

قسم طب المناطق الحارة والأمراض المعدية
كلية الطب - جامعة طنطا

Tropical Medicine and Infectious Diseases Department
Faculty of Medicine - Tanta University

MD Degree examination in: Tropical Medicine & Infectious Disease

Date: 25/11/ 2020

Time Allowed: 1.5 hours

Number of questions: One

Total Assessment Grades: 200 Marks

شرح حالة

Commentary

A 34 years – old man presents to the ER with bloody diarrhea, lower abdominal cramps and fecal urgency for 6 months, progressive jaundice frequently associated with fatigue, pruritus, anorexia, and indigestion for 2 months, and recurrent fever with rigors. Stool frequency is 10-12 per day. He has lost about 8 kg of his weight during this period.

On examination; temperature is 39.8°C, pulse 118 beats/min regular, BP 95/60 mmHg, RR 19 cycles/min, mild left abdominal tenderness. Red blood is present on digital rectal examination.

Laboratory studies reveal: Hb 8.5gm/dl, platelets $160 \times 10^3/\text{cmm}$, WBCs $11 \times 10^3/\text{cmm}$, hematocrit 29%, ESR 40 mm/hr, serum albumin 2.9 gm/dl, bilirubin 4.2mg/dl, ALT 36, AST 38, alkaline phosphatase 498 IU/L (normal range: 44 to 147 IU/L).

- 1- What is your diagnosis?
- 2- What is the differential diagnosis of this case?
- 3- What investigations should be requested to prove your diagnosis?
- 4- How will you manage the case?

BEST WISHES

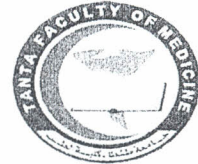
Exam committee:

Prof. Elshazly Sheta
Prof. Sahar Elyamani
Prof. Ferial El-Kalla

التأني سها
صالح العياني
أمال الكلال



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Tropical Medicine and Infectious Diseases Department
Faculty of Medicine - Tanta University

MD Degree examination in: Tropical Medicine & Infectious Diseases

Date: 18/11/2020

Time Allowed: Three hours

Number of questions: Three

Total Assessment Grades: 260 Marks

الورقة الثانية

Infectious and Endemic Diseases

All questions must be answered

I) Case scenario (60 marks):

A Male Kenyan patient 45 years old came to hospital complaining of chronic abdominal pain and swelling which have been waxing and waning for the last year. On examination; temp was 37.1°C, blood pressure 110/70mm/Hg, pulse 78 b/min, hepatomegaly and splenomegaly 6 and 17 cm below the costal margin respectively, no ascites, no enlarged lymph nodes. CBC was normal, liver enzymes normal, ESR 15 and 21 for first and second hours respectively. Antibodies for leishmania, and schistosomiasis were negative but plasmodium falciparum antibody was $\geq 1:800$.

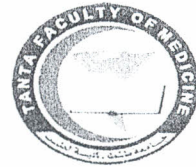
- 1- What is your diagnosis? **(20 marks)**
- 2- What investigation you will ask for to confirm it? **(20 marks)**
- 3- How to manage this patient? **(20 marks)**

II) MCQ: Choose the single best answer (80 marks, 2 marks each):

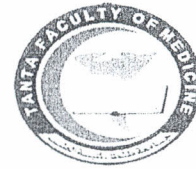
1. A 42 year -old nurse working in the ICU, developed sudden onset of high grade fever, dyspnea and dry cough. She gives a history of caring for a ventilated COVID-19 patient. Which investigation will you start by requesting for her?
 - A. CT chest
 - B. C- reactive protein
 - C. D- dimer
 - D. Swab and PCR



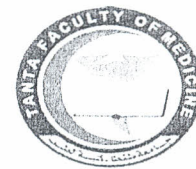
2. During a civil war, a 21 years old lonely mother gives birth to her first baby without medical supervision. One week after, he exhibits irritability, poor feeding, rigidity, facial grimacing, and severe spasms with touch. Which of the following is true about management of this case?
- A. It needs urgent anti-gram negative antibiotic therapy
 - B. Only admission and conservative therapy
 - C. Tetanus antibodies for the mother is a must
 - D. Tetanus vaccine for the baby is life saving
3. A 23 year- old nurse was handling a car accident patient whose medical history is unknown. She was pricked while introducing an intravenous cannula. She had previously had her HBV vaccine and was tested and found to be a responder last year. Now she is very worried about catching a blood born infection. What should she do?
- A. Take a booster dose of HBV vaccine + antiretroviral as post exposure prophylactic immediately
 - B. Take a short course of highly active antiretroviral therapy (HAART) only
 - C. Take HBV immunoglobulin + antiretroviral as post exposure prophylactic immediately
 - D. Test the patients' blood for HIV, HCV, and HBV first
4. In HIV-associated Kaposi's sarcoma all the following are true **EXCEPT**:
- A. A cause of pleural effusion
 - B. Associated with infection by HHV-8 (Herpes hominis virus type 8)
 - C. More common in intravenous drug abusers than homosexuals
 - D. Radiosensitive
5. A 49 years old patient was diagnosed to have Lassa fever. Despite severe clinical manifestations he responded to ribavirin therapy and is currently in convalescence. One of health care workers who gave him care is feverish today. which of the following **IS NOT** appropriate?
- A. Give the worker convalescent immune plasma from this patient if compatible with him
 - B. Isolate the health worker in his home and limit contact to close relatives
 - C. Monitor for symptoms and start ribavirin when indicated
 - D. Report to authorities and investigate him as a suspected Lassa fever case



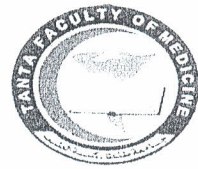
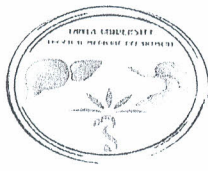
6. A 32 years old mother developed a mild fever, runny nose, bilateral knee arthralgia, and maculopapular rashes that started on her face then spread all over her body. She only took antipyretics and the condition subsided spontaneously after 10 days. One week later, her 6 years old son started to have fever, and slapped cheeks rash. What is the most probable causative virus?
- A. Epstein Barr virus
 - B. Human herpes virus
 - C. Parvo B19 virus
 - D. Rubella virus
7. Saber shin is a well known deformity of tibia in congenital syphilis. Which of the following diseases is also associated with this feature?
- A. Endemic relapsing fever
 - B. Lyme disease
 - C. Osteomyelitis
 - D. Yaws
8. Which of the following is **FALSE** regarding plague vaccine?
- A. It can protect against primary pneumonic plague
 - B. It is not effective in combating epidemic disease
 - C. It is recommended for laboratory workers concerned with plague research
 - D. The available is either killed whole-cell or live attenuated vaccine
9. A 25-year-old man returns from South America and presents with a 2-month history of an ulcerating lesion on his lower lip. Examination of his nasal and oral mucosae reveals widespread involvement. What is the likely cause?
- A. Basal cell carcinoma
 - B. Leishmania braziliensis
 - C. Leishmania donovani
 - D. Leishmania Mexicana



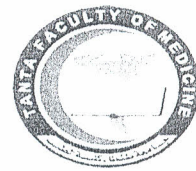
10. A 57-year-old immigrant from Bolivia is admitted to the emergency department following a collapse. On examination, His ABP was 112/68 mmHg, pulse 116 b/min, RR 23/min, temp. 36.8C, he has bilateral pitting edema, congested neck veins, and epigastric pain. Cardiac examination and ECG were not remarkable except for cardiomegaly and sinus tachycardia respectively. He is known to have a history of Chaga's disease. Which of the following Chaga's disease complications can account for his condition?
- A. Chaga's cardiomyopathy
 - B. Chaga's myocarditis
 - C. Chaga's related cardioembolism
 - D. Perforated megacolon
11. A 30-year-old French man comes for review. He returned from a holiday in Egypt yesterday. For the past two days he has been had frequent bloody diarrhea associated with crampy abdominal pain. Abdominal examination demonstrates diffuse lower abdominal tenderness but there is no guarding or rigidity. His temperature is 37.5°C. What is the most likely causative organism?
- A. Enterotoxigenic *Escherichia coli*
 - B. Giardiasis
 - C. Shigella
 - D. *Staphylococcus aureus*
12. Which of the following statements regarding toxoplasmosis is true?
- A. Congenital toxoplasmosis results in optic nerve atrophy
 - B. Ceftriaxone should be used initially in patients with HIV -associated toxoplasmosis
 - C. The cat is the only known animal reservoir
 - D. Infection is usually self-limiting
13. Which of the following conditions **IS NOT** associated with prior Epstein-Barr virus infection?
- A. Adult T-cell leukemia
 - B. Burkitt's lymphoma
 - C. Hairy leukoplakia
 - D. Nasopharyngeal carcinoma



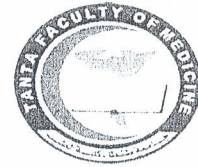
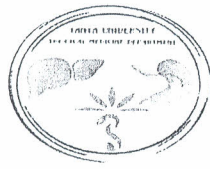
14. A 34-year-old man who has recently returned from Southeast Asia is investigated for abdominal cramping, anorexia and chronic diarrhea. He has also recently developed a blood streaked cough. Stool microscopy reveals *Strongyloides stercoralis* larvae. What is the most appropriate treatment?
- A. Albendazole
 - B. Ciprofloxacin
 - C. Diethylcarbamazine
 - D. Praziquantel
15. Which of the following is **LEAST LIKELY** to result from *Streptococcus pyogenes* infection?
- A. Cellulitis
 - B. Pneumonia
 - C. Rheumatic fever
 - D. Scarlet fever
16. Which of the following organisms is the most contagious?
- A. Epstein Barr virus
 - B. Herpes simplex virus
 - C. Rotavirus
 - D. Varicella zoster virus
17. A 50-year-old sewage worker presents with a one-week history of fever and feeling generally unwell. Which one of the following features would be **LEAST CONSISTENT** with a diagnosis of leptospirosis?
- A. Conjunctival erythema
 - B. Decreased urine output
 - C. Meningism
 - D. Productive cough
18. A 22 years - old lady living in an Adan related village, Yemen, is complaining of rice soap watery diarrhea, fever and vomiting that started yesterday and is still ongoing. What is the most appropriate antibiotic to use for her condition?
- A. Doxycycline
 - B. Erythromycin
 - C. Metronidazole
 - D. Trimethoprim



19. Which of the following is true regarding echinococcosis?
- A. Although the tapeworms are not found in the intestines of humans, the eggs can be found in stool of infected persons
 - B. Prevention of cystic disease depends on treating sheep and cattle
 - C. Serologic tests are more reliable for diagnosis of alveolar rather than cystic echinococcosis
 - D. Sheep and cattle are the definitive host of the disease while carnivorous animals are intermediate hosts
- 20- Which vaccination **SHOULD NOT** be given to HIV patients?
- A. DPT
 - B. Inactivated polio vaccine
 - C. MMR
 - D. Pneumococcal
21. A 30-year-old male came to emergency room for a 2nd degree burn on his arm. The patient said he accidentally spilt boiled water on his arm but felt no pain, however shortly later a bulla appeared at the site, and his wife insisted he should go to hospital. The area around the bulla was hypopigmented. What is your diagnosis?
- A. Leprosy
 - B. Skin eczema
 - C. Vitamin deficiency
 - D. Vitiligo
22. The essential fatty acids include:
- A. Linoleic acid and linolenic acid
 - B. Oleic acid and linoleic acid
 - C. Palmitic acid and linolenic acid
 - D. Stearic acid and oleic acid



23. Which body compartment is directly proportional to basal metabolic rate?
- A. Body fat
 - B. Extracellular volume
 - C. Lean body mass
 - D. Plasma volume
24. TPN is the provision of nutrients intravenously in sufficient amounts to:
- A. Achieve anabolism
 - B. Achieve catabolism
 - C. Create necessary branched chain amino acids to stimulate hyperosmolar syndrome
 - D. Generate formation of ketone bodies
25. Which of the following organisms is the reason for addition of vancomycin to third generation cephalosporins when empirically treating meningitis?
- A. Haemophilus influenzae
 - B. Listeria monocytogenes
 - C. Meningococcus
 - D. Penicillin-resistant pneumococcus
26. Which of the following mechanisms most accurately describes how pseudo-membranous colitis caused by Clostridium difficile is produced?
- A. Enterotoxin production after colonization of colon
 - B. Host immune response to the organism
 - C. Ingestion of a preformed toxin
 - D. Invasion and destruction of mucosa by the organism
27. Which of the following is **INCORRECT** for sarcoidosis?
- A. Angiotensin converting enzyme (ACE) levels are elevated in 40-80% of patients
 - B. Chest Xray findings may include hilar adenopathy or diffuse reticular infiltrates
 - C. Diagnosis requires histologic demonstration of caseating granulomas in biopsies
 - D. Long term treatment with oral corticosteroids is usually required



28. Regarding tuberculosis in chronic liver disease the following are true

EXCEPT:

- A. Adenosine deaminase for diagnosis of TB in cirrhosis with ascites has high sensitivity
- B. Cirrhotic patients have a higher chance of developing extra-pulmonary tuberculosis than those without cirrhosis
- C. Isoniazid induced hepatotoxicity is more common in slow acetylators
- D. Likelihood of anti-tubercular drug induced hepatotoxicity is higher in pre-existing liver disease patients

29. A pediatric patient has had 2 days of fever and cough after a viral illness 2 weeks ago. Severe lobar pneumonia is suspected. Which of the following is the best antibiotic regimen for this patient?

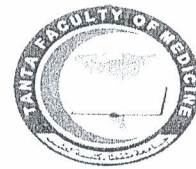
- A. Azithromycin plus cefuroxime
- B. Ceftriaxone plus azithromycin
- C. Metronidazole plus clindamycin
- D. Vancomycin plus piperacillin/tazobactam

30. A 50-year-old woman was admitted for investigation of weight loss associated with intermittent diarrhea. She had a history of pneumonia as a child and again as a young woman working abroad. At the age of 30, she had developed chronic sinusitis, with persistent headaches. On examination, she was thin but had no signs of malignancy. She had no clubbing, and her chest was clear on auscultation. Based on the clinical picture of this patient what is the most likely diagnosis?

- A. Selective IgA deficiency
- B. Selective IgE deficiency
- C. Selective IgG deficiency
- D. Selective IgM deficiency



31. An 82-year-old woman with a history of coronary artery disease, hypertension, and mild dementia presents to the emergency department from her nursing home with one week of progressive dyspnea, cough, fatigue, and fevers.
- She appears unwell and has a temperature of 38.9°C, HR 115 b/min, ABP 75/50 mm Hg, a respiratory rate of 32 breaths per minute, and an oxygen saturation of 93% while receiving 4 liters of oxygen via nasal cannula. She weighs 60 kg. She is edentulous (has no teeth) and has focal crackles in the right lower lung field. Laboratory results are notable for leukocytosis, an elevated blood lactate level, and acute kidney injury. A chest radiograph reveals a dense opacity in the right lower lobe.
- The patient is given a fluid bolus of 2 liters of lactated Ringer solution in addition to ceftriaxone and azithromycin, but her blood pressure remains low and her blood lactate level remains elevated. Ultrasound assessment of the inferior vena cava shows a dilated vessel and no collapse with inspiration. Bedside echocardiography reveals mildly depressed left ventricular systolic function.
- What is the most appropriate next therapeutic intervention for this patient?
- A. Initiate empiric anaerobic coverage with intravenous metronidazole
 - B. Monitor central venous pressure (CVP), and administer normal saline to achieve a goal CVP
 - C. Start dobutamine to target a mean arterial pressure goal
 - D. Start norepinephrine to target a mean arterial pressure goal
32. Which of the following statements regarding melioidosis is true?
- A. Caused by *Pseudomonas pseudotuberculosis*
 - B. Confined to equatorial Africa and South America
 - C. More common in diabetics
 - D. Should be treated with cefuroxime
33. Which of the following infections cause dementia?
- A. *Borrelia burgdorferi*
 - B. *Brucella abortus*
 - C. *Gonococcus*
 - D. Human T-cell leukemia virus type 1 (HTLV-1)



34. A 28-year-old woman presents 3 days after returning from a 2-week trip to Thailand complaining of fever to 102°F, muscle aches, and severe retroorbital headache. She has no gastrointestinal symptoms. She traveled only to the towns of Bangkok, Chiang Mai, and Phuket. She attended a travel clinic before traveling and was told there was no malaria in these towns, so she did not take prophylaxis. She denied contact with bodies of fresh water. Examination is unremarkable other than temperature of 38.8°C. Remarkable laboratory findings include a leukocyte count of 2200 cells/ μ L³, hematocrit of 37%, and platelets of 62,000 cells/ μ L³. Chemistries are normal. A peripheral blood smear for parasites is sent and is negative. Which of the following is the most likely diagnosis in this traveler?
- A. Dengue
 - B. Leptospirosis
 - C. Malaria
 - D. Typhoid
35. A 65-year-old woman with recently diagnosed diffuse large B-cell lymphoma presents with malaise, nausea, and mild jaundice. She has massive right cervical lymphadenopathy and daily fevers for the last 7 months. She was profoundly anemic when she presented and required a blood transfusion at that time. Pretreatment work up revealed the following: HIV antibody/antigen negative, HAV IgG positive, HBsAg negative, HB core IgG positive, HBV DNA not detected, HCV IgG negative. She was treated with six cycles of rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone (R-CHOP), which ended several weeks ago and achieved complete remission based on positron emission tomography (PET) CT imaging. Basic laboratory findings are now notable for AST 527 U/L, ALT 495 U/L, total bilirubin 3.5 mg/dL, with a normal INR. Her past history is notable for immigrating from rural Vietnam 2 years ago. She had a PPD skin test at the time she immigrated and she was treated for latent tuberculosis with a 9-month course of isoniazid that finished before the diagnosis of lymphoma. A likely cause of her abnormal liver function tests and malaise is:
- A. Acute hepatitis A infection
 - B. Delayed isoniazid toxicity
 - C. Reactivation of hepatitis B infection
 - D. Recurrence of her lymphoma



36. Which of the following best describes the action of oseltamivir?
- A. Inhibits DNA polymerase
 - B. Inhibits neuraminidase
 - C. Interferes with the capping of viral mRNA
 - D. Protease inhibitor
37. A 29-year-old woman who is otherwise healthy presents for a routine prenatal visit at 14 weeks' gestational age. She is feeling well and has no symptomatic complaints, and physical examination is consistent with normal pregnancy. She has routine prenatal laboratory findings checked, which show: hemoglobin 11.2 g/dL, rubella IgG positive, HIV-1/2 antigen/antibody negative, treponemal IgG (by enzyme immunoassay [EIA]) positive. Follow-up rapid plasma reagin (RPR) is also positive, with a titer of 1:16, and FTA-ABS is also positive. The patient has never had prior syphilis testing. She reports a history of severe allergy to penicillin with a "feeling of throat closing."
The most appropriate management for this patient is:
- A. Allergy consultation and admission for desensitization to penicillin in order to facilitate treatment with benzathine penicillin G 2.4 million units IM once weekly for 3 weeks
 - B. No treatment now due to risk of toxicity; follow clinically and repeat syphilis testing at 20 weeks' gestational age
 - C. Treat with ceftriaxone 1 g IM once daily for 10 days
 - D. Treat with doxycycline 100 mg orally twice daily for a 21-day course.
38. A 56-year-old Turkish farmer presents with a painless black eschar on his cheek with surrounding swelling and mild fever. The eschar started initially as an itchy boil-like lesion which became enlarged. What diagnosis would need to be considered first?
- A. Anthrax
 - B. Necrotic ulcer
 - C. Necrotizing spider
 - D. Scrub typhus



39. Which of the following are true statements about the immune response in filariasis?
- A. A weak immune response results in a failure to control infection and considerable symptoms and pathology.
 - B. High IgG4 levels may block potentially beneficial IgE-mediated degranulation of eosinophils and mast cells.
 - C. Repeated exposure to infectious mosquito bites dampens the immune response.
 - D. There is an absence of a cell-mediated immune response.
40. Which of the following forms of encephalitis are caused by a neuro-immunological response?
- A. Cytomegalovirus
 - B. Herpes simplex
 - C. HIV infection
 - D. Measles

III) Write short notes on each of the following: (120 marks, 30 marks each)

- 1) Glycemic index and factors affecting it?
- 2) When do you treat HBV carriers?
- 3) Malignancies causing fever of unknown origin.
- 4) Gastrointestinal and hepatobiliary manifestations of COVID-19.

BEST WISHES

Exam committee:

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الشاذلي شتا

Prof. Sahar Elyamani

سحر العلي

Prof. Ferial El-Kalla

فيريال كالا