work-up was negative except for a sessile intrauterine mass which was seen at the time of hysteroscopy. The MOST likely diagnosis is:

A. leiomyoma
B. invasive endometrioid adenocarcinoma
C. leiomyosarcoma
D. adenomyosis
E. simple endometrial hyperplasia

A is correct.
Leiomyomas, or benign neoplasms of smooth muscle, are common in the myometrium. On occasions, they may protrude into the uterine cavity on a sessile stalk. In this situation, they may contribute to infertility.

15.005 A 50-year-old woman presents mainly with complaints of weight loss, fatigue and cutaneous hyperpigmentation. She has tachycardia. Her serum Na^+ is low, but serum K^+ is elevated; serum cortisol is low with absence of diurnal variation; and serum thyroxine (T_4), triiodothyronine (T_3) and PTH levels are normal. A nuclear-medicine study shows greatly diminished total intravascular volume. Urine studies show greatly increased sodium excretion. An abdominal MRI shows no mass lesions and the adrenal glands are very small bilaterally. Which of the following will give the MOST definitive diagnosis of this patient's condition?

A. a dexamethasone suppression test for Cushing's disease
B. an ACTH stimulation test for Addison's disease
C. an ADH stimulation test for diabetes insipidus
D. an insulin stimulation test for pituitary insufficiency
E. an adrenal biopsy for malignancy

B is correct.
An ACTH stimulation test to assess the extent of adrenal reserve is needed. Failure to respond by significant increases in plasma cortisol and urine 24-h free cortisol establishes the diagnosis.

15.006 A 50-year-old man presents mainly with complaints of headache, dizziness and palpitations. Physical examination reveals a blood pressure of 190/105 mmHg. Postural hypotension is present. The retina shows 3+ hypertensive changes. Serum glucose is mildly elevated, but electrolytes, calcium, BUN, creatinine, cortisol and thyroxine are all normal. His 24-h urine shows elevated levels of vanillylmandelic acid. The pathologic process resulting in this syndrome is MOST likely to be:

A. bilateral hyperplasia
B. bilateral benign neoplasia
C. unilateral benign neoplasia
D. unilateral malignant neoplasia
E. unilateral hyperplasia

C is correct.
Unilateral benign neoplasia (pheochromocytoma) accounts for 80–90% of cases with presentations similar to this one.

15.007 A 45-year-old woman presents with a main complaint of a 50-lb weight gain over 6 months. Abdominal cutaneous striae are present. Laboratory results show elevated plasma cortisol and elevated 24-h urinary free cortisol. An MRI of the abdomen shows mild bilateral adrenal enlargement without mass lesions. Which of the following laboratory tests is MOST likely to reveal the definitive cause of this patient's problem?

A. glucose tolerance test
B. dexamethasone suppression test
C. water-deprivation test
D. ACTH stimulation test
E. TRH stimulation test

B is correct.
Elevated plasma cortisol which is suppressed with high- (8 mg/day), but not low- (2 mg/day), dose dexamethasone is diagnostic of pituitary-based hypercortisolism (Cushing's disease).

15.011 A 54-year old man presents with severe episodic hypertension punctuated by attacks of dizziness accompanied by orthostatic hypotension. Serum glucose is mildly elevated, but all other serum chemistries, including cortisol, are normal. An MRI discloses a 3-cm ovoid mass in the right adrenal gland. Which of the following diagnostic tests is MOST likely to result in a definitive diagnosis of this patient's condition?

A. plasma renin determination
B. glucose tolerance test
C. dexamethasone suppression test
D. 24-h urinary vanillylmandelic acid determination
E. water-deprivation test with ADH

D is correct.
An elevated 24-h urinary vanillylmandelic acid determination would establish that a pheochromocytoma is the cause of the hypertension.

15.012 A 50-year-old man presents with a history of recent weight loss and fatigue. He is plethoric and short of breath, and mildly hypertensive. Serum chemistries show increased glucose and potassium. Serum cortisol is somewhat elevated with loss of diurnal variation. Radiographic studies show bilateral enlargement of the adrenal glands without nodules and a CT scan of the pituitary is normal. A chest X-ray shows a right upper lobe mass invading the mediastinum, and sputum cytology shows undifferentiated small malignant cells. Which of the following combinations of endocrine abnormalities is this patient MOST likely to have?

A. very high ACTH with suppression by dexamethasone
B. very high ACTH without suppression by dexamethasone
C. low-to-absent ACTH with suppression by dexamethasone
D. low-to-absent ACTH without suppression by dexamethasone
E. low-to-absent ACTH with increase after dexamethasone

B is correct.
The plasma ACTH will be very elevated and will not be suppressed by high-dose dexamethasone treatment.

15.015 A 54-year-old male attorney has been followed in your clinic for 15 years for type II diabetes. He has required therapy with insulin-releasing agents. Although he has been only mildly hyperglycemic on his visits, his hemoglobin A_{1C} levels have been consistently somewhat elevated. Although he has a negative physical examination and chest X-ray, he is febrile. He now has a mildly elevated BUN and creatinine with mild proteinuria. Numerous white blood cell casts are noted on microscopic examination of the urine. He is at greatest immediate risk for which of the following devastating complications of diabetes mellitus:

A. ketoacidosis
B. hyperosmolar non-ketotic coma
C. renal papillary tip necrosis
D. disseminated (miliary) tuberculosis
E. nodular glomerulosclerosis

C is correct.
Due to the microvascular thickening seen in diabetes mellitus, acute pyelonephritis results in renal papillary tip infarction with sloughing into the ureter. This is a devastating complication of renal infection in diabetes.

15.016 Type I diabetes mellitus shows an epidemiological association with previous infection by:

A. cytomegalovirus
B. measles paramyxovirus
C. *Streptococcus viridans*
D. rubella togavirus
E. Epstein–Barr virus

D is correct.
Rubella-induced cellular cytotoxicity is implicated in the destruction of beta cells preceding type I diabetes mellitus. Some cases have occurred due to vaccine strains.

15.017 A 46-year-old woman is diagnosed with Zollinger–Ellison syndrome after a long history of intractable peptic ulcer disease. As an astute clinician, you take a detailed family history and find that her mother had a pituitary adenoma and an uncle had bilateral adrenal hyperplasia. What OTHER organ or tissue do you suspect of harboring neoplasms in this patient or other family members?

A. adrenal medulla
B. parathyroid glands
C. peripheral nerves
D. thymus
E. carotid body

B is correct.
Parathyroid adenomas are associated with both multiple endocrine neoplasia syndromes – type I (MEN I) and type IIa (MEN IIa).

15.021 A 55-year-old woman presents with attacks of dizziness, confusion and seizures relieved by glucose administration. Plasma insulin levels are elevated, but other pancreatic islet hormones are normal. An overnight fast with exercise provokes profound hypoglycemia associated with marked elevation of plasma insulin concentration. Based on the relative frequencies of the lesions causing this syndrome, the pathology MOST likely to be found in the pancreas is:

A. a single islet cell adenoma
B. multiple islet cell adenomas
C. a single islet cell carcinoma
D. multiple islet cell carcinomas
E. diffuse hyperplasia of the islets

A is correct.
The most common lesion associated with paroxysmal bouts of hypoglycemia associated with elevated plasma insulin levels is a single pancreatic islet cell adenoma.

15.022 Which of the following endocrine neoplasms is the MOST likely to pursue a malignant course?

A. a parathyroid neoplasm secreting parathyroid hormone
B. an intra-adrenal pheochromocytoma secreting norepinephrine
C. a basophilic pituitary neoplasm secreting ACTH
D. an islet cell tumor secreting gastrin
E. an islet cell tumor secreting insulin

D is correct.
Up to 67% of all cases of Zollinger–Ellison syndrome (primary hypergastrinism) are due to islet cell carcinomas.

15.023 A 20-year-old woman first develops elevated fasting and 2-h postprandial plasma glucose concentrations during the third trimester of pregnancy. One month after delivery, both her fasting and 2-h postprandial blood glucose concentrations are normal. Which of the following is the MOST likely diagnosis?

A. type I diabetes mellitus (IDDM)
B. type II diabetes mellitus (NIDDM)
C. mature-onset diabetes mellitus of the young (MODY)
D. gestational diabetes mellitus
E. secondary diabetes mellitus
F. diabetes insipidus

D is correct.
Gestational diabetes mellitus is diagnosed when an elevated blood glucose (< 165 mg/dl 2-h postprandial) level is first observed during pregnancy. Up to 50% of these women will subsequently develop permanent diabetes.

15.028 A 50-year-old man with chronic mild hypertension complains of weakness, constipation and frequent bouts with renal stones. His serum calcium is increased and serum phosphorus is decreased. Serum creatinine, BUN and potassium are all normal. Bone films show demineralization with multiple small cystic areas. The primary cause of this patient's disease MOST likely lies in the:

A. kidney
B. bone
C. adrenal glands
D. parathyroid gland
E. pituitary gland

D is correct.
The parathyroid glands are autonomously producing excessive parathyroid hormone, most probably due to a single hyperfunctioning adenoma.

15.029 A 45-year-old woman presents with a history of increasing glove and shoe sizes, and generalized joint pain. She has coarse features. Serum chemistries disclose an elevated fasting blood glucose. Physical examination reveals no abdominal cutaneous striae, 'buffalo hump' or galactorrhea. She has a reduced range of motion in all major joints. A CT scan discloses enlargement of the sella turcica. Hypersecretion of which of the following has MOST likely resulted in this syndrome?

A. adrenocorticotropic hormone
B. antidiuretic hormone
C. thyroid-stimulating hormone
D. somatotropin
E. follicle-stimulating hormone

D is correct.
Somatotropin hypersecretion results in overgrowth of the hands and feet, generalized arthritis and insulin resistance with hyperglycemia.

15.030 A 52-year-old man presents with complaints of headache and decreased libido. He denies any weight gain or loss, change in shoe size, polyuria or heat intolerance. Visual field analysis shows bitemporal hemianopia. An MRI of the pituitary shows sellar enlargement. Routine clinical chemistry determinations are within normal limits. Plasma determination of which of the following hormones is MOST likely to be elevated?

A. insulin
B. somatostatin
C. prolactin
D. adrenocorticotropic hormone
E. testosterone

C is correct.
Prolactin is the most common hormone secreted by pituitary adenomas and results in the syndrome seen in this patient.

15.031 The syndrome of inappropriate antidiuretic hormone secretion (SIADH) is MOST commonly seen with neoplasms of the:

A. kidney
B. adrenal
C. liver
D. lung
E. brain

D is correct.
SIADH is most commonly seen in patients with small-cell undifferentiated pulmonary carcinoma.

15.036 A pregnant woman suffers hypovolemic shock at delivery secondary to placenta previa. Six months later, she has amenorrhea, low serum thyroxine (T_4) and TSH, and low ACTH. An insulin test for pituitary reserve confirms that the pituitary is not functioning. The pathologic process that has led to this syndrome is MOST likely to be:

A. a large chromophobe adenoma developing during pregnancy
B. autoimmune-mediated atrophy of the anterior pituitary
C. hemorrhagic infarction of the anterior pituitary
D. destruction of the posterior pituitary stalk
E. infarction of the supraoptic nucleus in the hypothalamus

C is correct.
Hemorrhagic infarction of the pituitary due to shock during or around delivery is the most likely pathologic lesion. The infarction is hemorrhagic because the pituitary has a dual blood supply (an arterial and a portal venous system).

15.037 A 68-year-old woman presents to your clinic with a history of a mass in the right anterior midneck in the region occupied by the thyroid gland. The mass has attained a diameter of 5 cm over approximately 3 months. She is hospitalized and the mass is biopsied. The histology shows undifferentiated spindle and giant cells with a high mitotic rate. Although no colloid- or follicle-forming cells are seen, the neoplasm is histologically present in the strap muscle. The patient's son asks you for his mother's prognosis. Which of the following is the MOST accurate statement you can make to the son?

A. this process may appear aggressive, but it is highly likely to undergo spontaneous remission
B. this neoplasm has a tendency to spread to regional lymph nodes, which can be removed with a good possibility of cure
C. this neoplasm is malignant and usually spreads to the liver and lungs, where chemotherapy is effective
D. this highly malignant neoplasm grows so rapidly that it will compromise the airways before it metastasizes, resulting in death within a few weeks
E. radiation, radical surgery and chemotherapy will produce a good response, but the patient will die within several years

D is correct.
This rapidly growing carcinoma (undifferentiated carcinoma) compromises the airways and kills in a matter of weeks.

15.040 A 4-year-old girl is brought to your clinic by her parents, who have recently immigrated to the USA from a country in the Andes mountains. The child shows profound mental and growth retardation. The parents say she was 'normal' at birth. Her attempts at speech reveal a coarse voice, and deep tendon reflexes are depressed. She has a peculiar periorbital edema and a blank facial expression. A palpable mass is present in the anterior midneck surrounding the infraglottic trachea. A serum or plasma level of which hormone is MOST likely to be depressed?

A. thyroxine (T_4)
B. somatotropin (STH)
C. thyroid-releasing hormone (TRH)
D. thyroid-stimulating hormone (TSH)
E. adrenocorticotropic hormone (ACTH)

A is correct.
Serum thyroxine (T_4) will be low in this child, who has congenital hypothyroidism or 'cretinism'.

15.041 A 40-year-old woman presents with features suggestive of early hypothyroidism. The MOST sensitive laboratory test to confirm the diagnosis is:

A. T_3 resin uptake
B. T_4 resin uptake
C. plasma total T_4 level
D. plasma thyroid-binding globulin level
E. plasma TSH level

E is correct.
The plasma TSH will rise even before the plasma T_4 is significantly lowered as an attempt at compensation for the developing hypothyroidism.

15.042 A 25-year-old woman presents with a single firm nodule of the thyroid gland. A needle biopsy reveals papillary glandular fragments with a clear appearance to the nuclei and multilaminated extracellular calcified spherules. The MOST likely organ or tissue to also contain similar cells is:

A. liver
B. bone
C. lymph node
D. lung
E. adrenal

C is correct.
Papillary thyroid carcinomas typically metastasize to the ipsilateral lymph nodes.

15.043 A 40-year-old woman who is HLA-DR5$^+$ has autoimmune thyroiditis (Hashimoto's disease). Her chances of developing which one of the following is markedly INCREASED?

A. follicular carcinoma
B. anaplastic (undifferentiated) carcinoma
C. medullary carcinoma
D. fibrosarcoma
E. malignant lymphoma

E is correct.
The development of malignant lymphoma (B-cell type) is increased approximately 67-fold in patients with Hashimoto's disease.

15.048 A 45-year-old woman is undergoing hemodialysis for chronic renal failure. Her serum calcium is chronically low in spite of dietary supplements. Serum parathyroid hormone is markedly elevated. Several lytic areas in the pelvic bones and long bones are noted. The microscopic appearance of these bone lesions is MOST likely to resemble:

A. giant cell tumor of bone
B. breast carcinoma
C. small-cell undifferentiated carcinoma
D. colon carcinoma
E. Hodgkin's disease

A is correct.
The clinical condition in this case is that of secondary hyperparathyroidism. Elevated levels of parathyroid hormone initiate mediators that stimulate osteoclast activity. The resulting osteoclastic bone resorption appears on histology as increased numbers of osteoclasts, reactive fibrous tissue, cystic degeneration and hemosiderin pigmentation secondary to microhemorrhages. This histologic picture is similar to that of giant cell tumors of bone.

15.049 In the USA, which of the following clinical situations is the MOST common cause of secondary hyperparathyroidism?

A. dietary calcium deficiency
B. dietary vitamin D deficiency
C. pseudohypoparathyroidism
D. chronic renal failure
E. malnutrition

D is correct.
Secondary hyperparathyroidism is most often due to chronic renal failure.

15.050 A 25-year-old primigravida woman experiences excessive blood loss, shock and disseminated intravascular coagulation during delivery. She recovers but, 6 months later, she has not begun menstruating and appears to be depressed with cold skin. The causative lesion in this patient is MOST likely to be located in the:

A. adrenal glands
B. anterior pituitary gland
C. ovaries
D. thyroid gland
E. hypothalamus

B is correct.
This patient has Sheehan's syndrome or postpartum pituitary necrosis. This condition is caused by infarction of the anterior lobe of the pituitary. In pregnancy, the anterior pituitary enlarges, causing some compression of its vascular supply. Systemic hypotension secondary to blood loss causes vasospasm of vessels resulting in ischemic infarction.

15.051 A 30-year-old woman presents to your clinic with a history of a 20-lb weight loss, nervousness and excessive sweating. The thyroid gland is diffusely enlarged, but painless. Her deep tendon reflexes are increased and non-pitting edema is noted in the pretibial soft tissues bilaterally. Both eyes show mild proptosis. The substance stimulating the thyroid gland is being produced by:

A. hypothalamic neurons
B. anterior pituitary cells
C. B lymphocytes / plasma cells
D. splenic macrophages
E. thymic neuroendocrine cells

C is correct.
The diagnosis in this case is Graves' disease or diffuse toxic thyroid hyperplasia. Evidence suggests that the changes in the thyroid gland are initiated by IgG antibodies against some portion of the TSH receptors. These antibodies are, of course, products of B lymphocytes and / or plasma cells.

15.055 A 50-year-old malpractice attorney presents with a history of headache and weakness. Physical examination discloses an elevated blood pressure of 160/108 mmHg on three separate days. Serum sodium is elevated and serum potassium is depressed. Plasma renin is suppressed and does not increase with acute volume depletion by diuretics. Plasma ADH and catecholamines are normal. The lesion causing this patient's syndrome is MOST likely to be in the:

A. hypothalamus
B. anterior pituitary
C. posterior pituitary
D. adrenal cortex
E. adrenal medulla

D is correct.
Acute volume depletion with diuretics is used as a screening test in patients with hypertension, and low serum potassium and low peripheral venous renin concentrations. Normal subjects will stimulate renin whereas a patient with primary hyperaldosteronism will not. Most cases of primary hyperaldosteronism are due to a single unilateral adenoma in the adrenal cortex.

15.056 A 28-year-old pregnant woman is observed to have a fasting blood glucose of 220 mg/dl. She fails to keep her clinic appointments and is delivered by Cesarean section of an 11.8-lb (5.4-kg) infant after 35 weeks of gestation. The baby's large size is the result of overproduction of:

A. maternal insulin
B. maternal growth hormone
C. maternal gonadotropins
D. fetal insulin
E. fetal gonadotropins

D is correct.
The maternal hyperglycemia stimulates hyperplasia of fetal islet cells. The increased fetal insulin production is responsible for the increased birth weight.

15.057 Which of the following risk factors is MORE important in the pathogenesis of type I (insulin-dependent) than in type II (non-insulin-dependent) diabetes mellitus?

A. HLA-DR3/DQ3.2 heterozygosity
B. obesity
C. decrease in number of insulin receptors
D. impaired activity of glucose transport units
E. defects in insulin receptor tyrosine kinase activity

A is correct.
In type I diabetes, there is an altered immune regulation linked to HLA-DR3/DQ3.2 leading to autoimmunity to islet B cells. There is no HLA linkage with type II diabetes mellitus.

15.058 A 38-year-old woman presents with a 40-lb weight gain over the last 6 months, mild hirsutism and abdominal cutaneous striae. On physical examination, you think you palpate an abdominal mass in the left upper quadrant, but it may be the spleen. Plasma and 24-h urine cortisol determinations are both elevated, and both are suppressed by high, but not low, doses of dexamethasone infusions. The MOST likely site for the lesion causing this patient's symptoms is:

A. lung
B. anterior pituitary
C. adrenal cortex
D. adrenal medulla
E. pancreas

B is correct.
Elevated plasma cortisol, which suppresses with high- (8 mg/day), but not low- (2 mg/day), dose dexamethasone is diagnostic of pituitary-based hypercortisolism (Cushing's disease).

15.062 A 52-year-old woman presents with breast cancer widely metastatic to bone with resulting hypercalcemia due to release of prostaglandin E_2 by tumor cells directly into the bone interstitium, where osteoclasts are then activated. This is an example of which of the following types of cellular secretory activity?

A. endocrine
B. paracrine
C. neurocrine
D. autocrine
E. exocrine

B is correct.
Paracrine secretion is the release of a hormone into the interstitium to act locally. Endocrine secretion is the release of hormone into the blood to act systemically. Neurocrine secretion is the release through nerve synapses, and autocrine secretion is the release of hormones by a cell for its own receptors.

15.063 Which of the following 'stimulation' tests is used to confirm the presence of diabetes insipidus?

A. insulin-induced hypoglycemia test
B. parathyroid hormone provocation test
C. water-deprivation test with and without antidiuretic hormone
D. ACTH stimulation test
E. glucose tolerance test

C is correct.
Dysfunction of the posterior pituitary gland manifests as antidiuretic hormone (ADH) deficiency, leading to diabetes insipidus, which consists of abnormal regulation of water excretion.

15.064 A 48-year-old woman presents to your clinic for a preemployment examination. She has recently moved to Arkansas from Montana, where she has lived her entire life. You note bilateral painless enlargement of her thyroid gland bearing several palpable nodules. Plasma thyroxine (T_4) and triiodothyronine (T_3) are normal, but plasma TSH is mildly elevated. No serum antithyroid antibodies are detected. Which of the following is the BEST presumptive diagnosis for this patient?

A. non-toxic multinodular goiter
B. toxic nodular goiter
C. chronic autoimmune thyroiditis
D. subacute granulomatous thyroiditis
E. diffuse toxic goiter

A is correct.
Painless nodular enlargement of the thyroid with a euthyroid state is most likely due to multinodular goiter. This condition develops from a diffuse goiter due to differences among thyroid cells in terms of response to TSH and ability to replicate. Goiter is caused by a basic deficiency of iodine intake. The incidence is increased in certain geographic locations.

15.069 A 54-year-old man presents with severe episodic hypertension punctuated by attacks of dizziness and cardiac arrhythmias accompanied by orthostatic hypotension. His serum glucose is mildly elevated, but all other serum chemistries, including cortisol and aldosterone, are normal. An MRI discloses a 3-cm ovoid mass in the right adrenal gland. Which of the following conditions is MOST likely to explain all of the pathophysiology seen in this patient?

A. adrenocortical adenoma
B. adrenocortical hyperplasia
C. pituitary adenoma
D. islet cell adenoma
E. pheochromocytoma

E is correct.
The findings of episodic hypertension, attacks of dizziness and cardiac arrhythmias, and orthostatic hypotension along with a mass in the adrenal gland strongly suggest a diagnosis of pheochromocytoma.

15.070 A 54-year-old male attorney has been followed in your clinic for 15 years for type II diabetes. Thus far, he has required therapy with diet and oral insulin-releasing agents. Although he is only mildly hyperglycemic on his clinic visits at 3-month intervals, he is developing proteinuria and a mild increase in serum creatinine, so you are concerned about the extent of his hyperglycemia between visits. The BEST laboratory test to answer this question is:

A. serum level of insulin-releasing drug
B. simultaneous serum insulin and peptide C levels
C. urine albumin quantitation
D. hemoglobin A_{1C} level
E. plasma cortisol level

D is correct.
The amount of enzymatic glycosylation is directly related to the level of blood glucose. Determination of glycosylated hemoglobin (hemoglobin A_{1C}) concentration in the plasma is helpful in determining the degree of hyperglycemia over a period of time.

15.071 A 50-year-old man presents to your clinic with a complaint of 'blind spots' in his work as a truck driver. Visual field analysis shows bitemporal hemianopsia. An MRI shows a large expansile mass in the sella turcica. Clinical laboratory studies show depressed levels of all anterior pituitary hormones. The function of which of the following endocrine tissues is LEAST likely to be impaired by this patient's disease and its subsequent surgical treatment?

A. testes
B. thyroid gland
C. parathyroid gland
D. adrenal cortex
E. posterior pituitary 'gland'

C is correct.
Parathyroid hormone is secreted by chief cells of the parathyroid glands. The case described here is a pituitary neoplasm. Parathyroid hormone production is not affected by destruction of the pituitary by neoplasm or by surgical removal of the pituitary gland.