

1. A 55-year-old male, a heavy smoker, developed a **squamous** cell carcinoma of the right lower lobe of the lung. Which of the following is the most likely precursor (pre-malignant lesion) of his cancer?
  - A. Severe dysplasia of the respiratory epithelium. **Respiratory epithelium is glandular. Dysplasia in glandular epithelium can progress to adenocarcinoma, not squamous.**
  - B. **Moderate dysplasia of metaplastic squamous epithelium. Squamous cancer originates only from squamous epithelium**
  - C. Mild dysplasia of goblet cells. **Goblet cells are glandular cells**
  - D. Reactive hyperplasia of the bronchial mucosa. **Hyperplasia is a reactive process and bronchial mucosa is glandular.**
  - E. Carcinoma in situ of the pseudostratified **columnar epithelium. Columnar progresses to adenocarcinoma not squamous.**
  
2. A well circumscribed lesion composed of **well differentiated fibroblasts with no cellular pleomorphism or hyperchromatic nuclei** is a: we are describing a benign tumor originating from fibroblasts, so it is :
  - A. **Fibroma**
  - B. Fibrosarcoma
  - C. Fibrocarcinoma
  - D. Hamartoma
  - E. Choristoma
  
3. A mass composed of **normal looking pancreatic tissue** present in the wall of the **stomach** is a: **normal tissue in an abnormal location = choristoma**
  - a. Teratoma
  - b. Hamartoma
  - c. **Congenital anomaly; choristomas are congenital anomalies, not true neoplasms.**
  - d. Benign neoplasm: **no, they are not neoplastic**
  - e. Pre-malignant lesion
  
4. Which of the following tumors can metastasize? **Here I'm asking about the malignant OMA (the exceptions)**
  - a. **Melanoma**
  - b. Lipoma
  - c. Adenoma
  - d. fibroma
  - e. choristoma
  
5. A malignant tumor of the stomach is composed of glandular structures that look morphologically **very similar** to the normal gastric gland is a : **here I'm asking about differentiation; well differentiated tumors = grade 1 look similar to the cell of origin.**
  - a. Grade 3 adenocarcinoma
  - b. Stage 3 adenocarcinoma
  - c. **Grade 1 adenocarcinoma**
  - d. Stage 1 adenocarcinoma: **stage refers to extent of spread not morphology**
  - e. Adenocarcinoma which can be of any grade or stage.
  
6. One of the following is **not** a feature of dysplasia:
  - a. Can regress if it is mild. **Correct**
  - b. Can progress to cancer even if it is mild.**Correct**
  - c. It is not neoplastic **Correct**
  - d. Abnormal mitosis is a histologic feature **correct**
  - e. **Nucleocytoplasmic ratio is preserved, no, N/C ratio is increased.**

7. Sarcomas usually metastasize through: **this is a straightforward question**
- Blood vessels**
  - Lymphatics
  - Peritoneal seedings
  - Needle tracts and surgical operations
  - They do not metastasize
8. All of the following mutations can cause cancer except:
- deletion of both TP53 alleles, **yes, and both must be deleted as it is a tumor suppressor gene**
  - overexpression of a single RAS allele, **yes, one allele is enough because this is an oncogene**
  - amplification of both RB alleles. Wrong, RB is tumor suppressor so to cause cancer the genes must be deleted or inhibited.**
  - ABL-BCR translocation **correct**
  - Overexpression of a single EGFR allele, **correct**

9. MIB 1 is an immunohistochemical stain used to highlight mitotically active cells. Of the following tumors, which one will show low staining with MIB 1? **Here I am asking which of the following is benign because rate of growth (as judged by mitotic activity) is slow in benign tumors**

- teratoma**
- Liposarcoma
- grade 3 adenocarcinoma
- seminoma
- Lymphoma

10. Micro RNAs are:

- Short double stranded segments of nucleic acids. **No, they are single stranded**
- Modulate gene expression by increasing DNA methylation, **no they affect posttranscription of proteins**
- Inhibitors of protein translation, correct**
- Negative regulators of gene expression that work at the transcription level, **no they work at posttranscriptional level**
- Inhibitors of mRNA formation, **no, they do not mRNA formation (don't affect transcription)**

11. Which of the following statements is **correct** regarding tumours' changes in metabolism?

- Warburg metabolism ensures obtaining the maximum energy from each mole of glucose consumed. **No, they get less energy but more carbon atoms**
- metabolic switch to aerobic glycolysis is enhanced by oncogene overexpression correct, and by inhibition of tumor suppressor genes also.**
- IDH mutations result in oncometabolites that cause changes in micro RNAs leading to carcinogenesis. **No they affect methylation and cause epigenetic changes.**
- Autophagy in tumor cells is inhibited during chemotherapy treatment. **stimulated**
- Warburg effect is facilitated by overactivation of tumor suppressor genes. **no, by decreased tumor suppressor genes**

12. Which of the following statements is **incorrect** regarding epithelial-mesenchymal transition (EMT) in neoplasia?

- EMT is a process aiming at acquiring a phenotype that permits increased motility of cells.
- SLUG and SNAIL transcription factors are downregulated in this process. They are stimulated of course.**
- E-cadherin is downregulated.
- EMT is essential for tumor invasion and metastasis
- Cells acquire actin filaments during EMT.

13. Which of the following statements is incorrect regarding P53: This question will be deleted. It has 2 answers. Sorry for that.

- When phosphorylated it inhibits Rb protein causing cell cycle arrest. It actually stimulates RB.**
- Is inhibited by binding to HPV. **correct**
- During hypoxia p53 induces DNA repair and inhibits cell senescence, wrong, it stimulates senescence**
- Mutated p53 enables malignancy by increasing the chance of accumulation of other genetic mutations. **correct**
- Patients with Li-Fraumeni syndrome inherit a mutated copy of P53. **correct**

14. A 37-year-old female developed right sided colon cancer. She has family history of colon cancer. Examining her colon showed a 4 cm tumor and **numerous polyps**. She has a genetic mutation that results in **stimulation** of which of the following proteins? **She has FAP syndrome due to APC deletion. This APC deletion stimulated Beta catenin (no destruction complex is formed)**

- A. APC: **this is the underlying mutation but the question asks about the stimulated protein as a result of this mutation.**
- B. **Beta catenin**
- C. E cadherin: **this actually decreases , when beta catenin is stimulated it increase SLUG/SNAIL which decrease E cadherin and facilitate metastasis.**
- D. Mismatch repair gene
- E. ATM

15. A normal fibroblast can divide up to 70 times. In a fibrosarcoma, malignant fibrous cells still can divide after the 80<sup>th</sup> division. Which of the following genes is activated to acquire this ability? **this is easy!**

- A. **Telomerase gene**
- B. Mismatch repair gene
- C. Merlin gene
- D. TWIST gene
- E. Microsatellite instability gene

16. Malignant cells can evade apoptosis by which of the following mechanisms? **straightforward**

- A. Increased FADD protein
- B. **Increased FLIP protein**
- C. Increased mitochondrial permeability
- D. Decreased bcl2
- E. Decreased IPA

17. TP53 deletion or inactivation mutation results in: **also straightforward**

- A. Increased Thrombospondin
- B. Increased proapoptotic proteins
- C. **aerobic glycolysis switch**
- D. Increased expression of DNA repair genes
- E. Increased hypoxia

18. A 47-year-old man presented with abdominal pain. Colonoscopy revealed a 7 cm tumor which on histological examination was a **poorly differentiated** adenocarcinoma. His **lymph nodes were normal** and imaging **studies didn't show any metastases**. Which of the following statements regarding his tumor's stage and grade is **incorrect**:

A. **T stage is determined by the size of his tumor. Size has nothing to do with the stage in colon cancer. T in hollow organs ( with lumen and wall) is determined by extent of wall invasion)**

B. His N stage is considered N0. **Correct. Normal lymph nodes= no lymph node involvement, so N stage is N0.**

C. The poor differentiation is irrelevant to the stage. **Correct, differentiation determines the grade not the stage**

D. He has a grade 3 tumor. **Correct, poor differentiation= grade 3**

E. The 5-year survival of his tumor is expected to be better than that of another patient with distant metastases. **Correct, the patient has no metastasis (M0). The presence of metastasis is the most important factor to determine survival.**

19. Which of the following cells doesn't play a role in immunosurveillance? **easy**

- A. Natural killer cells
- B. **Plasma cell**
- C. M1 macrophage
- D. T helper lymphocyte
- E. Cytotoxic T lymphocyte

20. Inherited skin cancer due to ultraviolet light is caused by a mutation in: **easy**

- A. RAS gene
- B. BRCA 1 gene
- C. Recombination repair genes
- D. TP53 gene
- E. **Nucleotide excision repair genes.**

21. Hypercalcemia is considered a para-neoplastic syndrome in which of the following tumors?

- A. parathyroid carcinoma, **no because parathyroid normally secretes a hormone that causes hypercalcemia.**
- B. T2 N2 M1 breast cancer **metastasizing to the bone. No, bone metastases can destroy bone and release calcium inside bone.**
- C. **T2 N1 M0 colon cancer, yes, normally the colon has nothing to do with calcium and since it is M0 then there is no metastasis to explain the hypercalcemia.**
- D. Bone sarcoma. **No, bone destruction due to the sarcoma can cause hypercalcemia.**
- E. Any tumor secreting parathyroid hormone, **no, if the secretion is endogenous to the site ( normally secreted) so it is not paraneoplastic.**

22. Malignant cells can suppress host immunity by: **easy**

- A. CEA
- B. alpha fetoprotein
- C. **TGF beta**
- D. IL 1
- E. Mucin

23. A surgeon performing a mastectomy on a 55-year-old lady for breast carcinoma wanted to examine her lymph nodes to decide to remove them or not. **He needs the answer during the operation; the best method to proceed is with:**

- A. Fine needle aspiration of the lymph node
- B. **Frozen section of the lymph node: this is done during operations**
- C. Excisional biopsy of the lymph node
- D. Blood test for serum markers
- E. Cytology smear

24. A 65 year old woman has breast cancer that metastasized to the bone. She has **no family** history of breast cancer. The least likely mutated gene in her case is:

- A. RAS
- B. TP53
- C. **BRCA 1 this is rare in sporadic breast cancer**
- D. E cadherin
- E. SLUG/SNAIL

25. Choose the incorrect combination:

- A. H pylori and gastric carcinoma
- B. HPV and nasopharyngeal carcinoma
- C. EBV and T cell lymphoma
- D. **Aphlatoxin B and pancreatic carcinoma: this causes hepatocellular carcinoma**
- E. HTLV1 and T cell lymphoma

26. A gastric carcinoma was found to grow in **individual** cell pattern with no glandular formation. Which of the following mutations is responsible for this morphology?

- A. **E cadherin loss: this is responsible for adhesion, when lost tumors grow in an individual cell fashion.**
- B. APC loss
- C. MYC overexpression

D. SLUG/SNAIL **inactivation**: Note that SLUG/SNAIL activation decreases e cadherin. Their inactivation **might increase it.**

E. TP53 deletion

27. which of the following chemical agents can cause cancer without metabolic conversion? **DIRECT ACTING**

A. **Chemotherapy drugs**

B. polycyclic hydrocarbons

C. aromatic amines

D. nitrites

E. Aflatoxin B

28. Which of the following definitions regarding neoplasms is **incorrect**?

A. Tumor autonomy: ability of tumors to proliferate regardless of normal regulatory mechanisms.

B. Clonality: tumor cells originating from one mutated cell.

C. Sarcoma: Malignant tumor originating from mesenchymal tissue.

D. **Tumor dormancy: rapidly proliferating tumor cells that cause recurrence after several years of removal of the primary tumor. They are dormant= non- dividing**

E. Tumor differentiation: The extent to which tumors resemble their cell of origin.

29. A year old man found to have a 3 cm colonic mass. Microscopic examination of the tumor revealed a poorly differentiated adenocarcinoma with areas of necrosis.

What is the most important staging factor in this patient? **easy**

A. Histologic grade

B. Presence of tumor necrosis

C. **Presence of distant metastasis: this is always the most important factor.**

D. Absence of tumor capsule

E. Number of mitotic figures

30. A 2GRADElipo year old boy was diagnosed with inherited form of retinoblastoma which is caused by homozygous loss of Rb gene. The main function of this tumor suppressor gene is: **easy**

A. **Inhibition of activation of cyclin E/CDK2 complex**

B. Inhibition of apoptotic genes

C. Activation of cytochrome c release

D. Activation of caspase 8

E. Activation of cytoplasmic kinases

31. Neurofibromin 1 is a **GAP (GTPase activating protein)** . Inactivation mutations in this protein cause cancer by activating which of following: **easy**

A. ABL

B. ALK

C. **RAS**

D. BCL2

E. P53

Mousa Al-Abbadi

1. Which of the following statements best describes repair in the gastrointestinal mucosa ?
  - A. Mediators are released and tissue is replaced by immature scar formation
  - B. stem cells are recruited every week to differentiate and grow
  - C. mucosa is a permanent tissue incapable of regeneration
  - D. granulation tissue will be stimulated to mature to collagen type 1
  - E. regeneration is it quick and continuously active to replace lost tissue

answer: E

2. Which one of the following mediators is a strong fibrogenic and scar forming factor ?
  - A. prostaglandin E4
  - B. histamine
  - C. transforming growth factor beta
  - D. interleukin 17
  - E. complement system protein 5A

answer: C

3. Which one of the following factors will significantly delay healing of a surgical wound ?
  - A. ingestion of oral antibiotics as prophylaxis
  - B. a patient with severe atherosclerosis
  - C. taking oral pain killers for pain control
  - D. early post-operative immobilization
  - E. A patient with prior cholecystectomy

answer: B

4. You are examining a 65 year old male patient with fever ,malaise and shortness of breath. history denotes severe rheumatoid arthritis requiring long term high dose steroid treatment chest. X-Ray shows bilateral lung infiltrate .what should you consider in this particular patient as an important differential diagnosis ?
  - A. opportunistic lung infection
  - B. lung Abscess due to necrotizing inflammation
  - C. community acquired candida pneumonia
  - D. lobar pneumonia due to Haemophilus influenza infection
  - E. H1-N1 influenza infection

answer: A

5. A 53 year old male patient came to you with perianal pain ,fever and chills .he gave history of anal fissure and hemorrhoids for the prior 2 years . on examination ,you find a perianal swelling , ill-defined mass, which is tender to touch. you made the diagnosis of an abscess and you performed "incision and drainage" . the wound after this procedure will heal by:
  - A. Healing by primary /first intention
  - B. This is a severe purulent inflammation /Abscess needing healing by granulation tissue (second intention )
  - C. Quick regeneration and re-epithelialization
  - D. Platelet plug scab
  - E. stem cells will be required regeneration of lost tissue will follow

answer:B

6. The major function of vascular endothelial growth factor VEGF in the early phase of repair is :
- A. fibroblast recruitment and proliferation
  - B. angiogenesis, sprouting and not signaling
  - C. platelet aggregation
  - D. fibroblast activation
  - E. basement membrane degradation

answer:B

7. In which of the following scenarios the risk for post-operative wound dehiscence would be high?
- A. transabdominal open colon cancer resection in 65 year old male patient who is obese and chronic smoker
  - B. we don't see this complication anymore with modern medicine
  - C. tooth root canal surgery for a 75 year old obese male patient
  - D. valvular heart replacement surgery requiring open thoracotomy in a 59 years Old female patient who is a heavy chronic smoker
  - E. laparoscopic choleystectomy for a 63 year old male patient with morbid obesity and chronic smoking history

answer:A

8. Activation Of fibroblast and deposition of matrix and repair is mainly mediated by ?
- A. vascular endothelial growth factor
  - B. prostaglandin E4
  - C. transforming growth factor beta
  - D. leukotriene B4
  - E. interleukin 17

answer: C

9. Microscopic examination of granulation tissue and early immature scar formation will show ?
- A. numerous young capillaries and heavy mixed inflammation cell infiltrate
  - B. complete re-epithelialization of the surface
  - C. heavy eosinophilic and mast cell infiltrate
  - D. Abundant cross-linked collagen type 1 fibers
  - E. numerous foreign-body type giant cells granulomas

answer:A

10. Bed "pressure" sores are best described as?
- A. Diabetic foot ulceration with superadded infection
  - B. Serous-type inflammation with complicating infection
  - C. avoidable ulcer due to bad nursing/home care
  - D. stress ulcer from severe chronic diseases
  - E. mild superficial ulcers that are easy to heal

answer : C

11. In contrast to repair after acute inflammation , repair after chronic inflammation is characterized by:
- A. Lesser activity of vascular endothelial growth factor
  - B. Lesser amount of collagen type 1

- C. granulation tissue and scar formation
- D. quick and simple with no need for mediators
- E. better repair process with no sequel sequelae

answer : C

12. The final stages of repair remodeling occurs. this process is characterized by:

- A. formation of platelet plugs
- B. increased angiogenesis
- C. degradation of collagen by matrix metalloproteinase
- D. oxidative burst by inflammatory cells
- E. switching type 1 collagen to type 3

answer : C

13. choose the correct :

- A. Abnormal excessive repair and the scar formation
- B. side effect of using see certain type of surgical sutures
- C. occurs in patients with a pre-existing atherosclerosis
- D. lateral genic result due to bad surgical technique
- E. Wound dehiscence

answer : A



14. choose the correct :

- A. Severe ischemia due to atherosclerosis
- B. Friction burn of skin and subcutaneous tissue
- C. radiation injury for squamous cell carcinoma of the leg
- D. traumatic serous inflammation of the skin and subcutaneous tissue
- E. varicose veins of lower limbs

answer : A



مو نفس الصورة اللي اجت بالامتحان بس بتشبهها

Collected by : aysha salameh

كل التوفيقiiiiiiiiiiق ❀ ❀ ❀