

HEMATOLOGY

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1. ANEMIAS

1. A 60 years old man develops numbness of the feet. On physical examination he has lost proprioception in the lower extremities and is noticed to have a wide based gait with a positive Romberg sign. His past medical history includes hypertension, hypothyroidism and previous gastrectomy for gastric cancer. What is the most likely cause of his symptom?

- Folic acid deficiency
- vitamin B12 deficiency
- vitamin K deficiency
- Iron deficiency
- Thiamine deficiency

2. Which statement concerning Hereditary spherocytosis is correct?

- Many cases go undetected until adulthood
- The spherocytes of hereditary spherocytosis can be distinguished from the spherocytes of autoimmune hemolytic anemia by the osmotic fragility test?
- splenomegaly is rarely present
- splenectomy usually eliminates spherocytes from the peripheral blood smear
- spherocytes usually comprise 10% or more of the red blood cells on the peripheral smear

3. What are the most common type of antibodies seen in pernicious anemia?

- Vitamin B12 receptor

- Gastric parietal cell antibodies
- jejuna mucosa antibodies
- Intrinsic factor antibodies
- vitamin B12 Antibodies

4. A 30 years old female patient presented with one month history of numbness and tingling sensations in both the hands and feet. On physical examination the patient is anaemic with distal sensory loss and absent ankle jerks. Parental administration of which of the following will lead to the reversal of this patient's complaints.

- Thiamine
- calcium gluconate
- Niacine
- Vitamin B12
- Ascorbic acid

5. All are features of a plastic anemia EXCEPT?

- Low hemoglobin
- Massive splenomegaly
- low platelet
- low reticulocyte count
- Hypocellular bone marrow

6. A 22 year old girl presented with easy fatigability. Her father was diagnosed to have recurrent anemia. Investigation showed Hemoglobin 8.5 mg/dl, normal WBC and platelets, raised bilirubin but normal ALT and alkaline phosphatase. Ultrasound scan showed enlarged spleen and gallstones. The likely diagnosis is:

- pernicious anemia
- G6PD deficiency
- Myelofibrosis
- Hereditary spherocytes
- Lymphoma

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7. A 60 years old female with a history of Auto immune hypothyroidism presented with weakness she is also complaining of tingling and her fingers and toes. On examination she is pale and has loss of vibration and position sense in her feet. Her Hb is 9 gm/dl, TLC, DLC, platelet count, serum folate, LFT's, RFT's and TFT's normal (taking thyroxine 200 microgram per day) There is no history of diarrhea or any surgery in the past. Her MCV is 120. Most likely cause for her anemia is:

- a. Autoimmune hemolytic anemia
- b. Anemia of chronic disease
- c. Folate deficiency anemia
- d. Iron deficiency anemia
- e. pernicious anemia

8. A 70 years old woman has been in long standing poor health with severe diabetes mellitus and rheumatoid arthritis. Her physician notes that she appears pale and orders a hematocrit, which shows a result of 35%. Examination of the blood smear reveals a microcytic anemia. The physician is considering a differential diagnosis of iron deficiency anemia versus anemia of chronic disease. Which of the following laboratory determinations would be most helpful in distinguishing these conditions?

- a. Erythrocyte: granulocyte ratio in bone marrow
- b. presence or absence of polychromatophilic target cell
- c. presence or absence of stippled erythrocytes
- d. Serum ferritin
- e. Serum iron

9. A 36 year lady has macrocytes in peripheral smear. All are possible causes for her EXCEPT

- a. megaloblastic anemia
- b. chronic liver disease
- c. Hook worm infestation
- d. Hypothyroidism
- e. pernicious anemia

10. A 16 year young boy presented with hyperbilirubinemia. All are possible diseases for him EXCEPT

- a. Gilbert syndrome
- b. Wilson's disease
- c. malaria
- d. Autoimmune hemolytic anemia
- e. common bile duct obstruction

11. A 51 year old female has been feeling tired for months. Peripheral smear demonstrates the HB 9gm/dl with MCV 134 with hypersegmented neutrophils. The reticulocyte count is low. Which of the following tests should be ordered next?

- a. Serum B12 level
- b. Hb electrophoresis
- c. Serum ferritin
- d. Sickling test
- e. Osmotic fragility test

12. A 46 year man has moderate splenomegaly. All are possible causes for him EXCEPT?

- a. Visceral leishmaniasis
- b. Sickle cell anemia
- c. Myelofibrosis
- d. Lymphoma
- e. chronic liver disease

13. Which of the following red blood indices pattern is mostly seen in vitamin B12 deficiency anemia?

- a. Low hemoglobin high ferritin
- b. Low MCV and low hemoglobin
- c. Low hemoglobin and high MCV
- d. Low hemoglobin and high MCHC
- e. Low hemoglobin and low ferritin

14. What is the most probable diagnosis for a 15 year old son of a former having chills and angular stomatitis without splenomegaly?

- a. Vitamin B12 deficiency anemia
- b. Iron deficiency anemia
- c. Sickle cell anemia
- d. Hereditary spherocytosis
- e. Beta thalassemia trait

15. A 25 year lady with indirect hyperbilirubinemia and splenomegaly is suspected to have hemolytic anemia which of the following is best test for the diagnosis of lady?

- a. peripheral smear
- b. coomb's test
- c. osmotic fragility test
- d. Hemoglobin electrophoresis
- e. Reticulocyte count

16. A 35 years old teacher with thalassemia trait is worried about his newborn child for having thalassemia Which is the best screening investigation for his child?

- a. Peripheral smear
- b. Hb electrophoresis
- c. Serum ferritin
- d. bone marrow examination
- e. Osmotic fragility test

48. A 25 year old woman with anemia and splenomegaly is referred to the hematologist. Her direct coomb's test is negative. Her blood film shows the presence of reticulocytes and spherocytes which diseases she is suffering from out of the following?

- a. Aplastic anemia
- b. Vitamin B12 deficiency
- c. Sideroblastic anemia
- d. Thalassemia major
- e. Hereditary spherocytosis

17. Which one of the following is not a cause of anemia raised with mean corpuscular volume MCV?

- a. Beta thalassemia minor
- b. folate deficiency
- c. Vitamin B12 deficiency
- d. Myelodysplasia
- e. Cytotoxic drug

18. A 60 years old man develops numbness of the feet. On physical examination he has lost proprioception in the lower extremities and is and is

noticed to have a wide based gait. With a positive Romberg sign. His past medical history includes Hypertension, hypothyroidism And previous gastrectomy for gastric cancer what is the most likely cause of his symptoms?

- a. Folic acid deficiency
- b. Vitamin B12 deficiency
- c. Vitamin K deficiency
- d. Iron deficiency
- e. Thiamine deficiency

2. LEUKEMIA

1. A 50 year old gentleman presents epistaxis. he has transfusion of two units blood. Investigation showed Hemoglobin 6g/dl, WBC 43000 and platelets 32. There were promyelocytes, myelocytes and blast cells with normocytic normochromic picture on peripheral smear?

- a. Acute Myeloid leukemia
- b. Septicaemia with leuko-erythroblastic blood picture
- c. Lymphoma with bone marrow infection
- d. Sepsis with DIC
- e. Miss matched blood transfusion

2. A 60 years old man presented with fatigue weight loss and pain in the left hypochondrium for 6 months on examination there was no lymphadenopathy and he has huge firm spleen palpable up to the umbilicus (massive splenomegaly). Blood smears and bone marrow biopsy results confirm your clinical suspicion of CML. Which of the following is most appropriate step in management?

- a. Bone marrow transplantation
- b. Tyrosine kinase inhibitor
- c. Repeated transfusions
- d. Hydroxy carbamide
- e. Beta interferon

3. What is the most probable test for the diagnosis of 70 year old anemic man with huge splenomegaly with Hb 8gm/dl, TLC 75000 mm³ and platelets of 35000 mm³

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- a. Ultrasound
- b. Abdomino-CT
- c. hemoglobin electrophoresis
- d. CT abdomen
- e. Coomb's test

4. A 35 years old man is on treatment for acute Myeloid leukemia, presented with shortness of breath, vomiting and deranged renal functions. He has high serum Uric acid and low serum calcium what is the most likely diagnosis?

- a. Tumor lysis syndrome
- b. Hypoparathyroidism
- c. Gout
- d. pulmonary embolism
- e. Pneumonia

5. A 25 years old diagnosed patient of chronic Myeloid leukemia is least likely to benefit from which of the following?

- a. Bone marrow transplant
- b. Imatinib
- c. Nilotinab
- d. Interferon
- e. Dexamethasone

6. A 69 years old man incidentally finds an elevated WCC. Differential counts reveal lymphocyte count of 35,000/ μ l his Hb is 13 and platelets are 290,000. A blood film reveals smudge cells there is evidence of axillary lymphadenopathy. What is the most likely diagnosis?

- a. Myelodysplastic syndrome
- b. Infectious mononucleosis
- c. Chronic lymphocytic leukemia
- d. Hodgkin's Lymphoma
- e. Non Hodgkin's lymphoma

7. A 62 year old man has noticed Increasing abdominal fullness Over the past 18 months. He has no other symptoms. His abdomen is distended. There is a noticed edge Palpable in the right Iliac fossa that moves further Towards the anterior superior Iliac spine on Inspiration there is dullness to percussion Over the umbilicus. which is the single most likely cause of Abdominal mass?

- a. Chronic Myeloid leukemia
- b. Idiopathic thrombocytopenic Purpura

- c. Myelodysplasia
- d. Polycythemia Rubra vera
- e. Portal hypertension

3. LYMPHADENOPATHY

1. A 62 year old man has felt generally unwell for the past 3 months. His main problem is a widespread, intractable itch, but he has also lost his appetite and thus more than 5 kg. He is lethargic and low in mood and suffers from intermittent fevers with sweats at night. There is an enlarged rubbery left cervical lymph node that is non tender to palpation. Which is the single most likely cause of this man's symptoms?

- a. Lymphoma
- b. Tuberculosis
- c. Chronic Myeloid leukemia
- d. Psycythermic Rubra viral
- e. Brucellosis

2. A patient with Hodgkin's lymphomas who is under treatment develops high fever. His blood results show WBC <2000 and a chest infection. Choose the most likely treatment?

- a. Co-amoxiclav
- b. piperacillin + Tezobactam
- c. Erythromycin
- d. piperacillin + Co-amoxiclav
- e. penicillin + Tezobactam

3. A 23 year old afghan boy presented with weight loss and low grade fever for the last 2 months examination showed marked cervical lymphadenopathy on the right side. ESR was 82. Hemoglobin was 9.2 gram/dl and WBC was normal. Chest X ray and ultrasound abdomen was normal. The most appropriate next step will be.

- a. Bone marrow examination
- b. lymph node biopsy
- c. CT scan of the chest and abdomen
- d. start broad spectrum antibiotics
- e. wait and see

4. What is the most suitable treatment for 30 year old man with isolated single left cervical enlarged lymph node showing reed Steinberg cells on biopsy

- a. Chemotherapy
- b. surgical resection
- c. Targeted radiotherapy
- d. Radio frequency ablation
- e. Cryotherapy

5. A 62-year old man has felt generally unwell for the past 3 months. His main problem is a widespread, intractable itch, but he has also lost his appetite and thus more than 5kg. He is lethargic and low in mood and suffers from intermittent fevers with sweats at night. There is an enlarged rubbery left cervical lymph node that is non tender to palpation. Which is the single most likely cause of this man's symptoms?

- a. B cell malignancy
- b. Bone marrow malignancy
- c. Myeloid cell malignancy
- d. plasma cell malignancy
- e. T-cell malignancy

4. BLEEDING AND CLOTTING DISORDERS

1. A 20 years old female presented with multiple burrs on the body and bleeding from the gums her labs are as follow Hb 13mg/dl, TLC 10'000 platelet count 5000/cmm, U/s abdomen normal, bone marrow showed peripheral distruction. What is the most effective initial treatment options?

- a. azathioprine
- b. cyclosporine
- c. I.V immune globulins
- d. prednisolone
- e. splenectomy

2. A 30 years female has suspected to have low probability of deep venous thrombosis. What is the most appropriate test?

- a. increased fibrin degradation product level
- b. Decreased FDP level
- c. prolonged PT/INR
- d. prolonged APTTK level
- e. venous Doppler of the leg

3. A feature of Idiopathic thrombocytopenic purpura common to both children and adults is absence of splenomegaly?

- a. Absence of splenomegaly
- b. Necessity of splenectomy to ameliorate thrombocytopenia
- c. occurrence after antecedent viral illness
- d. presence of antibodies directed against Target antigen on the glycoprotein IIb-IIIa complex
- e. persistences of thrombocytopenia for more than 6 months

4. A patient of embolic stroke is taking warfarin he comes to dental out door for tooth extraction. the most useful investigation to the effect of warfarin is;

- a. bleeding time
- b. Hematocrit
- c. platelet count
- d. prothrombin time
- e. Thromboplastin time

5. A 15 years old boy presented with recurrent swelling of the knee joints, he also complained of prolonged bleeding from cuts. His brother is also having the same complaints. His labs are as follows HB 12gm/dl, TLC 9000, platelet 400,000 PT normal, APTT prolonged. What is the most likely diagnosis?

- a. ITP
- b. Hemophilia
- c. Sickle cell anemia
- d. Von willibrand disease
- e. Anti phospholipid syndrome

6. A 60 years old male has been taking warfarin for severe mitral stenosis and atrial fibrillation his INR is within normal range, following drugs can potentiate the effect of warfarin EXCEPT

- a. Digoxin
- b. Amiodarone
- c. metro nidazole
- d. sodium valproate
- e. keto conazole

7. A 15 year old boy presented with prolonged bleeding from cuts. His APTT and bleeding time are prolonged. What is the most probable diagnosis?

- a. Von willibrand disease
- b. Hemophilia
- c. ITP
- d. Aplastic anemia
- e. vitamin K deficiency

8. A 50 year old former has been diagnosed with cerebral malaria. All are prognostic factors for him except

- a. low platelets
- b. coma
- c. Deranged renal functions
- d. Normal PT/APTT
- e. Deranged liver functions

9. A 30 year old lady has undergone splenectomy for ITP. Which of the following is expected feature on her peripheral smear?

- a. pencil cells
- b. Target cell
- c. Howell jolly bodies
- d. Schistocytes
- e. Acanthocytes

10. A 23 years old man with hemophilia is worried about his son to having hemophilia. Which of the following is best screening test for his son?

- a. APTT
- b. PT
- c. Bleeding time
- d. Clotting time
- e. Hb electrophoresis

11. A young boy presented in outdoor with history of sudden painful swelling of joints after Minor trauma since childhood. The most likely diagnosis is:

- a. Disseminated intravascular coagulation
- b. Idiopathic thrombocytopenic Purpura
- c. hemophilia A
- d. sickle cell disease
- e. non of the above

12. A 30 year old lady presents with widespread bruising and heavy periods on examination she

appear well but has petechiae and bruises on the lower limbs. Investigation shows an Hb of 11gm/dl, TLC 5500 and platelets 10,000 rest of investigation are normal. What is the most likely diagnosis?

- a. Aplastic anemia
- b. Hodgkin's lymphoma
- c. Megaloblastic anemia
- d. Idiopathic thrombocytopenic Purpura
- e. Acute Myeloid leukemia

5. MULTIPLE MYELOMA

1. A 72 year old man has a sudden onset of pain in the right side of his chest. He recalls on trauma to the area and is surprised when he is told he has fractured ribs. He also has pain in his lower back and has had two admissions to hospital in the past 6 months with chest infections. which single cell type is most likely to be proliferating?

- a. Germinal centre B cell
- b. Ig.M secreting cell
- c. Mature B lymphocytes
- d. Myeloid cell
- e. plasma cell

2. A 55 year old man history of bone pains and backache has haemoglobin of 7.6g/dl. ESR 112, serum calcium 12.5mg/dl and a serum creatinine 2.5 mg/dl. X-rays shows collapsed 1.3 vertebrae and some lytic lesions in the pelvic bone. The most likely diagnosis is

- a. Multiple myeloma
- b. Carcinoma prostate with bony metastasis
- c. Secondary hyperparathyroidism
- d. Osteosarcoma
- e. Tuberculosis of spine

3. A 60 years old male diagnosed patient of multiple myeloma can present with following complications EXCEPT

- a. Amyloidosis
- b. Spinal cord compression
- c. Hypocalcemia
- d. peripheral neuropathy
- e. cryobolemia

4. A 61 year old has generalized bone pain, renal failure and anemia . In this setting a bone marrow biopsy is most likely to show?

- a. Reed Steinberg cells
- b. Caseating granuloma
- c. plasma cells
- d. Gaucher cells
- e. Hairy cells

5. A 76 year man has been diagnosed with multiple myeloma . All are possible features for him EXCEPT?

- a. High ESR
- b. hypercalcemia
- c. Anemia
- d. Sclerotic lesions on X-ray skull are common
- e. Hypergamma globulinemia

6. MIX

1. A 55 years old man is receiving a transfusion of packed red cells during his recovery from colorectal surgery. He has suddenly develop a fever 30 mint into the transfusion. Temperature= 38.3°C , heart rate= 90bpm , BP= $125/70\text{mmHg}$,SaO₂ 98% on air. The transfusion has been stopped. Which single development should make the junior doctor most wary about restarting the transfusion?

- a. Pruritus
- b. Shivering
- c Systolic BP $<105\text{mmHg}$
- d. Temperature $>38.5^{\circ}\text{C}$
- e. Urtarcia

2. A 64 year old woman who is receiving chemotherapy for metastatic breast cancer has been treating midtheroic pain with acetaminophen . Over the past few days she has become weak and unsteady on her feet . The the day of admission she develops urinary incontinence . Physical examination reveals fist percussion Tenderness over T8 and moderate symmetric muscle weakness in the legs. Anal sphincter tone is reduced . Which of the following diagnostic studies is more important to order?

- a. Serum calcium
- b. Bone scan
- c. plain radiographs of the thoracic spine
- d. MRI scan of the spine
- e. Electromyogram with nerve conduction studies

3. A 25 years old epileptic female presented with gingival hypertrophy to her dentist . Which of the following is most likely to be responsible for her presentation?

- a. Scurvy
- b. carbamazpine
- c. phenytoin
- d. Lead poisoning
- e. pregnancy

4. All of the following conditions are characterized by ESR EXCEPT?

- a. Multiple myeloma
- b. Tuberculosis
- c. lymphoma
- d. Giant cell arthritis
- e. polycythemia Rubra vera

5. 55 year old hypertensive patient will controlled on hydrochlorothiazide presented with a three hours history of severe throbbing pain in the left knee he had a high meat intake in his dinner this night . On examination the left joint is tender and shiny. Which of the following would be his joint aspiration findingers ?

- a. High total leucocytic count
- b. weakly positively birefringent crystals
- c. Negativity birefringent crystals
- d. clear fluid
- e. Frank pus

6. A 30 year old man is undergoing chemotherapy for teratoma is suffering from Severe vomiting shortly after receiving drug which medication will be most beneficial to relieve his vomiting?

- a. Metaclopramide
- b. Morphine
- c. Hyoscine Butlybromide
- d. Ondansetron
- e. Dexamethasone

7. A 59 year old man is receiving a unit of packed red cells for bleeding osephagial varices within an hour of transfusion starting,he became agitated and appears very flushed the site of his IV Cannula is oozing blood,T= 38.4°C ,Heart rate = 110bpm BP. $95/65\text{mmHg}$.Which one is the single most likely explanation for his symptoms

- a. Acute hemolytic reaction

- b. Allergic reaction
- c. Anaphylaxis
- d. Bacterial contamination
- e. Non hemolytic febrile transfusion reaction

8. A 72 year old man has had an acute non ST elevation myocardial infarction . He being treated in a hospital with a range of new medication. his renal function is moderately imapiired and so he is given u fractionated Heparin and monitored for signs of an adverse reaction . Which single subsequent episode is most likely to signal a reaction?

- a. Epistaxis
- b. Syncope
- c. Venous thrombosis
- d. Visual disturbance
- e. widespread blanching rash

9. A 62 year old man has had a headache coupled with dizziness intermittently for the past 6 months He has also noticed an unpleasant burning Sensation in his hand and feet . Both the big and first toes of his right footAre dusky in color And tender to touch which single pathological process is most likely to be the cause of his symptom ?

- a. Bone marrow failure
- b. chronic haemolysis
- c. myeloproliferation
- d. plasma cell proliferation
- e. thermophilia.

10. A 60 years old man presented with dull aching Pain in the right Flank Physical examination reveals a firm mass that does not move With inspiration . Laboratory studies shows Normal BUN creatinine and electrolytes Urinalysis shows Hematuria . Hemoglobin is elevated at 18 g/dl And serum calcium is 11mg/dl What is the most likely diagnosis?

- a. polycystic kidney disease
- b. pheochromocytoma
- c. Adrenal carcinoma
- d. Renal adenomypoma
- e. Renal cell carcinoma

11. A 72 years old man has a sudden onset of pain. In the right side of his chest . He recalls no trauma to the area and is surprised when he is told he has fractured ribs. He also has pain in his lower back and has had two admissions in hospital in the past 6 months with chest infections which single cell type is most likely to be proliferating?

- a. Germinal centre B cell
- b. gM secreting cell
- c. Mature B lymphocytes
- d. Myeloid cell
- e. plasma cell

12. A 28 years old diagnosed patient of Aplastic anemia is least likely to benefit from which of the following treatment options?

- a. Cyclosporine
- b. Oxamethalone
- c. Bone marrow transplantation
- d. Antithymocyte globulin
- e. Desferoximine

13. A 55 years old man is receiving a transfusion of packed red cells during his recovery from colorectal surgery. he has suddenly develop a fever 30min into the transfusion . Temperature=38.3°C , heart rate =90bpm, BP=125/70mmhg ,SaO2 98% on air . The transfusion has been stopped. Which single development should make the junior doctor most wary about restarting the transfusion.

- a. Pruritus
- b. Shivering
- c. Systolic BP<105mm/Hg
- d. Temperature>38.5°C
- e. Urticaria

14 .A 72 year old man has a sudden onset of pain on his right chest . He recalls no trauma to the area and is surprised when he has told he has fractured ribs. He also has pain in his lower back and had two admissions to the hospital in the past 6 months with chest infections. Which single cell type is most likely to be proliferating?

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- c. Mature B lymphocytes
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15. A 64 year old woman who is receiving chemotherapy for metastatic breast cancer has been treating midthoracic pain with acetaminophen over the past few days she has become weak and unsteady on her feet on the day of admission she developed urinary incontinence. On physical examination fist percussion Tenderness over T8 and moderate symmetric muscle weakness in the legs Anal sphincter tone is reduced which of the following diagnostic studies is most important to order?

- Serum calcium
- Bone scan
- plain radiographs of the thoracic spine
- MRI scan of the spine
- Electromyogram with nerve conduction studies

16. A 20 years old man find asymptomatic mass in his scrotum . He denies fever dysuria or hematospermia which of the following is most appropriate first step in elevating this mass?

- palpation and transillumination
- .HCG and alpha fetoprotein
- scrotal ultrasonography
- Evolution for agunial adenopathy
- Referral for inguinal orchiectomy

ANSWER KEYS

1. ANEMIAS

1.B	2.A	3.B	4.D	5.B
6.D	7.E	8.D	9.C	10.E
11.A	12.B	13.C	14.B	15.C
16.A	17.E	18.A	19.B	

2. LEUKEMIA

1.A	2.B	3.E	4.A	5.E
6.	7.			

3. LYMPHODENOPATHY

1.A	2.B	3.B	4.C	5.A
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4. BLEEDING AND CLOTTING DISORDERS

1.D	2.C	3.A	4.D	5.B	6.A
7.A	8.D	9.C	10.A	11.C	12.D

5. MULTIPLE MYELOMA

1.E	2.A	3.C	4.C	5.D
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6. MIX

1.C	2.D	3.C	4.E	5.C
6.D	7.A	8.C	9.C	10.E
11.E	12.E	13.C	14.E	15.D
16.A				