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Course Name: Diagnostic Ultrasound Manual - ASRT approved 25.25 category A credits
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Test Questions
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Chapter 1

1. Since Ultrasound is a _____ technology, the risks inherent to its use are lower than those presented by other diagnostic imaging technologies using ionizing radiation, such as the radiologic technologies.
(A): non-ionizing radiation
(B): cosmic radiation
(C): terrestrial radiation
(D): x radiation

2. The use of diagnostic ultrasound is generally accepted as safe, in the absence of plausible, confirmed evidence of adverse outcome in humans.
(A): True
(B): False

3. Unregulated use of freely available Sonography equipment by unaccredited or inadequately trained people increase the risk for_____ and _____.
(A): misdiagnosis
(B): harm
(C): radiation damage and burn
(D): both A and B

4. In obstetrics scanning, the amount of ultrasound-induced heating of the fetus correlates with gestational age and increasing mineralization of _____.
(A): teeth
(B): arteries
(C): bone
(D): none of the above

5. Diagnostic ultrasound causes a _____ temperature increase in so embryonic tissue and is unlikely to be a major concern, thermally, during the 1st trimester.
(A): lower
(B): modest
(C): high
(D): very high

6. The World Federation for Ultrasound in Medicine and Biology concluded that the effects of elevated temperatures can be minimized by keeping the time during which the beam passes through any area of tissue as _____ as possible.
(A): long
(B): short
(C): high
(D): very high

7. Which of the following involves collapse of bubbles in liquid in a sound field and the sudden release of energy, which can be enough intense to disrupt molecular bonds?
(A): acoustic inertial cavitation

(B): ionization of an atom
(C): proton stimulation
(D): none of the above

8. Which of the following statements apply to the users of ultrasound?
(A): monitor thermal indices and keep them low
(B): document examination and verify the accuracy of the displayed mechanical index
(C): examine the adequacy of the mechanical index
(D): all of the above

9. It is recommended that manufacturers set the default (switch-on) mechanical index to less than _____, except for high mechanical index modes, and that they provide an unambiguous on-screen display of center frequency.
(A): 0.3
(B): 0.4
(C): 0.5
(D): 0.6

Chapter 2
10. Which of the following gestational time period is considered as 1st trimester?
(A): period between conception and 13weeks+ 6days
(B): period between conception and 16weeks+ 7days
(C): period between conception and 18weeks+ 8days
(D): period between conception and 19weeks+ 9days

11. An _____ is the product of conception until 10weeks+ 0days of gestational age.
(A): fetus
(B): embryo
(C): ova
(D): ovum

12. A _____ is the product of conception from 10weeks+ 1day until delivery.
(A): fetus
(B): embryo
(C): ova
(D): ovum

13. Which of the following are **indications** for ultrasound during the 1st trimester?
(A): estimation of gestational age
(B): screening for fetal anomalies and aneuploidies
(C): vaginal bleeding or pelvic pain
(D): all of the above

14. Which of the following are **purposes** of ultrasound during the 1st trimester?
(A): estimation of gestational age
(B): to visualize the gestational sac inside the uterus
(C): to evaluate the morphology of the uterus and adnexa
(D): all of the above

15. With the help of the ultrasound, which of the following can be diagnosed during first trimester?
(A): a normal or ectopic implant
(B): embryo or fetus life or early pregnancy failure
(C): the number of embryos or fetuses
(D): all of the above

16. For which of the following procedure in ultrasound, the woman should have a full bladder?
(A): transabdominal ultrasound
(B): transvaginal ultrasound
(C): cardiac ultrasound

(D): all of the above

17. For transabdominal ultrasound, the woman should lie on the examination bed on her_____ with extended or flexed legs.
(A): stomach
(B): right side
(C): back
(D): left side

18. Which of the following planes are used to examine the pelvis and lower part of the abdomen?
(A): vertical (sagittal)
(B): horizontal (transverse)
(C): oblique scanning planes
(D): all of the above

19. For transvaginal ultrasound, the woman **must** be lying on the examination bed on her back in which of the following position with flexed hips and knees on supports?
(A): Sim's position
(B): Gynecological position
(C): Fowler's position
(D): Trendelenburg's position

20. For transabdominal ultrasound, the probe frequency should be at least _____ and for transvaginal ultrasound, the probe frequency should be at least_____.
(A): 1.5MHz, 3.0MHz
(B): 2.5MHz, 4.0MHz
(C): 3.5MHz, 5.0MHz
(D): 4.5MHz, 6.0MHz

21. Which of the following is/are endpoint/s of first trimester scans?
(A): Evaluate the number of embryos or fetuses
(B): Visualize the embryo or fetus
(C): Establish the presence of a gestational sac inside the uterus
(D): all of the above

22. The gestational sac can be visualized from_____ menstrual weeks by transabdominal ultrasound and from _____ weeks by trans-vaginal ultrasound.
(A): 6, 5
(B): 1, 2
(C): 3, 4
(D): 0, 1

23. Which of the following is a formula to calculate the gestational age?
(A): a= d-30
(B): a= d+30
(C): a= d x 30
(D): a= d/30

24. Embryo or fetus size can be measured from the crown–rump length or biparietal diameter.
(A): True
(B): False

25. Because normal embryonic growth is almost linear at 1mm/day, gestational age, a, can be estimated with an accuracy of±3days between _____and ___days, from the formula: a = l + 42.
(A): 43, 67
(B): 71, 82
(C): 83, 94

(D): 100, 115

26. Towards the end of the 1st trimester, rapid fetal development and flexion and extension positional changes limit the accuracy of crown–rump length determination, and measurement of the biparietal diameter of the head becomes the preferred biometric for calculating gestational age.
(A): True
(B): False

27. The first sonographic finding to suggest early pregnancy is visualization of which of the following?
(A): heart
(B): head size
(C): the gestational sac
(D): spine

28. With transabdominal ultrasound, it is possible to visualize the gestational sac at as early as _____ weeks' gestational age.
(A): 1
(B): 2
(C): 4
(D): 5

29. The_____ is the first anatomical structure to be identified within the gestational sac.
(A): eyes
(B): head
(C): yolk sac
(D): extremities

30. The yolk sac diameter increases steadily between _____ weeks' gestational age, to a maximum diameter of 5–7 mm.
(A): 1 and 3
(B): 3 and 4
(C): 5 and 10
(D): none of the above

31. _____ corresponds to the omphalomesenteric duct, which connects the embryo and the yolk sac.
(A): Vitelline duct
(B): Pancreatic duct
(C): Arterial duct
(D): Tear duct

32. At 6 weeks' gestational age, the amniotic membrane is formed, closely applied to the embryo, but it is not usually identified until _____ weeks because it is very thin.
(A): 7
(B): 13
(C): 18
(D): 23

33. The placental development begins during the _____ week of gestational age.
(A): 5th
(B): 8th
(C): 11th
(D): 15th

34. Once the amniotic membrane has developed, the vitelline duct separates from/the forming umbilical cord, which then elongates, and its vessels start coiling/inside the Wharton jelly.
(A): True
(B): False

35. Sonographic observations throughout the embryonic period reveal dramatic changes in anatomical structures between 6 and 10weeks, with the crown-rump length increasing by _____.
(A): 4 mm/day
(B): 3 mm/day
(C): 1 mm/day
(D): 2 mm/day

36. Fetal movements can be detected from _____ and increase in complexity at 9weeks.
(A): 4 weeks
(B): 5 weeks
(C): 6 weeks
(D): 7 weeks

37. The fetal heartbeat can be detected routinely with transvaginal ultrasound at _____ weeks.
(A): 1
(B): 2
(C): 3
(D): 6

38. To visualize cardiac rates in fetus, which of the following **should not** be used for safety reasons?
(A): B-mode
(B): Pulse Doppler
(C): Color Doppler
(D): Both B and C

39. The cardiac rate is stable in early gestation but shows progressively more variation with gestational age.
(A): True
(B): False

40. By ten weeks' gestational age, which of the following can be visualized and gross anomalies can be detected or excluded in the late 1st trimester (after 12weeks), mainly with transvaginal ultrasound?
(A): the fetal cranium and brain
(B): neck, trunk and heart
(C): bladder, stomach and extremities
(D): all of the above

41. Ossification of the skull is reliably seen after 11weeks, and examination of the four chambers of the heart is possible after _____.
(A): 1 weeks
(B): 5 weeks
(C): 6 weeks
(D): 10 weeks

42. In all polyzygotic multiple pregnancies, each zygote develops its own what?
(A): amnion
(B): chorion
(C): placenta (polychorionic)
(D): All of these

43. In monozygotic pregnancies, when twins share the same fetal organs, it is called _____.
(A): conjoined
(B): placenta
(C): amniotic sac
(D): none of the above

44. Zygosity can be determined only by _____.
(A): ultrasound

(B): number of placentas
(C): fetal sex
(D): DNA analysis

45. With transvaginal ultrasound, a multichorionic twin pregnancy, in which each fetus has a different amniotic sac and yolk sac can be easily recognized at _____ weeks' gestational age.
(A): 1-2
(B): 2-3
(C): 4-5
(D): 7-9

46. In dichorionic twins, there is a thick septum between the two gestational sacs, which, at the base of the membrane, appears as a triangular tissue projection called the _____.
(A): alpha sign
(B): beta sign
(C): lambda sign
(D): none of the above

47. Fetal nuchal translucency normally increases with which of the following?
(A): gestation
(B): crown–rump length
(C): lung capacity
(D): Both A and B

48. The fetal nasal bone can be visualized on ultrasound at _____ weeks.
(A): 1-2
(B): 3-5
(C): 6-9
(D): 11-14

49. Spontaneous miscarriage occurs in approximately _____% of clinically diagnosed pregnancies, but the loss rate is estimated to be two to three times higher in very early, often unrecognized pregnancies.
(A): 15
(B): 30
(C): 50
(D): 65

50. Vaginal bleeding or spotting occurs in _____ of 1st trimester pregnancies.
(A): 5%
(B): 25%
(C): 45%
(D): 55%

51. Which of the following factor can contribute to the probability of failed pregnancy?
(A): severe pain
(B): uterine contractions
(C): heavy bleeding or a dilated cervix
(D): all of the above

52. The finding of an intrauterine fluid collection near the gestational sac is due to _____.
(A): gestational diabetes
(B): preeclampsia
(C): subchorionic hemorrhage
(D): none of the above

53. 65% of spontaneous abortions occur during the first _____ of pregnancy.
(A): 16weeks
(B): 25weeks

(C): 26weeks
(D): 27weeks

54. The ultrasound scan reveals retained products of conception, endometrial blood and trophoblastic tissue, with no normal gestational sac in _____.
(A): complete abortion
(B): threatened abortion
(C): incomplete abortion
(D): none of the above

55. If the hCG level is more than _____ IU/l and no gestational sac is visible inside the uterus, the probability of an ectopic pregnancy is high.
(A): 150
(B): 500
(C): 990
(D): 2500

56. Which of the following is a possible diagnosis for intrauterine sac without an embryo or yolk sac?
(A): a normal early intrauterine pregnancy
(B): an abnormal intrauterine pregnancy
(C): a pseudogestational sac in an ectopic pregnancy
(D): all of the above

57. The discriminatory embryonic size for detecting cardiac motion by transabdominal ultrasound is _____ mm.
(A): 2
(B): 4
(C): 6.5
(D): 10

58. Observation of the heartbeat inside the embryo is helpful for evaluating its relation to the _____.
(A): placenta
(B): nervous system
(C): yolk sac
(D): none of the above

59. Which of the following defines a pregnancy that occurs outside the uterine cavity?
(A): Intrauterine pregnancies
(B): Ectopic pregnancies
(C): Normal pregnancies
(D): None of the above

60. Which of the following is a risk factor for ectopic pregnancy?
(A): pelvic inflammatory disease
(B): assisted reproductive techniques
(C): diabetes
(D): both A and B

61. Ectopic pregnancy can occur in _____% of all cases of medically assisted conception.
(A): 10
(B): 25
(C): 37
(D): 48

62. **Most** ectopic pregnancies are implanted in the _____.
(A): ovary
(B): abdomen
(C): cervix

(D): fallopian tube

63. The accuracy of ultrasound for detecting an ectopic gestation is about _____%, with a specificity of 96% and a false-positive rate of 0.5–1%.
(A): 10-15
(B): 25-38
(C): 40-50
(D): 80–85

64. Gestational trophoblastic disease includes which of the following conditions?
(A): Hydatidiform mole
(B): Invasive mole
(C): Chorioncarcinoma
(D): All of the above

65. **_____** is characterized by the absence of the cranial vault (acrania), with dystrophic brain tissue exposed to the amniotic fluid: the fetal head has an irregular shape, and no cranial bones are visible.
(A): **Anencephaly**
(B): Skull fracture
(C): **Hydranencephaly**
(D): none of the above

66. _____ is a lethal condition caused by complete occlusion of the internal carotid artery and its branches, resulting in the absence of cerebral hemispheres in embryo/fetus.
(A): **Anencephaly**
(B): High cholesterol
(C): **Hydranencephaly**
(D): none of the above

67. _____ are large fluid collections behind or lateral to the fetal head, neck and trunk, sometimes associated with generalized hydrops.
(A): Gouts
(B): Neuroblastomas
(C): **Cystic hygromas**
(D): none of the above

68. _____ is diagnosed when the fetal bladder length exceeds the normal value of 6mm at 11–14 weeks' gestational age.
(A): Cystitis
(B): Nephritis
(C): **Megacystis**
(D): none of the above

69. _____ are a complication of a monoamniotic twin pregnancy and are due to an abnormality of monozygotic twinning, with incomplete division of an embryonic cell mass.
(A): Identical twins
(B): Fraternal Twins
(C): **Conjoined twins**
(D): none of the above

70. Ultrasound biometry of the fetus is done for assessing fetal growth by measuring which of the following?
(A): bi-parietal diameter
(B): head and abdominal circumferences
(C): femur length
(D): all of the above

71. Sonographic evaluation of the placenta can be used to assess which of the following?
(A): size
(B): thickness
(C): echo texture
(D): all of the above

72. The umbilical cord is first visualized by ultrasound at _____, when the length of the cord is approximately equal to the crown-rump length.
(A): 2 weeks
(B): 3 weeks
(C): 8 weeks
(D): 12 weeks

Chapter 3
73. Gynecological ultrasonography is a non-invasive imaging technique that can be used for which of the following?
(A): pelvic clinical examination
(B): acute abdominopelvic diseases
(C): ovarian and endometrial cancer
(D): all of the above

74. Transabdominal examination is performed with real-time, _____ MHz convex or sectoral transducers, depending on the woman's age and body.
(A): 2.5 to 5
(B): 8 to 10
(C): 11 to 15
(D): 16 to 25

75. For trans-vaginal ultrasound, the woman must have a full bladder.
(A): True
(B): False

76. The trans-vaginal ultrasound examination is done with the woman in the gynecological position, ideally on a suitable bed with leg rests.
(A): True
(B): False

77. During ultrasound exam _____ should not be left between the transducer and the cover because they prevent ultrasound propagation.
(A): latex glove
(B): ultrasound gel
(C): air bubbles
(D): all of the above

78. A major limitation of trans-vaginal scanning is the lack of a _____, preventing adequate study of large masses and processes occupying space in the upper pelvis.
(A): panoramic view
(B): clear view
(C): angled view
(D): post view

79. The _____ is in the middle pelvis, located in the space between the bladder and the rectum.
(A): pancreas
(B): gallbladder
(C): uterus
(D): none of the above

80. _____ is the widest part of the uterus.
(A): Fundus
(B): Vagina
(C): Ovary
(D): none of the above

81. The normal uterus measures _____ in length, 4cm in width and 3cm in thickness.
(A): 2-3cm
(B): 3-4cm
(C): 6-7cm
(D): 8-9cm

82. After menopause, the uterus becomes atrophic, with maximum volumetric reduction in the first 10 years.
(A): True
(B): False

83. The uterus is composed of which of the following superimposed layer?
(A): the peritoneal serosa
(B): the myometrium
(C): endometrium
(D): all of the above

84. The endometrium undergoes large changes in thickness and echogenicity due to the serum levels of _____and ___, which are detectable on either transabdominal or transvaginal scanning.
(A): estrogen, progesterone
(B): testosterone, estrogen
(C): testosterone, progesterone
(D): all of the above

85. The endometrial thickness at menopause is used to classify which of the following?
(A): ectopic pregnancy
(B): miscarriages
(C): benign and malignant diseases
(D): none of the above

86. The **best** and **most** careful dimensional evaluation of the ovary is by volume calculation that can be done applying which of the following ellipsoid formula?
(A): length-width-thickness /2
(B): length×width×thickness /2
(C): length/width/thickness x2
(D): None of the above

87. In adult women, the normal ovary generally measures _____ cm.
(A): 3 x 2 x 1
(B): 5 x 3 x 1
(C): 4 x 6 x 2
(D): 6 x 2 x 3

88. Which of the following is a morphologically and structurally defined area of the ovary?
(A): medulla
(B): cortex
(C): fundus
(D): both A and B

89. In adult women, the ovary is an extremely dynamic structure, and its ultrasound pattern varies according to the_____ of the cycle.
(A): days

(B): hours
(C): phase
(D): minutes

90. The mean diameter of the dominant follicle at ovulation is _____ mm, with a range of 17–26 mm.
(A): 20
(B): 46
(C): 57
(D): 60

91. During menopause, the follicles are no longer identifiable, and the ovaries show a hypoechoic uniform structure sonographically.
(A): True
(B): False

92. _____ is the **commonest** endocrine disorder in women of reproductive age.
(A): Polycystic ovary syndrome
(B): Ovarian cancer
(C): Endometriosis
(D): none of the above

93. Which of the following is/are can be seen in Polycystic ovary syndrome?
(A): oligo-amenorrhea or anovulation
(B): clinical or biochemical signs of hyperandrogenism
(C): sonographic evidence of polycystic ovaries
(D): all of the above

94. Congenital uterine abnormalities due to developmental defects of the Müllerian ducts are clinically important because they are associated with which of the following?
(A): higher rates of spontaneous abortion
(B): premature birth
(C): abnormal fetal position at delivery
(D): all of the above

95. _____ is the **commonest** Müllerian duct anomaly and is associated with the highest rate of recurrent spontaneous abortions.
(A): Bicornuate uterus
(B): Uterus didelphys
(C): Septate uterus
(D): none of the above

96. In order to evaluate congenital anomalies, the ultrasound examination should be performed during the _____ of the menstrual cycle as the echogenic endometrium is more easily recognized at this time.
(A): bleeding phase
(B): luteal phase
(C): secretory phase
(D): dividing phase

97. Which of the following is the main ultrasound sign of endometrial disease that is **not** consistent with age or menstrual phase?
(A): increased endometrial thickness
(B): decreased endometrial thickness
(C): absence of endometrial tissue
(D): all of the above

98. In genital tuberculosis, the endometrium is affected in _____ % of cases, and the uterus may be enlarged due to filling and expansion of the endometrial cavity by caseous material.
(A): 10-15
(B): 20-38
(C): 40-57
(D): 60–90

99. Diffuse proliferation of endometrial stroma and glands is defined as _____.
(A): hypoplasia
(B): fibroids
(C): hyperplasia
(D): none of the above

100. Which of the following are **most** frequent in perimenopausal women or in women receiving tamoxifen as adjunct therapy for breast cancer?
(A): Varicose veins
(B): Migraine headaches
(C): Endometrial polyps
(D): all of the above

101. Which of the following allows easy, reliable diagnosis of polyps, as they appear as smooth or irregular, broad-based or pedunculated masses, well outlined by the saline solution instilled in the uterine cavity?
(A): Hysterosalpingogram (HSG)
(B): Sonohysterography
(C): CT
(D): X ray procedure

102. Uterine fibroids are common_____ soft tissue tumors, frequently multiple, composed of smooth muscle and connective tissue affecting nearly one fourth of women of reproductive age.
(A): calcified
(B): fibrous
(C): benign
(D): malignant

103. Which of the following is a symptom of uterine fibroids depending on their size and location?
(A): bladder and rectal pressure
(B): abnormal uterine bleeding
(C): dysmenorrhea and pelvic/back pain
(D): all of the above

104. Fibroids are referred to as intramural when located within the _____.
(A): myometrium
(B): uterine contour
(C): endometrial cavity
(D): none of the above

105. The degree of protrusion of the fibroid into the endometrial cavity is important information for surgical management and is best determined by _____.
(A): Computed Tomography
(B): MRI
(C): Sonohysterography
(D): none of the above

106. Uterine adenomyosis is defined as the presence of endometrial glands and stroma in the myometrium beneath the endometrial–myometrial junction, with accompanying smooth muscle hyperplasia.
(A): True

(B): False

107. Which of the following can assess both adenomyosis and pelvic endometriosis with greater accuracy?
(A): Nuclear Medicine
(B): Radiography
(C): Ultrasound
(D): MRI

108. About _____ % of all postmenopausal bleeding is due to endometrial carcinoma.
(A): 10
(B): 30
(C): 55
(D): 75

109. Endometrial cancer is the **most** common gynecological malignancy that makes about _____ of all cancers in women.
(A): 6%
(B): 10%
(C): 15%
(D): 20%

110. ____ is currently seen as the **most**[b/] reliable technique for evaluating myometrial invasion.
(A): Radiography
(B): Contrast-enhanced MRI
(C): CT
(D): Ultrasound

111. Cervical carcinoma is the **commonest** gynecological malignancy in premenopausal women, spreading by direct local invasion or through the _____.
(A): lymphatic system
(B): reproductive system
(C): nervous system
(D): digestive system

112. An accurate local staging of cervical cancer is **best**[b/] accomplished with _____.
(A): Ultrasound
(B): Nuclear Medicine
(C): MRI
(D): Radiation Therapy

113. Leiomyosarcoma is an aggressive tumor, often diagnosed only histologically after hysterectomy or clinically suspected by its rapid growth, metrorrhagia and pelvic pain.
(A): True
(B): False

114. Which of the following modalities allow analysis of ovarian masses in vivo of all the characteristics evaluated by surgeons and anatomical pathologists?
(A): Radiography
(B): MRI
(C): Ultrasound
(D): PET

115. Ultrasound examination allows evaluation of vascularization, and these characteristics make it an accurate diagnostic tool for discriminating between malignant and benign ovarian masses and, in many cases, for making a specific diagnosis.
(A): True
(B): False

116. To evaluate the risks for malignancy, it is very important that ultrasound examiner should distinguish between which of the following?
(A): physiological structures in the ovary
(B): abnormal but functional masses
(C): clearly pathological structures
(D): all of the above

117. The follicles are recognized by ultrasound as anechoic rounded formations with a thin regular wall and a diameter ranging from a few to _____ mm.
(A): 1-5
(B): 6-9
(C): 10-12
(D): 18–20

118. In order to diagnose ovarian neoformations accurately, it is important to review the structures that make up the _____.
(A): uterine wall
(B): cervical mucus
(C): ovarian parenchyma
(D): none of the above

119. Simple ovarian cysts consist of unilocular cysts measuring up to _____ cm, which are anechoic,
with sharp margins and no solid component.
(A): 1-3
(B): 3-5
(C): 5-7
(D): 10–14

120. Borderline ovarian tumors constitute _____ % of all malignant neoplasms.
(A): 10–15
(B): 20-35
(C): 40-58
(D): 60-75

121. The Fallopian tubes vary in length between _____and ____cm.
(A): 7, 12
(B): 12, 14
(C): 3, 5
(D): 1, 4

Chapter 4
122. _____ is very helpful for distinguishing between a fluid-filled cyst and a solid mass.
(A): Mammogram
(B): Breast ultrasound
(C): Radiography
(D): PET

123. Breast ultrasound is often the first examination performed to evaluate masses in women under _____ years of age, whose mammograms can be difficult to interpret because of the density of their breast tissue.
(A): 45
(B): 50
(C): 35
(D): 55

124. Breast ultrasound is also used to observe and guide a needle in which of the following interventional procedures?
(A): cyst and fine-needle aspiration

(B): large-core needle biopsy
(C): needle localization in surgical breast biopsy
(D): all of the above

125. Real-time hand-held scanners **should** include which of the following to operate at a frequency of 7.5-10MHz or more, which provides good tissue penetration to 4-5 cm?
(A): a linear array transducer
(B): a high-frequency transducer
(C): High kVp setting
(D): A and B only

126. On sonogram the fat in the breast appears _____ or _____.
(A): dark, echo-poor
(B): bright, echo-poor
(C): dark, echo-rich
(D): none of the above

127. Which of the following diagnostic algorithm can be used to perform a correct breast ultrasound examination?
(A): scanning of the entire breast
(B): detection, study and classification of lesion
(C): adjustment of technical parameters and referral
(D): all of the above

128. Which of the following new ultrasound techniques show promise for diagnosing cancerous breast lesions in a non-invasive manner and improving breast image quality?
(A): tissue harmonic imaging
(B): three-dimensional ultrasound
(C): spatial compound and ultrasound elastography
(D): all of the above

129. Which of the following type of cysts that are the **most common** benign diseases of the breast found on ultrasound study?
(A): simple cysts
(B): complex cysts
(C): sebaceous cysts
(D): all of the above

130. Galactocele is a benign cystic swelling that appears during _____ or immediately after.
(A): menopause
(B): breastfeeding
(C): puberty
(D): breast implants

Chapter 5
131. Ultrasound is the imaging modality of choice for children with which of the following?
(A): abdominal pain
(B): abdominal masses
(C): intra-abdominal anomalies
(D): All of the above

132. Use of ultrasound imaging in children save time, reduce costs and can avoid exposure to _____ with no reduction in diagnostic accuracy.
(A): radiation
(B): sound-waves
(C): contrast
(D): none of the above

133. Ultrasound is the preferred initial imaging modality for children to evaluate liver and biliary tract to diagnose which of the following?
(A): hepatomegaly
(B): jaundice and ascites
(C): suspected liver abscess or liver mass
(D): All of the above

134. The Ultrasound is also useful for guiding which of the following?
(A): biopsies
(B): punctures
(C): drainage of abscesses
(D): all of the above

135. The _____ hours of fasting, depending on the age of the child, is necessary for a study of the gall bladder, the intrahepatic and extrahepatic bile ducts and the hilus of the liver.
(A): 2–6
(B): 7-10
(C): 12-13
(D): 24

136. Doppler ultrasound is useful for which of the following?
(A): Locating vessels and for ensuring the permeability of the vascular structures
(B): Assessing the presence and direction of blood flow in the hepatic artery
(C): Assessing the presence and direction of blood flow in hepatic veins and portal veins
(D): all of the above

137. The size of the common bile duct increases linearly with age and its diameter should not exceed _____ mm in neonates.
(A): 1
(B): 2
(C): 4
(D): 6

138. n neonates and infants under 2 years of age, the gall bladder is _____cm long and <1cm wide.
(A): <1
(B): <2
(C): <3
(D): <8

139. Hepatic tumors are rare in children, with an estimated frequency of _____ % of all pediatric tumors.
(A): 3
(B): 10
(C): 25
(D): 50

140. _____ is by far the commonest[b/] malignant hepatic neoplasm in children under the age of 3 years, with a median age of 1 year.
(A): Jaundice
(B): Viral hepatitis
(C): **Hepatoblastoma**
(D): all of the above

141. Which of the following is/are sonographic appearance/s of hepatoblastoma?
(A): it may be echo-poor
(B): isoechoic or echo-rich in comparison with the normal liver tissue
(C): a pseudocapsule may be present

(D): all of the above

142. Which of the following can cause hepatocellular carcinoma in children over 3 years of age?
(A): Preexisting liver disease
(B): Hepatitis B virus infection
(C): Tyrosinemia and type I glycogen storage disease
(D): all of the above

143. Which of the following is/are malignant tumors of children that **most** frequently metastasize to the liver?
(A): Wilms tumors
(B): neuroblastomas
(C): lymphomas
(D): all of the above

144. Hepatic metastases appear on ultrasound as _____ with multiple well-delineated echo-poor or echo-rich lesions.
(A): calcification
(B): solid cysts
(C): hepatomegaly
(D): none of the above

145. _____ is a developmental anomaly originating in the connective tissue along the portal tracts, rather than a true neoplasm that usually affects children under 2years of age.
(A): **Hemangioma**
(B): **Hemangioendothelioma**
(C): **Cystic mesenchymal hamartoma**
(D): none of the above

146. Adenoma is very rare in children and can occur under which of the following specific conditions?
(A): Hormone treatment
(B): Type I glycogen storage disease
(C): Fanconi anemia and galactosaemia
(D): all of the above

147. Which of the following can cause **Pyogenic** liver abscesses in neonates, infants and children?
(A): *Staphylococcus aureus*
(B): *Escherichia coli*
(C): Fungi
(D): Both A and B

148. The _____ is one of the **most**[b/] frequently injured abdominal organs in childhood.
(A): spleen
(B): pancreas
(C): liver
(D): none of the above

149. On ultrasound, subcapsular hematomas often show a lenticular-shaped _____ collection during hepatic injuries.
(A): air
(B): fluid
(C): calcium
(D): pus

150. Which of the following is a late complication of hepatic trauma in children?
(A): biloma
(B): pseudoaneurysm
(C): liver failure
(D): both A and B

151. _____ is due to the development of larvae of canine *Echinococcus granulosus* in humans.
(A): Hepatitis C
(B): Cirrhosis
(C): Hydatid disease
(D): none of the above

152. Which of the following is the initial modality of choice for positive and topographic diagnosis of hydatid cyst in the liver and may be the only preoperative morphological examination?
(A): Ultrasound
(B): MRI
(C): CT
(D): Radiography

153. Which of the following can cause multiple biliary cysts in children?
(A): Autosomal dominant polycystic disease
(B): Turner syndrome
(C): Tuberous sclerosis
(D): all of the above

154. The noninfectious causes like drugs, toxins, autoimmune diseases and sclerosing cholangitis can cause hepatitis.
(A): True
(B): False

155. _____ is the **commonest** manifestation of acute hepatitis, although the liver is often sonographically normal.
(A): Kidney stone
(B): Cystitis
(C): Hepatomegaly
(D): none of the above

156. On sonography, both biliary atresia and neonatal hepatitis syndrome can show normal or increased echogenicity of the liver parenchyma.
(A): True
(B): False

157. In biliary atresia, the _____ is usually small or absent and not visualized.
(A): liver
(B): gall bladder
(C): pancreas
(D): spleen

158. A change in gall bladder size after a _____ suggests that the common hepatic and common bile duct are patent; this is seen only in neonatal hepatitis.
(A): surgery
(B): chemotherapy
(C): milk feeding
(D): none of the above

159. _____ is indicated when the imaging and pathological findings suggest a diagnosis of biliary atresia.
(A): Nephroscopy
(B): Bronchogram
(C): Cholangiography
(D): none of the above

160. Choledochal cysts are malformations of the extrahepatic and intrahepatic _____.
(A): bile ducts

(B): hepatic veins
(C): splenic arteries
(D): duodenal bulb

161. Which of the following can be used to confirm that the dilated cystic structure communicates with the biliary tree?
(A): Biliary scintigraphy
(B): MRI cholangiography
(C): Radiation Therapy
(D): Both A and B

162. The Todani type II choledochal cyst consists of a true diverticulum arising from the common bile duct and is found in _____% of cases.
(A): 2
(B): 15
(C): 20
(D): 36

163. Which of the following are the commonest complications of choledochal cyst?
(A): cholelithiasis and pancreatitis
(B): choledocholithiasis and abscess
(C): malignancy and cirrhosis
(D): all of the above

164. Cirrhosis can cause _____ in older children.
(A): meningitis
(B): jaundice
(C): diabetes
(D): none of the above

165. Which of the following are common causes of cholelithiasis in infants and children?
(A): Furosemide therapy & Crohn's disease
(B): Malabsorption & total parenteral nutrition
(C): Cystic fibrosis, bowel resection and hemolytic anemia
(D): all of the above

166. Cholecystitis is an inflammation of the mucosa of the gall bladder wall due to viral infection.
(A): True
(B): False

167. The sonographic imaging of spleen should be carried out with high-frequency convex or linear probes ranging from_____.
(A): 1.5 to 5MHz
(B): 2.5 to 6MHz
(C): 3.5 to 7MHz
(D): 4.5 to 8MHz

168. Which of the following is/are frequently the cause/s of massive hepatosplenomegaly?
(A): Leukemia
(B): Hodgkin disease
(C): Lymphomatous infiltration
(D): all of the above

169. In preparation for Pancreatic ultrasound, infants should take nothing by mouth for _____ before the examination.
(A): 3 hours
(B): 5 hours
(C): 8 hours
(D): 10 hours

170. Cystic fibrosis is a recessively inherited disease of childhood, with an estimated prevalence of 1 per _____.
(A): 1000
(B): 2000
(C): 5000
(D): 10,000

171. A pancreatic abscess is a collection of _____, usually in close proximity to the pancreas.
(A): air
(B): blood
(C): pus
(D): water

172. **Most** of the pancreatic injuries are common cause of acute pancreatitis in children due to which of the following incidents?
(A): motor vehicle accidents
(B): bicycle handlebars
(C): child abuse
(D): all of the above

173. Ultrasound may show which of the following during pancreatic injuries?
(A): interruption of the pancreas
(B): peripancreatic fluid collections
(C): altered echogenicity
(D): all of the above

174. Ultrasound usually demonstrates which of the following layers of the wall of the digestive tract between the cervical esophagus and the rectum?
(A): the echo-rich lumen interface and submucosa
(B): the echo-poor mucosa and muscle layer
(C): echo-rich interface with the surrounding tissue
(D): all of the above

175. Intussusception occurs **most** commonly between the ages of _____months and _____ years.
(A): 2, 3
(B): 3, 4
(C): 6, 2
(D): 12, 18

176. In ultrasound, it is generally easier to visualize the appendix in adults than in children because the transducer has a high frequency and the distance to the appendix is short.
(A): True
(B): False

177. Ultrasound is useful for exploring abdominal masses in order to define which of the following?
(A): the consistency
(B): the organ affected
(C): potential complications.
(D): all of the above

178. On sonography, due to the Crohn' disease the inflamed bowel appears as a compressible or partially compressible tubular structure on longitudinal views and with a bull's-eye appearance on _____ views.
(A): transverse
(B): vertical
(C): sagittal
(D): oblique

179. If available, _____ should be used as an adjunct in assessing the renal pelvis and hilar vessels for a quick overview of kidney blood flow or to demonstrate the vascularity of renal or adrenal masses.
(A): gas
(B): contrast
(C): color Doppler
(D): all of the above

180. In _____ one or both kidneys are in an abnormal position when they fail to progress along their normal migratory path.
(A): horseshoe kidneys
(B): ectopic kidneys
(C): duplex kidney
(D): bilateral renal agenesis

181. Which of the following is the **most** common renal solid tumor of childhood?
(A): Nephroblastoma
(B): Adrenal cystic lesions
(C): Adrenal abscesses
(D): Adrenal hemorrhage

182. The ultrasound can determine which of the following features of the urinary tract in children?
(A): the size of the kidneys, any renal scarring, the regularity of the outlines and echogenicity
(B): localized or diffuse dilatation of the collecting system and renal thickness
(C): the diameter of the ureters in the lumbar and pelvic portions and bladder parameters
(D): all of the above

183. _____ is the **main** modality for diagnosis and follow-up in cases of renal trauma, parenchymal laceration and fracture, subcapsular hematoma, shattered kidney or avulsion from the vascular and pelvic pedicle.
(A): CT
(B): MRI
(C): Ultrasound
(D): Radiography

184. Polycystic ovary disease, also known as the Stein-Leventhal syndrome, is characterized clinically by which of the following?
(A): amenorrhea
(B): obesity
(C): hirsutism
(D): all of the above

185. The classical sonographic appearance of tubo-ovarian abscess is a tubular fluid-filled adnexal mass containing _____echoes representing purulent debris.
(A): low-level
(B): high-level
(C): very high-level
(D): none of the above

186. The ultrasound is useful in which of the following scrotal diseases in children?
(A): congenital anomalies and cases of acute scrotum
(B): scrotal tumors and trauma
(C): varicocele and systemic diseases involving the scrotum
(D): all of the above

187. During cervical ultrasound, child lies on his or her back in the supine position with the neck extended over a _____ cm thick pillow under the shoulders.
(A): 2 to 3

(B): 5 to 10
(C): 20 to 25
(D): 30 to 35

188. The chest ultrasound on children can be performed in which of the following position/s?
(A): supine
(B): prone
(C): standing
(D): all of the above depending on the clinical problem

189. Ultrasound is sensitive for detecting which of the following anomalies in the chest wall?
(A): abscesses
(B): hematoma and lipoma
(C): lymphangioma and hemangioma
(D): all of the above

190. Cranial _____ is the main screening method for imaging unstable, incubated, ventilated infants in a neonatal intensive care unit.
(A): ultrasound Doppler
(B): MRI
(C): CT
(D): NM

191. The spinal cord is examined by ultrasound in neonates and infants less than _____ of age with signs of spinal disease.
(A): 12 months
(B): 15 months
(C): 6 months
(D): 6 years

192. Ultrasound allows direct visualization of the cartilaginous components of the hip and makes it possible to determine the position of the femoral _____ and the depth of the acetabulum and to evaluate dynamic instability.
(A): shaft
(B): head
(C): thickness
(D): length

Chapter 6

193. Use of ultrasound for studying diseases of the musculoskeletal system is increasing because of improvements in the equipment, which allows visualization of small structures that were previously inaccessible.
(A): True
(B): False

194. An equipment with _____ ultrasound beams significantly reduces the anisotropy generated by oblique arrival of the beam on the tendon surface, which forms echo-poor areas in the interior.
(A): vertical
(B): oblique
(C): transverse
(D): all of the above

195. About 60% of alterations of the shoulder are due to lesions of the _____.
(A): clavicle
(B): scapula
(C): humerus
(D): rotator cuff

196. The musculotendinous structures of the elbow are made of which of the following group/s?
(A): anterior and posterior
(B): lateral
(C): medial
(D): all of the above

197. In cases of tenosynovitis, there may be some parietal thickening, fluid or increased flow in the synovial sheath on color Doppler.
(A): True
(B): False

198. The tendinopathy of the glutei and trochanteric bursitis that causes hip pain are not always readily diagnosed with ultrasound due to which of the following?
(A): the oblique path of the tendons
(B): patient characteristics
(C): obesity
(D): all of the above

199. About _____ of lesions in runners involve the calcaneal (Achilles) tendon.
(A): 9%
(B): 20%
(C): 40%
(D): 50%

200. On ultrasound examination, the calcaneus tendon has a _____ appearance in the transverse plane with its anterior concave and posterior convex faces distally rectified.
(A): circular
(B): rugged
(C): crescent
(D): irregular

201. Ultrasound is used mainly to study extra-articular ligaments in the diagnosis of which of the following?
(A): acute ruptures
(B): monitor treatment
(C): chronic lesions that result in instability of the joint
(D): all of the above

202. In post-trauma evaluation, ultrasound can be used for diagnosis to identify the muscle involved, grade the rupture or monitor the healing process, thus helping to predict the length of patient's rest.
(A): True
(B): False