Brown Medical School
The Integrated Exam

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Bio 282 Endocrine Pathophysiology
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Bio 274 Organ System Pharmacology
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Bio 280 Systemic Pathology
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741 - what is in a syringe

109
112
115
Case Vignette 1

A 23 year old woman undergoes a MRI of her brain as part of an evaluation of visual symptoms. The MRI reveals the following:

1. Which of the possible following laboratory tests do you think is most likely to result from this tumor?

<table>
<thead>
<tr>
<th>TEST</th>
<th>VALUE</th>
<th>NORMAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. TSH</td>
<td>2.1</td>
<td>0.4 – 4.0</td>
</tr>
<tr>
<td>B. FSH</td>
<td>10.7</td>
<td>&lt;12</td>
</tr>
<tr>
<td>C. LH</td>
<td>8.3</td>
<td>&lt;12</td>
</tr>
<tr>
<td>D. Prolactin</td>
<td>100.0</td>
<td>&lt;20 most common tumor</td>
</tr>
<tr>
<td>E. Estradiol</td>
<td>58.0</td>
<td>&gt;35</td>
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</tbody>
</table>

2. In taking a further history, which of the following symptoms do you think the patient might have in addition to her presentation of visual symptoms?

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>A. Hot flashes</td>
<td></td>
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<tr>
<td>B. Amenorrhea</td>
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<tr>
<td>C. Heavy periods</td>
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<td>D. Severe menstrual cramps</td>
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<tr>
<td>E. Mood swings</td>
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</tbody>
</table>
Case Vignette 2

A 25 year old woman presents complaining of irregular cycles. Her physical examination reveals the following:

3. Which of the following would be of most concern to rule out in this patient?
   A. Hypothyroidism
   B. Ovarian tumor
   C. Adrenal insufficiency
   D. Osteoporosis
   E. Early menopause

4. Which of the following possible laboratory tests is most consistent with this history and findings?

<table>
<thead>
<tr>
<th>TEST</th>
<th>VALUE</th>
<th>NORMAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSH</td>
<td>2.1</td>
<td>0.4 – 4.0</td>
</tr>
<tr>
<td>LH:FSH ratio</td>
<td>3:1</td>
<td>1:1</td>
</tr>
<tr>
<td>hCG</td>
<td>positive</td>
<td>negative</td>
</tr>
<tr>
<td>Prolactin</td>
<td>100.0</td>
<td>&lt;20</td>
</tr>
<tr>
<td>DHEA-S</td>
<td>300</td>
<td>&lt; 430</td>
</tr>
</tbody>
</table>
5. Which of the following is the best overall treatment option for this patient?

A. Spironolactone  
B. Dexamethasone  
C. Synthroid  
D. Birth Control Pill  
E. Observation

Case Vignette 3

A 28 yr old married junior business executive complains of decreased libido and potency. Physical examination reveals normal body proportions and normal secondary sexual characteristics. The testes are found to be soft and slightly smaller than normal. Serum LH is 25 mIU/ml (nl <12), FSH is 40 mIU/ml (nl <12), and serum testosterone (T) is 250 ng/ml (nl 270-850). Sperm count is 5 million/ml (nl >20 million).

6. Which of the following additional information is most compatible with the above presentation?

A. History of a scrotal injury during a football game in college.  
B. Enlargement of the sella turcica on a Head CT scan.  
C. Absence of the sense of smell.  
D. XXY Mosaic karyotype.  
E. Use of ketoconazole to treat a fungal skin infection.

7. The patient and his wife have been using contraception and are now interested in conceiving within the next year. The most appropriate course of action is:

A. Transdermal Testosterone administration.  
B. Human Chorionic Gonadotropin (hCG) injections weekly.  
C. Daily oral tamoxifen.  
D. Observation.  
E. Oral sildenafil (Viagra).

8. Which of the following is not a recommended form of androgen therapy in patients with androgen deficiency?

A. Intra-muscular injections.  
B. Transdermal gels  
C. Transdermal patches  
D. Oral tablets  
E. Transdermal (scrotal) patches.
Case Vignette 4
A 25 yr old man seeks evaluation because he and his wife have been unable to have children during their 4 years of marriage. He was found by his wife’s gynecologist to have azoospermia. His wife has no menstrual or gynecologic abnormalities. His childhood and pubertal development were normal. He shaves daily and has normal libido and ability to ejaculate. He takes no medications. His examination reveals normal height and arm span and a normal male pattern of body hair. His penis shows mild hypospadias. Each testis measures 5.0 cm in length. The following laboratory studies are obtained: Serum Testosterone<1050 ng/ml (nl 270-850); serum LH 25 mIU/ml (nl <12); serum FSH 20 mIU/ml (nl <12); serum prolactin 10 ng/ml (nl 5-20); seminal fluid volume 2 cc; sperm concentration of 1 million/cc (nl >20 million).

9. What is the most likely diagnosis?
A. Klinefelter’s syndrome.
B. Chronic alcohol abuse.
C. Partial androgen insensitivity
D. 5-alpha reductase deficiency
E. Marijuana use.

10. Which of the following statements is true:
A. This couple will be able to have children with some form of IVF, if at all.
B. Treatment with dihydrotestosterone will correct the underlying abnormality.
C. Treatment with estradiol will result in fertility.
D. Treatment with spironolactone will result in fertility.
E. All of the above are reasonable treatments with good outcomes.

11. Hypospadias and other defects of sexual differentiation in males can result from any of the following except:
A. Defects in fetal testosterone biosynthesis
B. Defects in androgen action
C. Exposure of the mother to synthetic prostegational agents during pregnancy
D. Congenital adrenal hyperplasia
E. 5-alpha reductase deficiency
Case Vignette 5

A 60-year old male presents with fatigue, easy exhaustion, constipation, and proximal muscle weakness. During the past 8 years, he has spontaneously passed several calcium kidney stones. He was taking no medications. Physical examination was unremarkable except for conjunctival injection. Laboratory test results were as follows:

BUN 20 mg/dl (nl 5-20) △
Creatinine 1.1 mg/dl (0.5-1.4) △
Albumin 4 gm/dl (3.5-4.5) △
Calcium 11.8 mg/dl (8.5-10.2) △
Phosphate 2.5 mg/dl (2.5-4.5) △
Liver enzymes normal △
Intact PTH 102 pg/ml (25-65) ▲
DXA BMD consistent with osteopenia

12. The most likely diagnosis in this patient is
   A. Milk alkali syndrome
   B. Vitamin D intoxication
   C. Humoral hypercalcemia of malignancy
   D. Hyperthyroidism
   E. Primary hyperparathyroidism

13. Appropriate therapy for this patient would be
   A. Bisphosphonate therapy
   B. Calcitonin therapy
   C. Low calcium diet
   D. Neck exploration
   E. High phosphate diet

14. Hypercalcuria in this patient would be expected to be a consequence of which of the following?
   A. Excess parathyroid action on the gut
   B. Parathyroid hormone induced vitamin D deficiency
   C. Parathyroid hormone action on the kidney
   D. Defective vitamin D feedback on parathyroid glands
   E. Excessive calcium intake of her macrobiotic diet
The histologic pattern of this gland has the following pattern:

15. If all of the gland looked like this, but other similar glands were not affected, the diagnosis would be:
   - A) adenoma
   - B) hyperplasia
   - C) malignant neoplasia
   - D) autoimmune endocrinopathy

**Case Vignette 6**

A 42-year old woman presented with longstanding tingling and numbness of her hands and fingers, intermittent leg cramps, and spasm of the muscles of her hands. Fifteen years ago, she had neck surgery for removal of a multinodular goiter. Physical examination was positive for bilateral Cataracts and positive Chvostek and Trousseau signs. Laboratory test results were as follows:

- BUN 20 mg/dl (nl 5-20)
- Creatinine 1.0 mg/dl (0.5-1.04)
- Albumin 4 gm/dl (3.5-4.5)
- Calcium 7.0 mg/dl (8.5-10.2)
- Phosphate 5.0 mg/dl (2.5-4.5)
- 1,25-OHD 20 pg/ml (nl 10-45)
- 25-OHD 30 ng/ml (nl 15-60)
- PTH 10 pg/ml (15-65)
- Mg 2.5 mg/dl (1.5-3.5)

16. The most likely diagnosis in this patient is:

   - A. Vitamin D deficiency
   - B. "Bone hunger"
   - C. Hypomagnesemia
   - D. Hypoparathyroidism
   - E. Pseudohypoparathyroidism
17. Which of the following would best explain the hyperphosphatemia observed?

A. Deficient parathyroid hormone action on the gut.
B. Deficient parathyroid hormone action on the kidney
C. Excessive Vitamin D mediated feedback on the 1-α-hydroxylase system in the kidney.
D. Excessive phosphate absorption from the gut
E. None of the above explain this

18. The most appropriate treatment would be

A. Magnesium supplements
B. PTH injections
C. Thiazide diuretic
D. Vitamin D
E. Calcium gluconate 1 gm daily

Case Vignette 7

A 60-year old male is admitted to the hospital because of progressive lethargy, anorexia and vomiting. His serum calcium level is 15.0 mg/dl (nl 8.5-10.2). Chest roentgenograms show a right hilar mass.

19. In addition to hydration with intravenous isotonic saline solution, which of the following would be most effective in lowering his serum calcium level?

A. Furosemide
B. Hydrocholorothiazide
C. Calcitonin
D. Prednisone
E. Pamidronate

20. The most likely cause of his hypercalcemia would be:

A. Ectopic parathyroid production
B. Excessive 1-25 Di OH Vitamin D production
C. Production of a parathyroid hormone like substance
D. Renal failure with an inability to clear calcium
E. All of these mechanisms commonly play a role
21. Excessive thirst and urination in this case is likely due to:
   - A. The hyperglycemia commonly induced by lung cancer
   - B. The paraneoplastic Diabetes Insipidus frequently seen in a polygonal cell tumors of the lung hilus.
   - C. Calcium losses through the kidney due to a relative lack of 1α hydroxylation in the kidney
   - D. A renal based diminished capability to concentrate urine in the hypercalcemic milieu
   - E. The Vitamin D toxicity commonly associated with lung tumors

Case Vignette 8

During a routine physical examination, a 65-year old male is noted to have a serum alkaline phosphatase level which is twice normal. He is asymptomatic. His liver function tests and serum calcium and phosphate levels are otherwise normal.

22. The condition described above is potentially:
   - A. Viral
   - B. Toxic (environmental)
   - C. HLA linked
   - D. Seen in the same frequency in all countries of the world
   - E. Never seen in the USA

23. The most likely diagnosis in this gentleman is:
   - A. Primary hyperparathyroidism
   - B. Paget’s disease of bone
   - C. Osteomalacia
   - D. Bone metastases
   - E. Secondary hyperparathyroidism

   - A. Octreotide
   - B. Cabergoline
   - C. Metyrapone
   - D. Alendronate
   - E. Desmopressin
Case Vignette 9

A 54-year old black male complains of back pain and fatigue. He is found to have pale conjunctivae, a resting pulse of 110 and tenderness of the lumbar spine. Laboratory data revealed a hematocrit of 27%, serum calcium of 12.0 mg/dl (nl 8.5-10.2), a normal serum alkaline phosphatase, and serum protein electrophoresis shows a monoclonal gamma globulin spike. Skeletal X-rays reveal severe demineralization in the spine.

25. The most likely diagnosis is:

A. Primary hyperparathyroidism  
B. Sarcoidosis  
C. Severe osteoporosis  
D. Multiple myeloma  
E. Paget’s disease

26. Which of the following is the most likely pathophysiologic mechanism of action resulting in his hypercalcemia?

A. Excess 1-25 Di OH Vitamin D production in the kidney  
B. Ectopic Parathyroid hormone production from a lung tumor of 8 cm diameter  
C. A hypersensitivity to sunlight induced Vitamin D production resulting in elevated 25-OH Vitamin D levels  
D. Local osteolytic factors from a tumor with in the skeleton  
E. Renal PTH-RP production

Case Vignette 10

20-year-old female with a 6-year history of diabetes type 1 presents to the ER with nausea, vomiting, and abdominal pain radiating to the back. Physical exam is unremarkable except for tenderness to palpation in the mid-epigastric region and pustular lesions over her thigh and extensor surface of her arms consistent with eruptive xanthoma. Blood glucose 450mg/dl. Triglyceride level was 2000mg/dl.
27. The reason for this patient's abdominal pain is likely to be:
   A. Gallstones
   B. Ulcers
   C. Pancreatitis
   D. Appendicitis
   E. Ulcerative Colitis

28. The predominant lipoprotein abnormality in this patient involves
   A. Chylomicrons
   B. Intermediate density lipoprotein (IDL)
   C. Low density lipoprotein (LDL)
   D. High-density lipoprotein (HDL)
   E. Lipoprotein (a)

29. The disorder of lipoprotein metabolism is secondary to
   A. Increase in Lipoprotein Lipase activity
   B. Decrease in lipolysis
   C. Increase catabolism of VLDL
   D. Increase in LDL receptor activity
   E. Deficiency of Lipoprotein Lipase activity

30. Triglyceride levels are found to be still elevated after full insulinization and normalization of blood glucose levels. An underlying genetic disorder of lipoprotein metabolism is suspected. This disorder may be due to:
   A. Deficiency of Lipoprotein Lipase
   B. Defects in the gene that encodes the LDL receptor
   C. Defect in apo B-100 ligand
   D. Deficiency of cholesteryl ester transfer protein
   E. Deficiency of acyl Co A: cholesterol acyl transferase

**Case Vignette 11**

42-year-old female with a Body Mass index of 24 kg/m² (NI 20-24) presents with a 6-month history of progressive fatigue and a 20 lb. weight gain. Her past medical history is significant for a myocardial infarction at age 38. Physical exam is unremarkable except for a diffusely enlarged thyroid gland, palmar xanthomas, delayed deep tendon reflexes and diminished pulses in her lower extremity.

31. The predominant lipoprotein abnormality in this patient involves
   A. Very low density lipoprotein
   B. High-density lipoprotein
   C. Intermediate high density lipoprotein
   D. Lipoprotein (a)
   E. Lipoprotein (b)
32. Plasma lipid profile that best describes this patient:
   A. High total cholesterol, high triglyceride
   B. High total cholesterol, low triglyceride
   C. High total cholesterol, normal triglyceride
   D. Normal total cholesterol, high triglyceride
   E. Normal total cholesterol, low triglyceride

33. A genetic disorder of lipoprotein metabolism presenting with this cardiac history but without the weight gain and thyroid enlargement has been described and involves:
   A. Defect in apo E
   B. Defect in apo CII
   C. Defect in apo B-100
   D. Defect in apo B-48
   E. Defect in TSH receptor

34. Hypothyroidism can precipitate lipid abnormalities by:
   A. Increased LDL receptor expression and decreased Lipoprotein lipase activity
   B. Decreased LDL receptor expression and decreased Lipoprotein lipase activity
   C. Decreased LDL receptor expression and increased Lipoprotein lipase activity
   D. Increased LDL receptor expression and increased Lipoprotein lipase activity
   E. Increasing conversion of cholesterol to bile

35. Assuming that Hypothyroidism has been documented with an elevated TSH and suppressed Free T4, the next step in the treatment of this patient would be:
   A. Establish a euthyroid state
   B. Establish a thyrotoxic state
   C. Encourage strict diet high in saturated fat
   D. Encourage strict diet of carbohydrate restrictions
   E. No intervention required

Case Vignette 12

18-year-old boy presents with Achilles tendonitis. On physical exam thickening of the Achilles tendon, and xanthelasma were noted. His family history is remarkable for premature coronary artery disease.

36. The predominant lipoprotein abnormality in this patient involves:
   A. Chylomicrons
   B. Very low density lipoprotein
   C. Intermediate density lipoprotein
   D. Low density lipoprotein
   E. High-density lipoprotein
37. Plasma lipid profile that best describes this patient
   A. High total cholesterol, high triglyceride
   B. High total cholesterol, low triglyceride
   C. High total cholesterol, normal triglyceride
   D. Normal total cholesterol, low triglyceride
   E. Normal total cholesterol, high triglyceride

38. A genetic disorder of lipoprotein metabolism may be responsible for this patient’s problem. You suspect that there may be a problem as described by which of the following:
   A. Deficiency of Lipoprotein Lipase
   B. Defects in the gene that encodes the LDL receptor
   C. Defect in apo B-48 ligand
   D. Deficiency of cholesteryl ester transfer protein
   E. Defect in apo CII

39. Mechanism by which Lp (a) is a risk factor for CAD in this patient:
   A. Increase hepatic production of VLDL
   B. Increases LDL receptor expression
   C. Competes with plasminogen and impairs fibrinolysis
   D. Decreasing lipoprotein lipase activity
   E. Activates lipoprotein lipase activity

Case Vignette 13

A 35-year-old non-obese male with a Body Mass index of 26 kg/m2 (NI 20-24) is referred for poorly controlled type 1 diabetes. He reports a recent Hgb A1C of 9.5 and an abnormal fasting lipid panel.

40. The lipoprotein abnormality in this patient could potentially involve all of the following except:
   A. Chylomicrons
   B. Very low density lipoprotein
   C. Intermediate density lipoprotein
   D. Low density lipoprotein
   E. Lipoprotein (B)

41. The disorder of lipoprotein metabolism most likely responsible for the abnormality reported is secondary to:
   A. Decreased lipoprotein lipase activity and decreased LDL receptor activity
   B. Enhanced LDL receptor activity
   C. Defect in apo B-48 ligand
   D. Deficiency of cholesteryl ester transfer protein
   E. Defect in the Insulin receptor
42. Glycosylation of lipoproteins will:
   A. Enhance the formation of foam cells and atheroma
   B. Enhance uptake by LDL receptors
   C. Enhance hydrolysis by lipoprotein lipase
   D. Interfere with the measurement of HgBA1C
   E. None of the above

43. Glycemic control with Insulin in this patient will:
   A. Precipitate eruptive xanthomas
   B. Enhance foam cell formation
   C. Have no impact on lipid abnormality
   D. Improve lipid abnormality
   E. Worsen lipid abnormality

**Case Vignette 14**

A 25 y/o male presents for the evaluation of infertility. He and his 24 y/o wife have been having unprotected intercourse for 2 years without a conception. His evaluation is significant for small testes. His semen demonstrates no sperm (azoospermia).

44. If the patient’s LH and FSH were high, which of the following would be consistent with this scenario.

   A. Kallman's syndrome with a 46 XY karyotype
   B. Klinefelter’s syndrome with a 47 XXY karyotype
   C. Obstruction of the vas deferens
   D. Anabolic steroid use
   E. Estrogen secreting testicular tumor

On further questioning you determine that the patient does not have to shave. His physical exam demonstrates minimal facial hair and poor androgenization. His FSH and LH are low (not high as in question)

45. Which of the following would be consistent with this scenario.

   A. Radiation damage to the testes
   B. Congenital absence of the vas deferens
   C. A high serum testosterone
   D. Isolated FSH deficiency
   E. GnRH deficiency
46. After an extensive evaluation, the patient is found to have GnRH deficiency. Which is an appropriate treatment to improve his fertility?

A. FSH and hCG
B. Testosterone
C. Oral GnRH pills
D. Aromatase inhibitor
E. Inhibin

Case Vignette 15

A 20 year old male college student is brought to the Emergency Room by his roommate. He reports that he has the flu and has been feeling weak and lethargic for about 5 days. This has progressively worsened and, for the past 2 days, he has had nausea and vomiting. His roommate states that he has become increasingly more somnolent. On specific questioning by the ER physician, a history is obtained indicating that the patient noted progressively increasing thirst starting approximately one week ago and has been passing large volumes of urine, which require him getting up several times during the night. Questions regarding recent travel reveal that the patient visited his maternal grandparents in Hong Kong two weeks previously during his spring break. Questions regarding the family history reveal that the paternal grandmother developed diabetes at approximately age 60, for which she takes pills and has been placed on a diet. There is no other family history of diabetes.

On examination, the patient is noted to be somnolent but responsive to questions. The vital signs are:
- Hgt/Wgt: 5’10”/145 lbs.
- Pulse: 140 and regular
- BP: 110/60
- Respiration: 23/minute with deep inspiration and expiration
- Temperature: 37 C

His breath is noted to have a fruity odor.

Initial laboratory findings include:
- Blood glucose: \(740 \text{ mg/dl}\)
- Serum ketones: large
- Arterial pH: 7.15

47. The most likely diagnosis to explain the metabolic state of this patient is:

A. Severe acute respiratory syndrome (SARS)
B. Type 1 diabetes
C. Type 2 diabetes
D. An autosomal dominant insulin receptor mutation
E. Gestational diabetes
48. The best test to confirm the specific disease responsible for the metabolic abnormalities in this patient would be:

A. A viral titer
B. Serum titers of anti-insulin, anti-GAD, and anti-islet antibodies
C. A determination of plasma hemoglobin A1c (HbA1c)
D. A plasma insulin level
E. A glucose tolerance test

49. Based on the disease most likely responsible for his current illness, the patient has an increased risk of developing which one of the following:

A. Thyroid disease
B. Adrenal disease
C. Celiac disease
D. All of the above
E. None of the above

Case Vignette 16

A 26 year old woman is seen for a routine primary care examination. During the interview, she mentions that her sister was diagnosed with diabetes at age 13. Her sister was acutely ill and hospitalized for several days at the time of her diagnosis. Since then she has taken insulin. Once, she stopped her insulin and had to be admitted to a hospital with some kind of "coma".

The 26 year old patient (not the sister with diabetes) would like to know her risk of developing diabetes, since her younger sister has developed the disease as described above.

50. In the absence of other first degree relatives with diabetes, her statistical risk is closest to which of the following:

A. 0.5%
B. 5%
C. 20%
D. 50%
E. 90%

51. If the sister with diabetes were a monozygotic twin, the risk of the patient developing diabetes would be closest to which of the following:

A. 0.5%
B. 5%
C. 20%
D. 50%
E. 90%
52. If the patient were tested for HLA region alleles and found to be positive for DR3 and DR4, her statistical risk of developing diabetes would be closest to which of the following:

A. 0.5%
B. 5%
C. 20%
D. 50%
E. 90%

53. The patient elects to participate in a research study, and levels of circulating antibodies to pancreatic islet cell components are determined. The following indicates the greatest risk of rapid progression to diabetes:

A. Anti-insulin antibodies
B. Anti-GAD antibodies
C. Anti-islet cell antibodies
D. Any two of the above
E. All three of the above

Case Vignette 17

A 63 year old woman is seen by her primary care physician for ongoing management of hypertension. She states that she has been feeling generally well. When asked about her body weight, she states that she always has been heavy. She does not weigh herself regularly, but thinks she probably is heavier now than she has been previously. In response to specific questions, she notes that she has arisen an average of once per night to urinate for several years, and that this has increased to two or sometimes three times per night for the past three months.

Review of her records from an ER visit for an upper respiratory infection two months previously reveals a blood glucose level of 215 mg/dl.

54. The blood glucose level on this visit (2.5 hours after breakfast) is 210 mg/dl. The most likely explanation for the blood glucose level in this patient is:

A. Type 1A diabetes
B. Type 1B diabetes
C. Type 2 diabetes
D. MODY with a glucokinase mutation
E. A thiazide diuretic side effect
55. The best test to confirm the diagnosis in this patient is:

A. A plasma glycohemoglobin (HbA1c) determination
B. A plasma insulin level
C. A 3-hour glucose tolerance test
D. A 5-hour glucose tolerance test with glucose and insulin determinations
E. None of the above

56. Which of the following is part of the generally recommended approach to the management of patients with this disease presentation:

A. A weight reduction diet
B. An oral hypoglycemic agent or insulin
C. Self monitoring of blood glucose
D. An initial dilated retinal exam at approximately 5 years after diagnosis
E. All of the above.

Case Vignette 18

A 46 year old man is admitted to the hospital for elective nasal septum surgery. His medical history is unremarkable except for long-standing obesity, with a body mass index of 32 kg/m². As part of routine blood testing on the morning of his procedure, his fasting blood glucose level is noted to be 115 mg/dl. One month later, although asymptomatic, he is evaluated with a glucose tolerance test (75 gm oral glucose after overnight fasting). The blood glucose values are as follows:

<table>
<thead>
<tr>
<th>Time</th>
<th>Glucose Level (mg/dl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting</td>
<td>120</td>
</tr>
<tr>
<td>30 minute</td>
<td>140</td>
</tr>
<tr>
<td>1 hour</td>
<td>180</td>
</tr>
<tr>
<td>2 hour</td>
<td>165</td>
</tr>
<tr>
<td>3 hour</td>
<td>120</td>
</tr>
</tbody>
</table>

57. The most likely diagnosis in this patient is:

A. Normal glucose tolerance
B. Type 1 diabetes
C. Type 2 diabetes
D. Impaired glucose tolerance
E. MODY diabetes
58. If plasma insulin levels were determined at the time points on the above glucose tolerance test, the expected values might be:

A. Below the normal range  
B. In the normal range  
C. Above the normal range  
D. Any of the above  
E. A or C above, but not B

59. It is considered important to screen this patient for other abnormalities that can co-occur in the metabolic syndrome. Determinations that should be made as part of this evaluation are:

A. Blood pressure  
B. Fasting triglycerides  
C. HDL cholesterol  
D. A and C above, but not C  
E. All of the above

60. The most appropriate intervention based on current data and disease management guidelines is:

A. A weight reduction diet and an exercise program  
B. Weight reduction, an exercise program, and glyburide  
C. Weight reduction, an exercise program, and propranolol  
D. Weight reduction, an exercise program, and insulin  
E. Weight reduction, an exercise program, and rosiglitazone

Case Vignette 19

A 42 year-old man presents with weight gain, hypertension and abdominal striae that have progressed over the past six months.

61. An appropriate screening test for Cushing’s syndrome would be:

A. AM cortisol  
B. ACTH level  
C. 24-hour urine collection for free cortisol  
D. 24-hour urine collection for free aldosterone  
E. Any of the above
62. If Cushing’s syndrome is confirmed, the next most appropriate step would be to check:
   A. ACTH level
   B. Pituitary MRI imaging
   C. High-dose dexamethasone suppression test
   D. Adrenal CT scan
   E. Midnight cortisol

63. If his biochemical evaluation suggested a pituitary source but pituitary imaging was normal, the next step would likely be:
   A. Bilateral adrenal vein sampling
   B. Inferior petrosal sinus sampling
   C. Transphenoidal hypophysectomy
   D. Bilateral adrenalectomy
   E. None of the above

Case Vignette 20

A 30 year-old Caucasian woman of northern European origin presents with six months of progressive fatigue and loss of appetite. She has searched the Internet and believes she has adrenal insufficiency. She demands to be evaluated.

64. On physical exam, which of the following would help focus your attention on the probable mechanism of adrenal failure, if present?
   A. Postural Blood Pressure assessment
   B. Facial expression of fatigue and anemia
   C. Abdominal discomfort to palpation
   D. An inspection of her buccal mucosa, palmar creases, and scars
   E. No physical findings help in understanding the cause of adrenal insufficiency

65. Of the following, the best initial screening test for adrenal insufficiency would be:
   A. Midnight cortisol
   B. AM Cortisol
   C. Serum sodium and potassium
   D. Cortrosyn stimulation test
   E. 24-Hour ambulatory blood pressure monitoring
Case Vignette 21

A 36 year-old woman is found to be hypertensive at 160/100. She has no prior history of hypertension and is otherwise well. Initial evaluation includes a physical examination.

66. Which of the following findings would rule out excessive aldosterone action as the cause of her hypertension?

A. A Body Mass Index of 32 kg/m2   
B. The presence of hyperpigmented Palmar Creases.   
C. Café-au-lait like skin changes on her lower extremities   
D. Arteriolar narrowing on eye fundus exam

E. None of the above would rule out hyperaldosteronism

67. A suspicion of primary hyperaldosteronism would be supported by:

A. Hypokalemia and hyperglycemia
B. Hypokalemia and hypermagnesemia   
C. Hypocalcemia and hypophosphatemia   
D. Hypoglycemia and hyperinsulinemia   
E. Hypokalemia and hyperkalemia

68. Screening for hyperaldosteronism demonstrates an elevated aldosterone to plasma renin activity ratio of 32. This would indicate that the lesion responsible for her hypertension would likely be:

A. A renin producing tumor of the kidney   
B. A lipid poor adrenal adenoma   
C. A lipid neutral pulmonary lesion   
D. A lipid rich adrenal adenoma   
E. None of the above

Case Vignette 22

A 56 year-old obese black male with a two-year history of type 2 diabetes is no longer able to maintain good glycemic control with diet and exercise. His physician discusses drug therapy with him.

69. Which of the following is likely the reason for this “failure” of diet and exercise?

A. The advanced age of the patient   
B. The progressive destruction of the alpha cells in the pancreas   
C. Excessive energy intake when compared to energy expenditure   
D. Down regulation of specific biguanide receptors in skeletal muscle   
E. Any of these may account for this failure
70. Of the following medications, which would be least likely to cause further weight gain:

A. Glyburide  
B. Rosiglitazone  
C. Metformin  
D. Insulin  
E. Glypizide

71. Of the following, which is the most likely to cause hypoglycemia:

A. Glipizide  
B. Rosiglitazone  
C. Metformin  
D. Acarbose  
E. All of these agents cause hypoglycemia

72. Treatment of diabetes in this individual would be instituted with the intent of reducing the risk of which of the following?

A. Blindness due to proliferative retinopathy  
B. Renal failure secondary to diabetic glomerulopathy  
C. Lower extremity amputation  
D. Accelerated atherosclerosis  
E. All of the above

Case Vignette 23

A 25 year-old woman with type 1 diabetes for 13 years presents for an initial evaluation. She uses an insulin pump and has had excellent glycemic control with a hemoglobin A1c of 6.5%. She is concerned about diabetic complications:

As part of her exam, you perform a nondilated funduscopic exam, which appears normal.

73. You recommend:

A. Referral to an ophthalmologist  
B. Laser therapy  
C. Glaucoma therapy with eyedrops  
D. Disposable contact lenses  
E. No further assessment is needed at this time.
74. A routine urinalysis is normal. You recommend:

A. Initiation of a diuretic
B. Renal biopsy
C. 24-Hour urine for insulin clearance
D. Urine microalbumin determination
E. No further assessment is needed at this time.

Case Vignette 24

A 7 feet 1 inch basketball player age 23 years complains to the team physician of increasing headaches over the past few months. He admits to having difficulty in seeing out of the side of his eyes. His feet are apparently still growing since he has needed to increase the size of his sneakers twice over the past year and now has to have special ones made for him at size 18 triple E. His father and 2 elder brothers are tall with their height between 6 feet 2 inches and 6 feet 5 inches.

Laboratory studies showed:

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<td>TSH</td>
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75. On the basis of the information given above the most appropriate laboratory test to advance the underlying diagnosis would be:

A. Serum Triiodothyronine (T3)
B. Serum Insulin
C. Plasma Growth Hormone Releasing Hormone (GH-RH)
D. Serum Insulin-like Growth Factor 1 (IGF-1)
E. Serum alpha subunit
76. Somatostatin (SS) analogues have been used to treat various secretory tumors of the pituitary generally by binding to SS2 receptors on the surface of the tumor cell.

For which one of the following tumors might this agent be helpful?

A. TSH secreting tumor
B. Prolactinoma
C. Gonadotropin secreting tumor
D. ACTH secreting tumor
E. No tumor responds to somatostatin analogues

Case Vignette 25

A 67-year-old man with severe ischemic heart disease was admitted to hospital for a coronary artery bypass graft (CABG). The surgical procedure was undertaken apparently uneventfully. However, 48 hours later the patient complained of some visual disturbance and a MRI of the brain showed a large mass occupying the pituitary fossa and distorting the optic chiasm.

77. The most likely diagnosis is:

A. An aneurysm of the carotid artery.
B. A thromboembolic embolus to the pituitary.
C. Hemorrhage into a pre-existing pituitary tumor
D. A pituitary adenoma unaffected by the surgery and first recognized by chance post-operatively.
E. This story is not consistent with an endocrine problem

Visual field examination showed the presence of bitemporal hemianopsia with further deterioration in vision over the next several hours. A decision was then made that he undergo pituitary surgery.

78. Prior to surgery the most important endocrine test would be:

A. Serum GH
B. Serum IGF-1
C. Serum thyroxine (T4)
D. Serum cortisol
E. Serum prolactin
79. Following trans-sphenoidal surgery with decompression of the optic chiasm, the patient developed severe thirst and polyuria 12 hours later. Laboratory studies most likely showed which of the following:

- A. Serum sodium of 152 meq/L
- B. Serum sodium of 122 meq/L
- C. Serum glucose of 48 mg/dl
- D. Urine osmolality of 850 mosm/kg
- E. Serum potassium of 1.2

**Case Vignette 26**

A male child was born after a 38-week gestation by Caesarian Section. At birth, his weight was 3.3 kg, he had good APGAR scores, and he was discharged on day 2 post delivery. As required by state law he had had a new born screen to detect a series of metabolic conditions at discharge. His Thyroxine (T4) level was reported to be low at 4.9 μg/dl (normal 6-12) and his TSH was very elevated at 453 mIU/ml (normal 0.5-5.0). He is seen in follow-up on day 6, feeding well, a normal temperature is noted, he appeared to be vigorous and alert, with a weight of 3.15 kg, a length of 49 cm. His physical exam revealed mild jaundice, no palpable thyroid tissue, no macroglossia nor umbilical hernia. Laboratory evaluation indicated that his Total T4 had decreased to 3.2 μg/dl and the TSH had risen to 781 mIU/ml.

Thyroid transcription factors (TTF) are responsible for the appropriate development of the thyroid gland. Both TTF-2 (FKHL15) and the Paired homeobox-8 (PAX-8) combine to orchestrate development of the thyroid. The induction of thyroid specific genes is necessary to assure a completely functioning system.

80. Mutations of which of the following genes may lead to the clinical picture illustrated in the case above?

- A. Thyroglobulin (TG)
- B. Thyroid peroxidase (TPO)
- C. Sodium Iodide Symporter (NIS)
- D. TSH Receptor (TSH-R)
- E. Any of the genes listed above

81. Primary hypothyroidism is the most likely diagnosis in the case illustrated above. As TSH levels are clearly elevated and T4 levels are low. Which of the following causes of hypothyroidism is the most likely cause in the baby described above?

- A. Iodine deficiency (#1 common world wide)
- B. Autoimmune: Hashimoto's Thyroiditis, Atrophic Thyroiditis
- C. Drugs: Iodine excess, lithium, Propylthiouracil or Methimazole, INFα, p-aminosalicylicacid, aminogluthethimide
- D. Congenital: a-thyroid, dysshormogenesis, TSH-Receptor mutation
- E. Infiltrative Diseases: Amyloidosis, Sarcoidosis, Hema-chromatosis, Scleroderma, Cystinosis, Riedel's thyroiditis
Case Vignette 27

A six-year-old boy is evaluated for Attention Deficit Disorder diagnosed by a school nurse. A pediatric endocrinologist is able to elicit that review of his school testing records indicates an IQ of 85, on physical exam his pulse rates is 102 beats per minute, there is evidence of a goiter about 2 1/2 times the normal size expected for a boy this age. Laboratory testing indicates that his Total Thyroxine (TT4) value is 16.5 μg/dl (normal 6-12) and his Thyrotropin (TSH) level was elevated at 7.8 mIU/ml (normal 0.5-5.0). He was sent for a determination of his bone age and this appeared to indicate a calcification pattern consistent with that expected for a boy 3 years and 4 months old. Administration of triiodothyronine (T3) over several days resulted in little decrease in the TSH values.

82. Which of the following might explain the clinical picture outlined above?

A. An autosomal-dominant disorder of the thyroid hormone receptor (TR) TRβ gene resulting in a mutation (TRβ-M) which results in decreased ligand binding and depressed thyroid hormone receptor function.

B. A sex linked recessive condition of the TRα gene, which results in excessive expression of a TR which has a very high binding affinity for T4 but not T3.

C. An autosomal-recessive disorder of the thyrotropin receptor (TSH-R) which results in enhanced binding of TSH and creates a “super-agonist” of normal circulating TSH.

D. Administration of toxic amounts of animal thyroid hormone products resulting in a state of peripheral hypothyroidism.

E. Any of the above could explain this clinical picture.

83. An explanation for the thyroid function test findings outlined above (elevated TT4, elevated TSH) would be expected by which of the following possibilities?

A. A TSH secreting pituitary tumor

B. Familial Dysalbuminemic Hyperthyroxinemia in a patient with subclinical hypothyroidism

C. Elevated Thyroxine Binding Globulin (TBG) in a patient with subclinical hypothyroidism

D. Thyroid hormone resistance

E. Any of the above could explain this clinical picture.
Case Vignette 28

A 55 year old woman reports feeling tired and weak. On review of systems she indicates that she has had dry skin, feels cold all the time, has experienced hair loss, a decreased ability to concentrate, and has a poor memory in the recent past. She indicated that she has been constipated, and despite a decreased appetite, has noticed an increase in weight. She complains that there is numbness and paresthesias in her hands when she awakes as if her arms had “fallen asleep”.

84. Physical exam at the time of the initial visit is likely to demonstrate which of the following findings?

A. Dry course skin
B. Enhanced sweating
C. Thickened epidermis
D. Hypokeratosis stratum corneum
E. Puffy hands, feet due to obvious pitting edema

85. Assuming that this patient has a form of Autoimmune thyroid disease such as Hashimoto’s Thyroiditis or Atrophic Thyroiditis which combination of thyroid function tests [Free Thyroxine (FT4), Thyrotropin (TSH), Anti-thyroid peroxidase antibody (Anti-TPO)] would be expected to be most consistent to confirm this diagnosis?

A. FT4 low, TSH low, Anti-TPO not detectable
B. FT4 high TSH low Anti-TPO positive
C. FT4 low TSH high Anti-TPO not detectable
D. FT4 low TSH high Anti-TPO positive
E. FT4 high TSH low Anti-TPO not detectable

86. Histopathologic specimens of the thyroid obtained from the patient outlined in the scenario above would likely reflect which of the following pathologic processes?

A. Follicles quadrupled in number and doubled in size with mild lymphocytic infiltrates and fibrosis due to TSH-R stimulating ant-bodies, B- cell mediated follicle proliferation.
B. Lymphocytic infiltration with follicle atrophy, oxyphilic metaplasia with diminished colloid, fibrosis due to T- cell mediated follicle destruction.
C. Inflammatory infiltrates, follicular disruption, multinucleated giant cells mediated by cytokines following a viral infection.
D. Papillary structures, nuclear inclusions, psammoma bodies, Multifocal distribution, local invasion, lymph node and distant metastases.
E. None of the descriptions above are consistent with the patient’s clinical presentation.
Resolution of the patient's symptoms would be expected with in 3-6 months after application of oral L-thyroxine therapy. Which of the following facts may account for the delay in resolution of these symptoms?

A. L-thyroxine is 100% orally absorbed and therefore must transit the gut before exerting action in the circulation.
B. L-thyroxine is directly responsible for all replacement therapy effect and is more slowly transported across cell membranes that triiodothyronine (T3).
C. L-thyroxine has a circulating ½ life of up to 10 days in the hypothyroid patient and therefore may not reach pharmacologic equilibrium for at least 6 weeks after initiation of oral dosing.
D. As T3 is the active hormone, L-thyroxine therapy is not expected to have an adequate therapeutic effect and thyroxine treatment must be combined with T3 in order for patient's symptoms to resolve.
E. None of the statements above are relevant to thyroid hormone therapy in humans.

**Case Vignette 29**
A 55 year old man cuts himself while shaving and notices a “lump” in his throat which seems to be painless and freely mobile when he swallows. His physician notices that there is some palpable lymph node enlargement when she examines his neck. He relates that he has been recently been made aware that a cousin has been diagnosed with hypothyroidism recently in another state. Serum TSH was drawn and was 2.3 mIU/ml (normal 0.5-5.0)

88. Which of the following would be of the most concern if discovered as you review his history and symptoms?

A. A history of Childhood external beam irradiation for a neck hemangioma.
B. A diagnostic ultrasound examination demonstrating a large solid nodule size (≥ 4cm)
C. Palpation of the neck area revealing fixation of the nodule or nodes to surrounding structures.
D. The presence of cervical lymph nodes.
E. All of these findings are of great concern.

89. This individual underwent a cytologic examination by undergoing a fine needle aspirate of the thyroid. Based upon the information available what is the most likely type of lesion to be suspected when the results of the cytologic examination are known?

A. Medullary thyroid carcinoma
B. Papillary thyroid carcinoma
C. Anaplastic thyroid carcinoma
D. Follicular thyroid cancer
E. Metastatic prostate carcinoma
90. Which of the following play a role in the development of thyroid malignancies?

A. Cancers are monoclonal and demonstrate increased proliferation and decreased rates of apoptosis.
B. The tyrosine kinase genes RET / TRK1 Rearrangements are not found in patients with Papillary thyroid carcinoma.
C. RET proto-oncogene point mutations are found in all individuals with in Multiple Endocrine Neoplasm Syndrome I (MEN I)
D. RAS mutations are demonstrable in virtually 100% of neoplasms such as Papillary thyroid carcinoma, Follicular thyroid carcinoma and benign adenomas.
E. All of these observations are important in explaining the development of thyroid cancer.

91. Following surgical removal of this individual's thyroid and appropriate postoperative radioactive Iodine therapy he is treated with doses of thyroxine sufficient to suppress his TSH. He returns for a routine follow-up with symptoms of carpal-pedal spasm and has serum calcium of 6.4 mg/dl (normal 8.5-10.5) and a Phosphate of 6.0 mg/ml (normal 3.0-4.5). Which of the following would be best suited to alleviate his symptoms?

A. An increased dose of thyroxine
B. The addition of triiodothyronine (T3)
C. Twice daily injections or recombinant human parathyroid hormone 1-34 (teriparitide).
D. Vitamin D3
E. 1-25-di-OH Vitamin D (calcitriol)

92. Hyperthyroidism can be treated by all of the following EXCEPT:

A. Methimazole
B. Iodide
C. Triiodothyronine
D. Surgical removal of the thyroid gland
E. Propylthiouracil

93. Indicate which of the following statements concerning octreotide are CORRECT:

A. It is used to treat acromegaly
B. It is a peptide
C. It is a somatostatin analog
D. A and B
E. A, B and C
94. You want to determine if a patient is suffering from a primary adrenal insufficiency (e.g., Addison’s disease) versus a pituitary insufficiency in ACTH secretion. Of the choices listed below, the best approach would be to measure circulating adrenocortico-steroids following administration of:

A. Thyroxine  
(B) Cosyntropin  
C. Testosterone  
D. Estrogen  
E. Progesterone

95. The initial and crucial event that enables glibizide to cause the pancreatic β-cells to release insulin:

(A) Binding to receptors on ATP-sensitive potassium channels  
B. Cell membrane hyperpolarization  
C. Closing of voltage-dependent calcium channels  
D. Increased potassium efflux  
E. Decreased glucose uptake into the pancreatic cells

96. In a type I diabetes mellitus patient, an insulin overdose can be especially dangerous if the patient is also taking propranolol because:

A. Propranolol potentiates the hypoglycemia produced by insulin overdosage  
B. Propranolol inhibits glucose uptake into the central nervous system  
C. Propranolol masks many of the adrenergic physiological symptoms of hypoglycemia  
D. A and B  
E. B and C
Match the following microscopic or clinical findings with Grave’s disease (A), Hashimoto’s disease (B), or subacute thyroiditis (C)

97. __________ Enlarged, eosinophilic (oncocytic) follicular cells

98. __________ Tall follicular cells with small papillae

99. __________ Fever and pain referred to neck or throat

100. __________ Prominent lymphoid follicles

101. __________ Granulomatous response

Match the following clinical or pathological features with Type I (A) or type II (B) diabetes mellitus

102. __________ Early insulitis

103. __________ Focal atrophy and amyloid deposition

Match the following clinical or pathological features with Type I (A) or type II (B) diabetes mellitus

104. __________ HLA-D linked

105. __________ Islet cell antibodies
106. ____ Strong correlation with obesity

107. ____ Accounts for 90% of cases

108. ____ Often correlated with insulin receptor defects

109. ____ Can involve Glut4 transporter translocation to the plasma membrane

110. ____ Is likely to be a CD8 T-cell-dependent process

111. ____ Hyper-glycemia and hyper-insulinemia occurs early in the disease

**Match the lettered items with those below**

A. A tumor, derived from Rathke’s pouch, which may cause pituitary hypofunction and ocular manifestations

B. A 25 year old woman with amenorrhea

C. Can cause primary hypofunction in any endocrine gland

D. Components of MEN syndromes

E. “Brown tumor” of bone and renal calculi

   112. ____ Prolactinoma

   113. ____ Pheochromocytoma
114. C____ Craniopharyngioma

115. C____ High serum calcium, low serum phosphorus

116. C____ Metastatic neoplasm

117. C____ Medullary thyroid carcinoma

True (A) or False (B)

118. A____ Diabetes Type 1 is an autoimmune disease which results in immune destruction of insulin receptors on target tissues

119. A____ In both diabetes type 1 and type 2, glucose levels can be normal early in the course of the disease.

120. A____ The long-term complications of diabetes 1 and 2 are different.

121. A____ Advanced glycosylation end products are produced by non-enzymatic covalent bonds between glucose and amines in polypeptides

122. A____ Hyperglycemia causes ocular damage both by the sorbitol pathway and the effects on the vasculature of hyperglycosylation of extracellular matrix.
Multiple choice questions: Select the single best answer:

123. Diabetic nephropathy includes ALL of the following EXCEPT
   A) Increased basement membrane thickening
   B) Increased permeability of the glomerular basement membrane
   C) Increased mesangial matrix
   D) Crescentic glomerular nephritis

124. Multinodular (adenomatous) goiter is all of the following EXCEPT
   A) A compensatory mechanism in response to factors that decrease synthesis of thyroid hormones
   B) Not associated with thyrotoxicosis
   C) Alternating cycles of hyperplasia and involution
   D) Dominant nodules may be difficult to distinguish from adenomas

125. Pituitary adenomas are:
   A) Caused by developmental anomalies of Rathke's pouch
   B) Extract mucus from the brain and secrete it through the nose
   C) The majority are prolactinomas
   D) Never produce more than one hormone

126. A reportable uncommon cause of hypopituitarism is
   A) Malformations involving Rathke's pouch
   B) Pit-1 mutation, a transcription factor that regulates GH, PRL and TSH cells
   C) Sheehan's syndrome
   D) Metastatic papillary carcinoma of the thyroid
   E) Pituitary adenomas
Below is a biopsy from a nodule from a 62 yr old man with frequent urination, difficulty initiating the stream, and post-urination dribbling. On rectal exam, the prostate is large and rubbery with a 1 cm, rock hard nodule.

Give the letter A to all those features in the biopsy that distinguish between benign hypertrophy and prostatic cancer and a (B) to those features that do not.

128. ___ "back to back" glands

129. ___ gland lined by single epithelium

130. ___ decreased stromal tissue

131. ___ proliferation of glands

132. ___ cystically dilated glands

133. ___ well-defined nodule
134. In the biopsy shown above, the histologic criteria used to grade this specimen and that would correlate to clinical outcome is:
   A) Gleason system which determines prognosis based on growth pattern and appearance of the glands
   B) the clinical exam based on location of the nodule
   C) the frequency of urination
   D) the size of the tumor

The following four questions pertain to this picture:

• Thyroid biopsy

135. This thyroid shows all of the following features EXCEPT
   A) dense lymphocytic infiltrate
   B) papillary carcinoma of the thyroid
   C) residual thyroid follicles
   D) lymphoid follicles

136. The patient with this thyroid is likely to have all of the following EXCEPT
   A) female
   B) sudden loss of thyroid function that lasts for years
   C) 45-65 yr old
   D) painless goiter

137. The thyroid gland in this patient
   A) is producing excess thyroid hormone
   B) is neoplastic
   C) is at increased risk for B-cell lymphoma
   D) contains autoantibodies to thyroid to the TSG receptor which activate it
138. This disease is all EXCEPT
   A) often associated with HLA DR locus
   B) associated with other autoimmune diseases, such as SLE
   C) associated with infiltrative ophthalmopathy
   D) TSH is increased

139. Parathyroid glands arise from
   A) the mesoderm of the gonadal ridge
   B) the brachial plexus
   C) the branchial pouches
   D) the thyroid lobes

140. A key feature of the histological appearance of a parathyroid adenoma is
   A) Oxyphilic change
   B) Absence of fat in the neoplastic gland and normal un-involved gland
   C) Lymphocytic infiltrate
   D) Hemorrhage in the gland

141. Osteoporosis is more likely in
   A) Cushing's syndrome
   B) Hyperparathyroidism
   C) Waterhouse Freidrichsen Sydrome
   D) Pheochromocytoma

142. Gestational Diabetes results in many congenital anomalies. Those arising from the effects of hyperglycemia on the embryo are all EXCEPT:
   A) spontaneous abortion
   B) neural tube defects
   C) visceromegaly
   D) cardiovascular anomalies
143. **Multinodular (Adenomatous) goiter** is associated with all EXCEPT
   A) thyrotoxicosis
   B) not enough iodine
   C) autoimmune thyroiditis
   D) the gland is coarsely nodular with areas of fibrosis and cystic change
   E) dominant nodules may be difficult to distinguish from adenomas

144. **The following statements are True or False about germ cell tumors of the testis**

145. ___ more common in undescended testis

146. ___ Teratomas are only mature in the testis, unlike the ovary

147. ___ seminoma is the least common type

148. ___ yolk sac tumor is a lace-like network of cuboidal cells which express alpha fetoprotein

149. ___ Schiller-Duval bodies are associated with choriocarcinoma

150. ___ arise from primitive germ cells in the seminiferous tubules

151. ___ Germ cell tumor only account for 5% of testicular tumors
EXTRA CREDIT for PATHOLOGY

152. APCED (chronic adrenal insufficiency, hypoparathyroidism, and chronic mucocutaneous candidiasis) produces an autoimmune adrenalitis as well as other endocrine diseases. The most likely hypothetical cause of this disease is:

A) excess iodine in the diet
B) chronic infection with E.coli
C) vulnerable child syndrome
D) failure to delete auto-reactive T-cells because of a Fas death receptor mutation

153. In ability to present self-antigens, such as insulin, in the thymus could result in autoimmune endocrine diseases. Such presentation normally results in:

A) Peripheral tolerance
B) Central tolerance
C) Deletion of autoreactive B cells
D) Hyperactivation of antigen presenting MHC 1+ dendritic cells
2003 Integrated Endocrine Exam - Answers

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<td>89. B</td>
<td>134. A</td>
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<td>45.</td>
<td>A</td>
<td>90. A</td>
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