LESSON ASSIGNMENT

LESSON 3
Topography of the Mouth and Tooth Structure.

LESSON ASSIGNMENT
Paragraphs 3-1 through 3-9.

LESSON OBJECTIVES
After completing this lesson, you should be able to:

3-1. Identify the two major divisions of the mouth.

3-2. Identify the structures of the oral vestibule.

3-3. Identify the structures of the oral cavity.

3-4. Identify the parts of the teeth and the tissues of the teeth.

3-5. Identify the alveolar process and its parts.

3-6. Identify the periodontal ligament and the gingiva.

SUGGESTION
After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.
LESSON 3
TOPOGRAPHY OF THE MOUTH AND TOOTH STRUCTURE

Section I. TOPOGRAPHY OF THE MOUTH

3-1. GENERAL

The mouth, which is the first subdivision of the digestive system, can be divided into two parts--the oral vestibule and the oral cavity. The oral vestibule is the space separating the lips and cheeks from the teeth and gums. The oral cavity is that part of the mouth which, in front, is bounded by the teeth and which, in back, opens to the throat. Topography of the mouth refers to the surface configuration of the mouth, that is, the figure, the contour, or the arrangement pattern of its parts.

3-2. ORAL VESTIBULE

The space between the front teeth and the lips forms the anterior part of the oral vestibule. The posterior part of the oral vestibule can be explored by clenching the teeth, pulling the lips apart, and pushing the index fingers back along the surface of the teeth, moving them as far up and down as possible. Figure 3-1 shows a cross-section of the mouth. One of the principal uses of the mouth is human speech. These specialized sounds are made by using the lips, the teeth, the bony ridge back of the upper teeth (the alveolar process), the hard and the soft palate, and the tongue. These features can be noted in the figure.

a. Mucobuccal Folds. The mucobuccal folds, which form the upper and lower boundaries of the vestibule, are important in the making of a denture. If the borders (edges) of a denture are too long in the mucobuccal fold area, the denture will not fit properly. It will cause inflammation and soreness of the tissues.

b. Labial Frena. Approximately in the midline of the mouth, there are sickle-shaped folds which connect the alveolar processes with the upper and lower lips and tend to restrict their movement. These folds may be examined by pulling the upper lip outward and upward and the lower lip outward and downward. These folds are called the upper and lower labial frena or frenula (singular--frenum or frenulum). Similar frena are found posteriorly, connecting the alveolar processes with the cheeks. They also must be considered in the making of a denture. If an inadequate groove is made in the denture to accommodate the frenum, then this delicate fold of tissue will not only be damaged by constant rubbing, but will also place a constant pull on the denture, which may be strong enough to dislodge it.
c. **Opening of the Parotid Gland.** The parotid gland, the largest of the salivary glands empties its contents (saliva) into the oral vestibule through an opening called Stensen's duct (which is another name for the parotid duct). See figure 2-17. The opening can be found opposite the crown of the maxillary second molar and is generally marked by a high elevation of mucous membrane, which is the parotid papilla.

d. **The Teeth.** When the mouth is open wide and the jaws are apart, the teeth can be seen to be arranged in arches with open ends directed backwards or posteriorly. The maxillary teeth are in the maxilla or upper jaw. See figure 3-2. The mandibular teeth are in the mandible or lower jaw. See figure 3-3. If an imaginary vertical line (the midline) is drawn between the central incisors and extended backward, it will cut each arch into two halves, one the mirror image of the other. Each of these parts is termed a quadrant. Thus, there is a maxillary right and a maxillary left quadrant and a mandibular right and a mandibular left quadrant. There are eight permanent teeth in each quadrant. Viewing each quadrant from the midline posteriorly, the two incisors (the central and lateral), one cuspid, two bicuspid (premolars), and three molars make up the arrangement of the teeth. The incisors and cuspid are known as the anterior teeth, and the bicuspid and molars as the posterior teeth.
Figure 3-2. Maxillary teeth.

Figure 3-3. Mandibular teeth.
e. **Tooth Characteristics.** An individual tooth may be identified by its position; for example, maxillary left central incisor. It may also be identified by its anatomical form since each tooth has its own particular characteristics which set it apart from any other. Some teeth, for instance, have cutting or incisal edges (example: incisors), and others have cusps (cone-like projections of the crowns). Normally when the jaws are closed, the cusps interdigitate (interlock). The teeth are then said to be "in occlusion."

f. **A Small Space.** With the teeth in occlusion, there is a space distal to (posterior to) the most posterior molar. This space connects the vestibule with the oral cavity. It is useful to note that when a person's jaws are wired together, as with a fractured jaw, that liquefied food can be provided through this natural opening.

3-3. **MUCOUS MEMBRANE**

The mouth, nose, sinuses, eyelids, throat, and digestive tract are lined with mucous membrane. The mucous membrane lining the oral cavity is called oral mucosa. It covers the inside of the cheeks and lips and the bony process (alveolar process) in which the teeth are embedded. This covering of the alveolar process (which surrounds the necks of the teeth) is called the gingiva or gum tissue. Oral mucosa serves as a protective covering for the soft tissues of the mouth, much like skin protects outer surfaces of the body. Mucous membrane is a tissue similar in composition to the skin. It differs from skin mainly in having many mucous glands which bathe its surface. It is also softer and not as tough as skin. Normally, mucous membrane has a pink color. Healthy gingiva is pale coral pink and firm. In persons with darker skin, the gingiva may have dark pigmentation as well. When diseased, the mucous membrane may be bright red, indicating certain vitamin deficiencies, or it may be very pale pink, indicating anemia. The color of oral mucosa can aid in disease diagnosis.

3-4. **THE ORAL CAVITY**

The oral cavity is bounded in front (anteriorly) and on the sides (laterally) by the gingival and lingual surfaces of the teeth. It opens posteriorly into the pharynx, which is a funnel-shaped space joining the nose and mouth with the passages (trachea and esophagus), leading to the lungs and stomach.

a. **Roof of the Mouth.** The roof of the mouth is shaped like a vault (arched). It consists of the hard palate, anteriorly, and the soft palate, posteriorly, which together are called the palate. The hard palate is the hard part of the roof of the mouth, which makes up about two-thirds of the palatal area. It is covered with mucous membrane, which is closely adherent to the inferior surface of the maxilla. The maxillary bone gives the palate its vaulted form. The soft palate, the posterior one-third, is continuous with the hard palate. It has no bony foundation and consists of soft tissue, chiefly muscles, lined with mucous membrane. Its posterior border hangs free and has an arched shape. The soft palate is elevated during swallowing to completely separate the oral and nasal cavity.
(1) **Rugae.** The mucous membrane in the roof of the mouth forms ridges (or corrugations) called rugae. Rugae are elevated folds or wrinkles of fibrous soft tissue situated in the hard palate, just behind the maxillary anterior teeth. The rugae aid in the formation of speech sounds and also serve as secondary stress-bearing areas for dentures.

(2) **Maxillary tuberosity.** The maxillary alveolar ridge ends in a rounded prominence distal to the last tooth on each side. This prominence is called the maxillary tuberosity. It plays a part in the retention and stability of maxillary dentures.

(3) **Hamular notch.** Just distal to the maxillary tuberosity, in the posterior palate where the maxilla and sphenoid bone unite, is a notch called the hamular notch. The posterior border of a full upper denture is usually designed to fit into this area.

(4) **Uvula.** Hanging from the middle or highest point of the soft palate is the uvula (a fleshy and somewhat cone-shaped mass of tissue). See figure 3-1. The uvula plays a part in swallowing; in combination with certain muscles of the neck, it closes the passage between the nasal cavity and the throat. In this way, food is kept from entering the nasal cavity and, at the same time, air is prevented from being swallowed. The uvula also assists in speaking. It vibrates and gives resonance to the voice.

(5) **Tonsils.** On the concave walls of the soft palate are small masses of tissue. These are the tonsils. When inflamed, they are enlarged and reddened, a condition called tonsillitis.

b. **Floor of the Mouth.** The floor of the mouth is formed by the mylohyoid muscle.

(1) **Lingual frenum.** By pulling the tip of the tongue up and back, one can see a fold of tissue which connects the under surface of the tongue with the floor of the mouth. This is called the lingual frenum.

(2) **Openings of submandibular salivary glands.** These openings are on the floor of the mouth toward the anterior extremity of the lingual frenum. Two slight elevations can be seen, one on each side of the lingual frenum.

(3) **Openings of sublingual salivary glands.** These glands lie directly beneath the anterior part of the floor of the mouth. They open directly onto the floor of the mouth through many tiny indistinct openings.

c. **Tongue.** The tongue occupies most of the space within the mouth when it is closed. The tip of the tongue (the thin anterior part) is freely movable. The body is connected to the sides of the mandible and is also movable, but to a more limited extent. The posterior part has a broad muscular attachment both to the hyoid bone and to the mandible. The tongue is the principal organ for the sense of taste and the production of speech. It aids in masticating (chewing, grinding) and swallowing food.
Section II. TOOTH STRUCTURE

3-5. PARTS OF TEETH

a. Crown. Each tooth is divided into the crown and the root (or roots) (see figure 3-4). The crown is that part of the tooth which is covered by enamel. The term clinical crown is often used to refer to that part of the tooth which is visible in the mouth. It seldom conforms exactly to that part covered by enamel. In this subcourse, the term crown will refer to the anatomic crown or that portion of the tooth actually covered by enamel. That portion of the tooth where the crown and the root join is commonly called the cervix (neck) of the tooth. The junction between the enamel of the crown and cementum of the root is called the cementoenamel junction (CEJ) or cervical line.

b. Root. The root (or roots) is that part of the tooth which is covered by cementum. It is mostly embedded in the bony process of the jaw. The tip (or end) of the root is called the apex. A small opening which passes though the apex is called the apical foramen. Through this opening, the blood vessels and nerves pass to and from the dental pulp. Often, there are additional small openings near the root apex called supplementary foramina.

Figure 3-4. The tooth and supporting structures.
c. **Gingival Tissue and the Crown.** In young persons, part of the enamel of a tooth is normally covered by gingival (gum) tissue. Only the clinical crown is exposed. On older persons, it is common for the tooth's enamel to be completely exposed above the gingiva (the anatomical crown) and even to have part of the root surface showing.

3-6. **TISSUES OF THE TEETH**

a. **Enamel.** Enamel is the calcified substance that covers the entire crown of the tooth. It consists of approximately 96 percent inorganic (nonliving) material and it is the hardest tissue in the human body. Enamel is thickest at the top of the teeth (at the cusps), thinning to a knife edge thickness where the crown and root join (the cervical line). Enamel is formed only once and cannot regenerate or repair itself. Thus, when enamel is destroyed by decay, operative dentistry is required to reconstruct the tooth. Enamel has no nerve fibers and cannot register sensations. It is strong and hard. It has the ability to withstand the stress of mastication and does not wear away easily. It is thick in areas that contact opposing teeth. Enamel serves to protect the underlying softer dentin. The color of a tooth is derived from the enamel, which is usually shaded from light yellow to white.

b. **Dentin.** The bulk of the tooth is made up of a calcified tissue called dentin. Dentin is a light yellow substance that is softer than enamel but harder than bone. It consists of approximately 65 percent inorganic matter. It is slightly elastic and compressible. Dentin is found inside the crown under the enamel. Dentin is also found inside the root of the tooth under the cementum. The inner surface of the dentin forms a hard-walled cavity that contains and protects the pulp. Unlike enamel, dentin continues to form throughout the life of the tooth.

c. **Cementum.** Cementum forms a protective layer over the root portion of the dentin. It consists of 50 percent inorganic material and is a bonelike substance, although it is not as hard as bone. The cementum joins the enamel at the cervix (neck) of the tooth. The point at which they join is called the cementoenamel junction. The main function of cementum is to anchor the tooth to the socket by providing attachment for the principal fibers of the periodontal ligament. Cementum is formed continuously throughout the life of the tooth.

d. **Pulp.** The pulp is the soft tissue that fills the pulp cavity. This tissue contains numerous blood vessels and nerves which enter the tooth through the apical foramen. The pulp is enclosed within the hard, unyielding dentin walls of the pulp cavity. The pulp cavity has two parts: the pulp chamber and the root canal (or pulp canal). The pulp chamber is located inside the crown. The root canal (or pulp canal) is located inside the root. An important function of the pulp is the formation of dentin. Pulp responds to external stimuli, providing sensation to the tooth. Any inflammatory swelling of the pulp tissue will compress the blood vessels against the walls. This condition can lead to death of the pulp tissue.
3-7. ALVEOLAR PROCESS

The alveolar process is that part of the mandible and maxilla which supports the teeth. It is the bone that forms the tooth sockets and surrounds the teeth. See figure 3-4. It fulfills the functional demand of supporting the teeth, but it partially disappears when the teeth are lost and the functional demand ceases to exist. The structure of the alveolar process is basically the same as that of other bone tissue. Because of variations in its structural arrangement, however, the alveolar process may be divided into three parts for descriptive purposes. These parts are called the cortical plate, the spongiosa, and the lamina dura.

a. The Cortical Plate. The cortical plate is the hard, dense, outer surface of the bone. The bone is the alveolar process. It varies in thickness and is generally thicker on the tooth surfaces facing the tongue and the palate.

b. The Spongiosa. The spongiosa is a type of bone which is softer and more sponge-like than ordinary bone. It occupies the space between the inner and outer cortical plates. The spongiosa is also called cancellous bone because of the lattice-like structure of the bony tissue. This structure makes up the central mass of the alveolar process.

c. The Lamina Dura. The lamina dura is a thin layer of cortical bone that lines the tooth socket. It is connected to the tooth by the periodontal ligament. The lamina dura has many sieve-like openings which pierce it and provide passage for blood vessels and nerves that communicate with the periodontal ligament.

3-8. PERIODONTAL LIGAMENT

The periodontal ligament is a thin, fibrous ligament connecting a tooth to the lamina dura of the bony socket. Normally, teeth do not contact bone directly. A tooth is suspended in its socket by the fibers of the ligament. Because of this arrangement, each tooth is capable of limited individual movement. The fibers act as shock absorbers to cushion the force of chewing impacts. The periodontal ligament also supplies nutrition to the alveolar process. It supports and attaches the gingiva. It registers sensations of heat, cold, pressure, pain, and touch. In dental radiographs, the ligament appears as a thin, dark line around the root. The lamina dura, in contrast, appears as a thin, white line around the ligament.
3-9. GINGIVA

The gingiva is the soft tissue that covers the alveolar process and surrounds the neck of the teeth. The gingiva consists of an outer layer of epithelium and an inner layer of connective tissue. The gingiva is described as being free or attached. The free gingiva is that portion of the gingiva surrounding the neck of the tooth just above the cervix, not directly attached to the tooth, and forming the soft tissue wall of the gingival sulcus. The gingival sulcus is the V-shaped space between the free gingiva and the tooth. A healthy gingival sulcus extends to a depth of approximately 2 mm, at which point the gingiva is attached to the tooth by the epithelial attachment. See figure 3-5. The interdental papilla is the portion of the gingiva that fills the interproximal space between two adjacent teeth. A healthy gingiva is pink, firm, and resilient. Healthy gingiva is pale, coral pink and firm. When inflamed, the gingiva may become sore and swollen, and it may bleed.

Figure 3-5. Close-up view of the gingiva and tooth structures.
EXERCISES, LESSON 3

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the question, or by completing the incomplete statement, or by writing the answer in the space provided at the end of the question.

After you have completed all the exercises, turn to "Solutions to Exercises" at the end of the lesson, and check your answers. For each exercise answered incorrectly, reread the material referenced after the answer.

1. What is the meaning of topography of the mouth?
   a. Anatomy of the mouth.
   b. Pattern of arrangement of parts of the mouth.
   c. Surface configuration of the mouth.
   d. Both b and c above.

2. If a person clenches his teeth and inserts the index finger into the mouth, moving the finger upwards and downwards as far as the tissue of the cheeks and lips will comfortably permit, the person will be exploring the:
   a. Mouth.
   b. The vestibule of the mouth.
   c. The gingiva.
   d. The gums.

3. The mouth is the first subdivision of the digestive system and has two parts, one of which is the oral vestibule. The vestibule is the space that:
   a. Includes the tongue and is lingual to the teeth.
   b. Is posterior to the teeth.
   c. Lies between the lips, cheeks, and teeth.
   d. Includes the palate and the pharynx.
4. The sickle-shaped folds which connect the alveolar processes with the upper or lower lips comprise the:
   a. Labial frena.
   b. Lingual frenum.
   c. Mucobuccal folds.

5. The tissues which form the upper and lower boundaries of the oral vestibule comprise the:
   a. Labial frena.
   b. Lingual frenum.
   c. Mucobuccal folds.

6. Which salivary gland has an opening that is easily noted because of a high elevation of mucous membrane?
   a. Submandibular.
   b. Parotid.
   c. Sublingual.

7. What two areas of the vestibule of the mouth are of great importance in denture construction?
   a. Gingiva of the maxilla and the mandible.
   b. Openings of the parotid glands.
   c. Spaces most distal to the posterior molars.
   d. Mucobuccal folds and labial frena.
8. Normally each of the four quadrants of the maxillary and mandibular arches contains:
   a. 2 molars, 3 bicuspids, 2 cuspids, and 2 incisors.
   b. 2 molars, 2 bicuspids, 2 cuspids, and 2 incisors.
   c. 3 molars, 2 bicuspids, 1 cuspid, and 2 incisors.
   d. 3 molars, 1 premolar, 2 cuspids, and 3 incisors.

9. Incisors and cuspids are known as:
   a. Anterior teeth.
   b. Posterior teeth.

10. Bicuspids and molars are known as:
    a. Anterior teeth.
    b. Posterior teeth.

11. Cutting edges are found on:
    a. Cuspids.
    b. Bicuspids.
    c. Molars.
    d. Incisors.

12. Conelike projections of the crowns are:
    a. Incisal edges.
    b. Cusps.

13. When cusps interdigitate, teeth are ________________________
14. How would you orally feed a patient whose jaws are wired together for the purpose of splinting a fractured jaw?

a. By introducing liquefied food through the hamular notch.

b. By introducing liquefied food through the space between the anterior teeth.

c. By introducing liquefied food through a space distal to the most posterior molar.

d. By introducing liquefied food through the nostrils.

15. Oral mucosa is a tissue similar in composition to the skin, but it differs mainly in what one respect?

a. There are mucous glands which bathe its surface.

b. It resists infection better than skin.

c. It is tougher than skin.

d. It has less resistance to tumor development than skin.

16. Mucous membrane which covers the alveolar process is called:

a. Mucous glands.

b. Labial frena.

c. Mucobuccal folds.

d. Gingiva.

17. The color of normal mucous membrane is:

a. White.

b. Pale pink.

c. Pink.

d. Bright red.
18. Healthy gingiva is firm with a ________________ color.
   a. White.
   b. Bright red.
   c. Pink.
   d. Pale coral pink.

19. Mucous membrane lines the oral cavity. A bright red mucous membrane may indicate:
   a. A normal condition.
   b. A vitamin deficiency.
   c. Anemia.

20. About what is the relative size of the hard palate as compared to the soft palate?
   a. The same size.
   b. Three times as large.
   c. Twice as large.
   d. Relative sizes vary greatly in individuals.

21. Which of the following are most closely associated with the roof of the mouth?
   a. Palate, hamular notch, and rugae.
   b. Palate, lingual frenum, and rugae.
   c. Palate, submandibular salivary glands, and uvula.
   d. Palate, maxillary tuberosity, and sublingual salivary glands.
   e. Palate, labial frena, and mucobuccal folds.
22. All of the following, EXCEPT the _________________, are parts of the roof of the mouth.

a. Tonsils.
b. Uvula.
c. Maxillary tuberosity.
d. Rugae.
e. Lingual frenum.

23. According to the text, where is the uvula located?

a. On the maxillary tuberosity.
b. At the junction of the maxilla and the sphenoid bone.
c. Between the pharynx and the nasal cavity.
d. At the highest point of the soft palate.

24. When a person swallows, what is (are) the function(s) of the uvula?

a. Keeps food from entering the nasal cavity.
b. Prevents air from being swallowed.
c. Stabilizes dentures.
d. a, b, and c above.
e. a and b above.
25. Which of the following plays a part in the retention and stability of maxillary dentures?
   a. Rugae.
   b. Mucobuccal folds.
   c. Maxillary tuberosity.
   d. Hamular notch.

26. Small masses of tissue on the concave walls of the soft palate are the:
   a. Uvula.
   b. Tonsils.
   c. Rugae.
   d. Gingiva.
   e. Frena.

27. The rugae are elevated folds of mucous membrane, which are part of the:
   a. Hard palate.
   b. Soft palate.

28. Functions of the tongue are related to all of the following EXCEPT:
   a. Mastication of food.
   b. Swallowing of food.
   c. Taste.
   d. Breathing.
   e. Speech.
29. The part of the tooth covered by enamel is the:
   b. Root.

30. The part of the tooth covered by cementum is the:
   b. Root.

31. In older persons, the _____________ is more likely to be completely exposed.
   a. Anatomic crown.
   b. Clinical crown.

32. Enamel has a knife edge thickness at the:
   a. Lamina dura.
   b. Dentin.
   c. Cusp.
   d. Cervical line.

33. Dentin has ______ percent inorganic matter.
   a. 96.
   b. 50.
   c. 65.
34. Dentin is situated under the:
   a. Enamel.
   b. Cementum.
   c. Cervix.
   d. Both "a" and "b" above.

35. Which of the following forms a hard-walled cavity that contains the pulp? The:
   a. Cementum.
   b. Enamel.
   c. Dentin.

36. Which of the following anchors the tooth to the socket? The:
   a. Cementum.
   b. Dentin.
   c. Enamel.
   d. Pulp.

37. List the two parts of the pulp cavity.
   a. The ________________________________.
   b. The ________________________________.
38. The alveolar process consists of:
   a. A cortical plate.
   b. Spongy bone.
   c. Cancellous bone.
   d. All of the above.

39. The alveolar process:
   a. Is bony.
   b. Supports the teeth.
   c. Partially disappears when teeth are lost.
   d. Is a connective tissue.
   e. Items a, b, and c above.

40. Match the term related to the alveolar process in Column II to the description or term in Column I. Items in Column II may be used more than once. Write your answer in the space provided.

   COLUMN I                           COLUMN II
   ___ (1) Cancellous bone.           a. Cortical plate.
   ___ (2) Hard, dense outer surface. b. Spongiosa.
   ___ (3) Bone with sieve-like openings.  
   ___ (4) Thinner on tooth surfaces away from the tongue.  c. Lamina dura.
   ___ (5) Sponge-like bone.           
   ___ (6) Connected to the teeth by the periodontal ligament.
41. The bone that lines each tooth socket is the:
   a. Periodontal ligament.
   b. Lamina dura.
   c. Cortical plate.
   d. Spongiosa.

42. The structure that makes up the central mass of the alveolar process is the:
   a. Periodontal ligament.
   b. Cortical plate.
   c. Rugae.
   d. Lamina dura.
   e. Spongiosa.

43. The periodontal ligament:
   a. Is fibrous.
   b. Supports the teeth.
   c. Is bony.
   d. Both a and b.

44. In dental radiographs, the periodontal ligament appears as a thin _________ line around the root of a tooth.
   a. White.
   b. Dark.
45. Which one of the following is just above the cervix and forms the soft tissue wall of the gingival sulcus?
   a. Free gingiva.
   b. Attached gingiva.
   c. Interdental papilla.

46. The normal gingival sulcus extends to a depth of ________________.

47. The portion of the gingiva that fills the interproximal space between two adjacent teeth is called the:
   a. Free gingiva.
   b. Gingival sulcus.
   c. Interdental papilla.
   d. Epithelial attachment.

Check Your Answers on Next Page
SOLUTIONS TO EXERCISES, LESSON 3

1. d (para 3-1)
2. b (para 3-2)
3. c (para 3-2)
4. a (para 3-2b)
5. c (para 3-2a)
6. b (para 3-2c)
7. d (para 3-2a, b)
8. c (para 3-2d)
9. a (para 3-2d)
10. b (para 3-2d)
11. d (para 3-2e)
12. b (para 3-2e)
13. in occlusion (para 3-2e)
14. c (para 3-2f)
15. a (para 3-3)
16. d (para 3-3)
17. c (para 3-3)
18. d (para 3-3)
19. b (para 3-3)
20. c (para 3-4a)
21. a (para 3-4a)
22. e (para 3-4a)
23. d (para 3-4a(4))
24. e (para 3-4a(4))
25. c (para 3-4a(2))
26. b (para 3-4a(5))
27. a (para 3-4a(1))
28. d (para 3-4c)
29. a (para 3-5a)
30. b (para 3-5b)
31. a (para 3-5c)
32. d (para 3-6a)
33. c (para 3-6b)
34. d (para 3-6b)
35. c (para 3-6b)
36. a (para 3-6c)
37. pulp chamber.
   root canal or pulp canal. (para 3-6d)
38. d (para 3-7)
39. e (para 3-7)
40. (1) b
   (2) a
   (3) c
   (4) a
   (5) b
   (6) c (para 3-7)
41. b (para 3-7c)
42. e (para 3-7b)
43.  d (para 3-8)
44.  b (para 3-8)
45.  a (para 3-9)
46.  2 mm. (para 3-9)
47.  c (para 3-9)

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