Practice File

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Feedback

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Burn:

MCQs:

Q1: A 9-year-old boy is brought to the emergency department because he sustained burns to his torso 40 minutes ago. His mother states that she was cooking and drinking a cup of coffee while the boy was on the kitchen table playing with toys. Sometime later, she went to the bathroom and when she came back the child was screaming and crying with the coffee spilled over the front of his pajamas. His vital signs are within the normal ranges. Examination shows that the patient is crying because of pain. There is a non-blanching erythematous, wet looking wound with a few thick-walled blisters that are painful to the touch on his chest. There are no other burn sites on the patient. Which of the following is the most likely diagnosis?

A) Deep partial thickness burn
B) First degree burn
C) Superficial burn
D) Superficial partial thickness burn

Explanation: Burns can be categorised as follows: 1st degree/superficial burn: Erythematous, painful and dry; 2nd degree/partial thickness burn: Erythematous, painful, wet appearance, blisters and blanching (variable); 3rd degree/full thickness burn: Black/white/grey and/or brown in colour, not painful (or very minimally), dry, non blanching and leathery texture.

Q2: A 25-year-old man comes to the emergency department after escaping from a burning building 40 minutes ago. He states that he is in severe pain. Physical examination shows burn injuries on the anterior and posterior surfaces of the right arm, the anterior and posterior right leg, the chest, and the abdomen. His temperature is 37.8°C (100°F), pulse is 110/min, respirations are 23/min, and blood pressure is 117/78 mm Hg. Which of the following is the most important to monitor for adjusting fluid administration?

A) Blood pressure for every 4 hours
B) Daily creatinine and BUN
C) Daily electrolytes
D) Fraction of sodium excretion (FENa)
E) Hourly urine output

Explanation: Burn resuscitation requires careful administration of IV fluids. Urine output is the most important criteria to monitor for determining replacement fluids during the stabilization treatment in burn victims.

Answers

Q1	A
Q2	E

Burn:

Q3: A 27-year-old female comes to the emergency department because she was involved in a house fire 50 minutes ago. She is conscious, but in significant pain. Examination shows that she has significant burns to her entire head and neck, anterior chest and abdomen, and entire right leg. Her temperature is 36.8°C (98°F), pulse is 135/min, respirations are 26/min, and blood pressure is 98/60 mm Hg. Which of the following most likely represents the total percentage of her total body surface involved in the burn?

A) 27%
B) 36%
C) 45%
D) 63%
E) 72%

Explanation: One simple method for estimating total body surface area burn percentage is known as the "Rule of 9s". It attributes 9% of the total body surface area to each of the following areas: head, anterior chest, posterior chest, anterior abdomen, posterior abdomen, right arm, left arm, right anterior leg, left anterior leg, right posterior leg, left posterior leg. The perineum is assigned 1% of the total body surface area. Therefore in the above patient, her entire head= 9%, anterior chest/abdomen= 18% and right leg= 18%. Therefore, 9+18+18= 45%. The following chart applies to adults only. This statistic is useful for calculating the total fluid resuscitation a burn patient will need in the first 24 hours following a
burn injury.

Q4: A 45-year-old man comes to the emergency department because of partial thickness burns to his anterior upper thighs and medial forearms after his grill exploded 20 minutes ago. There is no singed hair on his face and his airway is intact. Examination shows that the wounds are patchy on the thighs, face, and forearms and that <10% of the patient's body is covered in burn wounds. Which of the following is most likely correct regarding further treatment of the patient?

A) Aloe vera should be used to moisturize the burned areas
B) Intact blisters should be left alone
C) The patient will not heal without a skin graft
D) The wounds should be cleaned with a skin disinfectant, such as povidone-iodine
E) This patient's pain is unlikely to respond to acetaminophen and NSAIDs

Explanation: Superficial burns can cause blistering of the skin. In order to decrease the risk of infection, intact skin blisters should not be opened or unroofed. Blisters that have already ruptured may be removed in order to decrease further irritation; the underlying skin should be cleaned.

Answers

Q3	C
Q4	B

Burn:

Q5: A 35-year-old man comes to the emergency department because of severe burns sustained in a house fire an hour ago. The patient is conscious and states that he is in significant pain. His temperature is 36.8°C (98°F), pulse is 123/min, respirations are 23/min, and blood pressure is 117/78 mm Hg. Examination shows that he has sustained partial and full-thickness burns to both arms, his right leg, and his anterior chest. During the first 24 hours following injury, the appropriate strategy for fluid resuscitation begins with which of the following?

A) 6% hydroxyethyl starch
B) Human serum albumin
C) Isotonic sodium chloride
D) Lactated Ringer's solution
E) Plasmalyte

Explanation: Almost all burn resuscitation strategies are conducted with crystalloid solutions within the initial 24-hour period following burn injury. Lactated Ringer's solution is the preferred treatment given its relative isotonicity. It is preferable to isotonic sodium chloride because of its lower sodium concentration and higher pH, which are closer to physiologic levels. Lactated Ringer's solution also acts as a buffer for metabolized lactate that is present during the ensuing metabolic acidosis following burn injury.

Q6: A 19-year-old man comes to the emergency department after being rescued from a burning building 20 minutes ago. His right lower leg was trapped under a burning beam, resulting in a severe full-thickness and circumferential burn. He sustained no other injuries and he is currently stable on room air. In the ED, he begins feeling severe pain in his right foot and toes. Examination shows there is increased edema of the lower leg, pain with passive movement of the toes, and subjective "tingling" in the right foot. Dorsalis pedis and posterior tibial pulses are palpable bilaterally. There is no cyanosis. Which of the following is the most appropriate next step in management?

A) Amputation
B) Emergency escharotomy
C) Obtain an X-ray
D) Prescribe additional analgesic
E) Reassure the patient

Explanation: Burns of a circumferential nature are at risk for eschar development and therefore limb compartment syndrome. Treatment is with escharotomy, to relieve the inter-compartmental pressure and ensure adequate limb perfusion.

Answers

Q5	D
Q6	B

Burn:

Q7: A 14-year-old boy comes to the emergency department because he was caught in a house fire 30 minutes ago. He is currently spontaneously breathing at a rate of 35/min and his oxygen saturations are 88% on room air. Examination shows he has some superficial and partial thickness burns on all four extremities. He also has deep burns on his forehead and occipital region. His estimated total burn area is about 75%. His nares appear inflamed, with singed hair. Which of the following is most likely the most important step in the management of this patient?

A) CT head
B) Cricothyrotomy
C) Endotracheal Intubation
D) IV fluids
E) Packed erythrocyte transfusion

Explanation: Given his arrival at the emergency department following a house fire, and his inflamed nare and singed nasal hair, this patient is most likely a victim of smoke inhalation. He is therefore at high risk of respiratory failure from inhalation injury and should be sedated by rapid sequence and intubated.

Q8: A 43-year-old man calls emergency medical services minutes after splashing bleach in his face and eyes. He works with a partner, who is able to drive him to the hospital. Which of the following is the most appropriate recommendation to give the patient for immediate management, prior to coming to the emergency department?

A) Apply lubricating drops
B) Neutralize with weak acid
C) Irrigate the eye
D) Patch the eye
E) Come immediately with no additional interventions

Explanation: Chemical burns should generally be managed with immediate and copious irrigation with water, which acts to remove and dilute most chemicals at the site of exposure.

Answers

Q7	C
Q8	C

Burn:

Q9: A 17-year-old boy comes to the emergency department because of a burn on his left foot and left hand from a skillet 35 minutes ago. The boy states that he tried to grab the skillet, but the handle burned his hand and he dropped it on his foot. Examination shows that the wounds on his hand and foot go through the epidermis and into the dermis, are red in appearance, and are dry. He states that the wounds don't hurt as much as he expected, just around the edges. Which of the following is the most appropriate treatment?

A) **Both limbs are likely to be amputated, given the severity of the burn.**
B) **Cover the wounds in wet gauze and give the patient oral antibiotics prophylactically.**
C) **Immediate covering in antibiotic ointment and dry gauze, then isolation until the wound resolves.**
D) **Skin graft, with careful attention to potential graft contraction given the site of the wound.**
E) **Discharge with oral antibiotics**

Explanation: Full thickness burns are characterized by little to no pain due to loss of innervation and are treated with debridement of dead tissue and skin grafting. The skin graft needs to be carefully measured, as contraction is likely to occur on the hands and feet in particular.

Q10: A 27 year old female arrives at the trauma bay after being involved in a house fire. She has significant burns to her entire head/neck, anterior chest/abdomen and right leg. Her vitals are P 135, BP 98/60, RR 26, O2 Sat 95% and GCS 10. She weighs approximately 60 kg. Which of the following choices best represents the resuscitation needs of this patient?

A) **Give her 500 mL boluses until her BP improves, then 120 mL/ hr for the next 24 hours.**
B) **Give her 5.4 L of fluid in the first 8 hours, then another 5.4 L over the next 16.**
C) **Give her 5.4 L over the first 4 hours and another 5.4 L over the next 20 hours.**
D) **This patient needs IV access, but does not require resuscitative fluids.**
E) **Give her 8 L over the first 12 hours, then 2 L over the next 12 hours**

Explanation: An effective estimation of fluid requirement can be made using the Modified Parkland Formula. This formula estimates the amount of fluid required in the first 24 hours post burn. One must remember that the time frame for resuscitation is taken from the time of the burn, NOT the time of the presentation. It is important to obtain burn history from fire/ems/police personnel or other burn patients that can respond appropriately to questioning.
The Parkland Formula is as follows:
Total estimate= 4 mLs X Burned Surface Area % X Weight (kg)
1/2 the total volume is given in the first 8 hours
1/2 the total volume is given in the next 16 hours.

Answers

Q9	D
Q10	B

Burn:

Q11: A 25-year-old male is brought to the emergency department after escaping from a burning building. Physical examination reveals burn injuries on the anterior and posterior surfaces of the right arm, anterior and posterior right leg, chest, and abdomen. His blood pressure is 120/75 mm Hg, and his only complaint is severe pain. The patient's current weight is 50 kg (110 lbs). Which the most appropriate fluid management in this patient?

A) 200 X 45 mL lactate ringer plus maintenance in16-hours
B) 200 X 36 mL lactate ringer plus maintenance in 16-hours
C) 2L of 5% dextrose in water for 24-hours
D) 200 X 45 mL lactate ringer plus maintenance in 24-hours
E) 200 X 36 mL lactate ringer plus maintenance in 24-hours

Explanation: The Parkland formula for managing the fluids of patients with second and third degree burns is as follows: Parkland Formula = % BSA (body surface area affected) x weight (kg) x 4 (mL/kg) This formula calculates the fluid needed in addition to maintenance fluids over a 24-hour period.
The rule of 9's is used to determine % body surface affected where the head, each arm, chest, and abdomen are 9% each and the back, and each leg is 18% each. The patient has one arms (9%), one leg (18%) and his chest and abdomen (18%) involved giving a total of 45%. Substituting this back into the formula gives the correct answer. The first half of the fluids calculated are given in the first 8 hours, the remainders are given over the next 16 hours.

Answers

Q11	D

Wound Healing & Management:

MCQs:

Q1: A 94-year-old man is brought to the emergency department from a rehab facility where he has been for the past 17 days following a hemorrhagic stroke. He has a past medical history of urinary incontinence and dementia. On physical exam there is an area of erythema and ulceration over the lumbosacral region extending through the skin, fat, muscles and bones as shown in the exhibit. There is no eschar around the open wounds. Which of the following would be the most likely finding?

A) Full-thickness skin and tissue loss with exposed fascia, muscle, and bone
B) Full-thickness skin loss with visible fat
C) Eroded skin and soft tissue also found on the feet
D) Infection and erythema of the superficial lymphatics and upper dermis
E) Erythema and infection of the subcutaneous fat

Explanation: This is a stage IV decubitus ulcer. Decubitus ulcers are also referred to as bedsores or pressure ulcers. They form from a lack of blood flow and mechanical stress to the skin. Those who are immobile due to illness or injury, usually the elderly, are at greatest risk of developing these ulcers. Prevention lies in making sure a patient is not laying on one area of their body too long. These lesions are particularly prone to difficult wound healing and high morbidity and mortality.
Decubitus ulcers are ranked from stage I to stage IV

- Stage I: intact skin with localized, nonblanchable erythema
- Stage II: partial-thickness loss of skin with exposed dermis
- Stage III: full-thickness skin loss with visible fat
- Stage IV: full-thickness skin and tissue loss with exposed fascia, muscle, bone, etc.

Answers

Q1	A

Wound Healing & Management:

Q2: A 25-year-old woman presents with a benign nevus on the right upper arm. She desires removal and undergoes a clean incision and then closure of the incision without complication. With regard to the healing process, which of the following cell types are the first infiltrating cells to enter the wound site, peaking at 24 to 48 hours?

A) Macrophages
B) Neutrophils
C) Fibroblasts
D) Lymphocytes
E) Monocytes

Explanation: Wound healing is an overlapping sequence of inflammation, proliferation, and remodeling. The inflammatory phase is characterized by a rapid influx of neutrophils, followed in about 2 days by an influx of mononuclear cells.

Q3: A 22-year-old healthy African-American woman presents with a recurrent growth on her right thigh. She has a childhood history of a third-degree scald burn to the same area that did not require skin grafting. The growth was completely removed 2 years ago. On physical examination there is a 5 cm × 2 cm, raised, irregularly shaped purple lesion with a smooth top. Which of the following is the most likely diagnosis?

A) Angiosarcoma
B) Malignant melanoma
C) Squamous cell carcinoma
D) Kaposi sarcoma
E) Keloid

Explanation: Keloids occur in areas of previous trauma to the skin (burns, surgery, piercings, tattoos) and represent an over exuberance of wound healing. Keloids are much more common in darker-pigmented ethnicities.

Answers

Q2	B
Q3	E

Wound Healing & Management:

Match:

Choose and match the correct diagnosis with each of the scenarios below:

A) Early inflammatory phase
B) Late inflammatory phase
C) Proliferative phase
D) Remodelling phase
E) Mature scar

1- This phase is characterised by replacement of type 3 collagen by type 1 until a ratio of 4:1 is achieved. Realignment of collagen fibres along the lines of tension, decreased vascularity and wound contraction are also seen in this phase.

2- Platelet-enriched blood clot and dilated vessels are a feature of this phase.

3- The contraction of the scar is now complete. The vascularity has reduced and growth ceases.

4- This phase has increased vascularity with plenty of neutrophils and lymphocytes.

5- This phase consists mainly of fibroblast activity and collagen production. The collagen produced during this phase is type 3.

Answers

Q1	D	Q4	B
Q2	A	Q5	C
Q3	E		

Breast Diseases:

MCQs:

Q1: A 41-year-old woman comes to the physician because of bleeding from the nipple of her right breast for 3 months. There is no bleeding from the other breast. Menses occur at regular 30-day intervals and lasts for 5 days with moderate flow. Her last menstrual period was 1 week ago. Her mother died of breast cancer at the age of 53 years. She does not smoke or drink alcohol. She appears healthy. Her temperature is 37°C (98.7°F), pulse is 76/min, and blood pressure is 118/70 mm Hg. Cardiopulmonary examination shows no abnormalities. The abdomen is soft and nontender. Breast examination shows bleeding of the right breast on application of pressure with no palpable mass. The left breast shows no abnormalities. There is no palpable axillary lymphadenopathy. Pelvic examination shows a normal vagina and cervix. Ultrasonography shows a dilated duct enclosing a well-defined solitary mass. Which of the following is the most likely diagnosis?

A) Invasive ductal carcinoma
B) Intraductal papillomas
C) Papillary carcinoma

Explanation: Solitary intraductal papillomas typically present with unilateral bloody nipple discharge. Although physical exam may reveal a palpable breast tumor close to or behind the nipple, intraductal papillomas may not be palpable, as is the case in this patient. The absence of associated breast skin changes or axillary lymphadenopathy and the ultrasound finding of a dilated duct enclosing a well-defined solitary mass further support the diagnosis of this benign tumor.

Q2: A 29-year-old woman comes to the physician for evaluation of a mass in the left breast that she first noticed 2 weeks ago. During this period, the mass has not increased in size and the patient has had no pain. Three months ago, she hit her left chest against the closet door, which was painful for a day. Menses occurs at regular 28-day intervals and last for 5 days with moderate flow. Her last menstrual period was 3 weeks ago. Physical examination shows dense breasts and a 2.5-cm well-defined, rubbery, mobile mass that is nontender in the upper outer quadrant of the left breast. There is no axillary adenopathy. Which of the following is the most likely diagnosis?

A) Fat necrosis
B) Inflammatory breast cancer
C) Fibroadenoma

Explanation: The presence of a solid, painless, mobile mass in a 29-year-old woman without any mastalgia, changes in skin over the breast, or axillary lymphadenopathy indicates fibroadenoma, the most common breast tumor (although benign) in women < 35 years of age. Fibroadenomas should be closely monitored with clinical breast exams and imaging tests (ultrasounds and/or mammograms). Ultrasound-guided biopsy is indicated when lesions enlarge or have atypical imaging findings to rule out malignancy. Although this patient reports a history of trauma to the breast, fat necrosis typically presents as an ill-defined, firm breast mass with an overlying area of skin thickening or retraction, which is not consistent with this woman's well-defined, rubbery breast lump.

Answers

Q1	B
Q2	C

Breast Diseases:

MCQs:

Q3: An otherwise healthy 10-day-old boy is brought to the physician by his parents because of progressively enlarging breasts bilaterally for the last 4 days. The parents report that they have sometimes noticed a discharge of small quantities of a white liquid from the left breast since yesterday. During pregnancy, the mother was diagnosed with hypothyroidism and was treated with L-thyroxine. The patient's maternal grandmother died of breast cancer. The patient currently weighs 3100-g (6.8-lb) and is 51 cm (20 in) in length. Vital signs are within normal limits. Examination shows symmetrically enlarged, nontender breasts, with bilaterally inverted nipples. The remainder of the examination shows no abnormalities. Which of the following is the most appropriate next step in the management of this patient?

A) Reassurance
B) Measurement of serum estrogen and testosterone
C) Breast biopsy

Explanation: Bilaterally enlarged breasts in a neonate, irrespective of the biological sex, is a common physiological condition caused by circulating maternal estrogen stimulating glandular proliferation, and is known as neonatal gynecomastia. In ~ 5% of newborns, milky discharge (galactorrhea) is also present. Both neonatal gynecomastia and galactorrhea will usually resolve spontaneously within two weeks (but up to one year) of life and do not require treatment.

Q4: A 55-year-old woman comes to the physician with concerns about swelling and pain in her right breast. Physical examination shows erythema and prominent pitting of the hair follicles overlying the upper and lower outer quadrants of the right breast. There are no nipple changes or discharge. A core needle biopsy shows invasive carcinoma of the breast. Which of the following is the most likely explanation for this patient's skin findings?

A) Bacterial invasion of the subcutaneous tissue
B) Obstruction of the lymphatic channels
C) Tightening of the suspensory ligaments

Explanation: Obstruction of the dermal lymphatics by malignant tumor cells in inflammatory breast cancer results in localized lymphedema, which manifests as an increase in the size of the breast and the characteristic swollen and pitted appearance of peau d'orange (prominent hair follicle pits). Further signs include itching and nipple retraction. Even with trimodality therapy (i.e., chemotherapy, radiotherapy, and radical mastectomy) the prognosis is poor, as inflammatory breast cancer spreads early.

Tumor infiltration of the breast may be associated with tightening and shortening of the suspensory ligaments (Cooper ligaments). Because these ligaments are attached to the skin, tightening results in localized retraction and dimpling of the skin that changes the normal shape and contour of the breast. It differs from the swelling and pitting of peau d'orange seen in this patient.

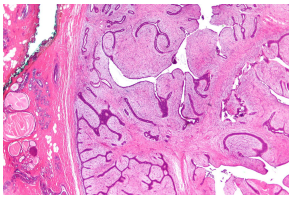
Answers

Q3	A
Q4	B

Breast Diseases:

MCQs:

Q5: A 48-year-old woman comes to the physician for the evaluation of a left breast mass that she noticed 4 weeks ago. It has rapidly increased in size during this period. Vital signs are within normal limits. Examination shows large dense breasts; a 6-cm, nontender, multinodular mass is palpated in the upper outer quadrant of the left breast. There are no changes in the skin or nipple. There is no palpable cervical or axillary adenopathy. Mammography shows a smooth polylobulated mass. A photomicrograph of a biopsy specimen is shown. Which of the following is the most likely diagnosis?



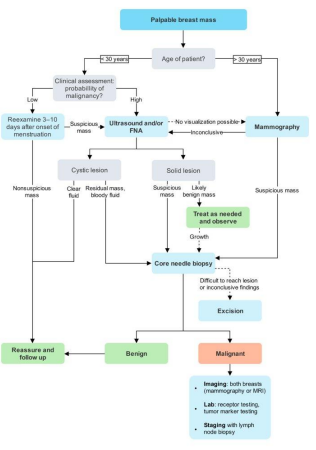
A) Phyllodes tumor
B) Fibroadenoma
C) Fibrocystic breast disease

Explanation: A large (> 3 cm), rapidly growing (i.e., progression over days-weeks) breast mass raises suspicion for phyllodes tumor. Phyllodes tumors are rare (< 1% of all breast tumors) and typically present as a painless breast lump, which can make differentiation from more common benign breast tumors (e.g., fibroadenoma) difficult. Phyllodes tumors may even appear similar to fibroadenoma on imaging. Therefore, biopsy is required to definitively diagnose phyllodes tumor; biopsy shows a leaf-like appearance under the microscope, for which the tumor is named.

Q6: A 57-year-old nulliparous woman comes to the physician 2 weeks after noticing a lump in her right breast. Her last mammogram was performed 4 years ago and showed no abnormalities. Menopause began 2 years ago, during which time the patient was prescribed hormone replacement therapy for severe hot flashes and vaginal dryness. Vital signs are within normal limits. Examination of the right breast shows a firm, nontender mass close to the nipple. There are no changes in the skin or nipple, and there is no palpable axillary adenopathy. The abdomen is soft and nontender; there is no organomegaly. Mammography shows a suspicious 2-cm mass adjacent to the nipple. Which of the following is the most appropriate next step in management?

A) Mastectomy
B) Fine needle aspiration
C) Core needle biopsy

Explanation: In a patient with a palpable breast lump and suspicious findings on mammography, an ultrasound-guided core needle biopsy is the next best step to evaluate the extent of the tumor, confirm the diagnosis of breast cancer, and describe the histology of the tumor and its receptor profile. This test is essential for determining the most appropriate next step.



Answers

Q5	A
Q6	C

Breast Diseases:

MCQs:

Q7: A 58-year-old woman comes to the office because of discoloration over her left breast. She says that a week ago, she noted that the skin was warm and pink. It has become progressively more swollen to the point where she is no longer able to wear a bra. She has a history of mild hypertension for which she takes hydrochlorothiazide. Her mother and maternal grandmother have a history of breast cancer, both of whom were diagnosed in their early 60s. The skin overlying her left breast is thickened and reddish in color. The nipple appears flattened and is tender on examination. Which of the following is the most likely diagnosis?

A) Inflammatory carcinoma
B) Paget's disease
C) Medullary carcinoma

Explanation: **Major takeaway:** Inflammatory breast carcinoma is characterized by a tender, erythematous, swollen breast and thickened "peau d'orange" changes in the overlying skin. **Main explanation:** Inflammatory breast carcinoma is a rare, aggressive type of breast carcinoma that carries a poor prognosis. It accounts for 0.5-2% of invasive breast cancers in the United States. It is characterized by a tender, erythematous, swollen breast mass that is enlarging within weeks to months. Mastitis is an important differential diagnosis. The skin on the breast is thickened and pink, often resembling an orange peel (peau d'orange). Most women have lymph node involvement at the time of presentation, so swollen lymph nodes are often palpable. Mammography shows a tumor mass and calcification with skin thickening. A core needle biopsy shows dermal lymphatic invasion.

Q8: A 30-year-old woman comes to the office because she recently learned that her paternal grandmother had breast cancer at the age 70, and she is very concerned that she will also develop breast cancer. She requests a mammogram to make sure that she currently does not have breast cancer. Which of the following is the most appropriate physician response in management of this patient?

A) Monthly breast self-examination with annual breast ultrasound, beginning today.
B) Reassure, counsel about breast health, and recommend annual clinical breast examination.
C) Perform a mammogram today.

Explanation: **Major takeaway:** Breast cancer screening is based upon personal and familial risk profiles. The most common risk factor for breast cancer is increasing age. **Main explanation:** Screening with mammography should begin for all women starting in their 40s. She may participate in breast self-examinations if she chooses. If a mass is palpated, she is then a candidate for imaging. Women at high risk should include MRI with the screening mammography every year, beginning at age 40. However, she is not in the high-risk category based on her history. High-risk groups include women who have a known BRCA1 or BRCA2 gene mutation, have a first degree relative with either mutation, are at high risk based on an evaluation with a validated risk assessment tool, underwent radiation to the chest between the ages of 10-30, or have a hereditary syndrome associated with multiple cancer diagnoses. These women should begin screening at age 30.

Answers

Q7	A
Q8	B

Breast Diseases:

MCQs:

Q9: A 27-year-old African-American woman comes to the clinic because of a painless breast mass. She first noticed it a month ago. She does not report any nipple discharge. She has no significant past medical history. Her mother was diagnosed with breast cancer at age 57. Physical examination shows a round, mobile, 2 cm mass in the upper outer quadrant of her right breast. Which of the following is the most appropriate next step in management?

A) An ultrasound and mammogram
B) Genetic testing for BRCA1 and BRCA2
C) Ultrasound only

Explanation: **Major takeaway:** For a breast mass in women under 30, ultrasound is the preferred method of evaluation. This is to avoid radiation exposure as well as evaluate the contents of the mass (cystic, solid, etc.) to better decide if a biopsy is warranted. **Main explanation:** This patient's breast mass is likely benign due to her young age and the round, mobile nature of the mass; however, this must be confirmed through evaluation. Given the relatively greater density of younger women's breast tissue, the preferred imaging modality for women under age 30 is ultrasound rather than mammogram. Breast ultrasound can provide information about the size and character of a mass, including whether it is solid or cystic, and whether there is a radiation risk. Both ultrasound and mammogram would be ordered if this patient were over the age of 30, so a mammogram is not necessary for the initial workup of this patient because she is 27.

Q10: A 60-year-old woman comes to the office for an annual examination. She has type 2 diabetes mellitus, for which she takes metformin, and hypertension, for which she takes lisinopril. She says that she has felt well over the last year and a complete review of systems is negative. Physical examination shows a firm mass in her right breast medial to the nipple. There is no lymphadenopathy or skin changes on the breasts. She is referred for excisional biopsy, which shows a gritty white fibrous mass. The pathology report describes the lesion as a nest of tumor cells that invade through the basement membrane. Which of the following is the most likely diagnosis?

A) Ductal carcinoma in situ
B) Inflammatory carcinoma
C) Invasive ductal carcinoma

Explanation: **Major takeaway:** Invasive ductal carcinoma is the most common type of breast cancer. It is usually characterized by a firm fibrous mass. Histopathology can show a variety of cellular features that invade the basement membrane. **Main explanation:** Invasive ductal carcinoma is the most common type of breast cancer. It also carries the worst prognosis. It is characterized by a firm, fibrous mass of tissue that is gritty and white on gross appearance. The malignant cells induce a fibrous response (i.e. desmoplastic reaction) as they infiltrate the parenchyma, resulting in the palpable mass. There are no associated lesions on the skin. Histopathology is varied, but always shows invasion through the basement membrane. Grading is based on nuclear atypia and mitotic activity and thereby categorizes invasive ductal carcinoma as well-differentiated, moderately differentiated, or poorly differentiated. The spread of tumor cells is usually via the lymphatics.

Answers

Q9	C
Q10	C