

Unit 4

The Digestive System

The mammalian body has two major cavities, the abdominal and thoracic, which contain all the internal organs exclusive of the brain. These two cavities are divided by a sheet of muscle, the diaphragm. Mammals are the only vertebrates with a muscular division between thorax and abdomen.

To examine the viscera, we must first open the two body cavities. Begin by opening the abdominal cavity. To do this, locate the posterior end of the sternum. Use forceps to lift the abdominal muscle just posterior to the sternum and cut through the muscle and into the abdominal cavity. Insert the blunt tip of the scissors into the cut. Make an incision to one side of the midventral line to the posterior end of the abdominal cavity. (See Figure 30.) Beginning at the anterior end of the incision, make lateral cuts following the posterior margin of the ribs. Also make lateral cuts through the body wall at the posterior end of the abdominal cavity. Male cats have cords running from the posterior abdomen along the surface of the thigh muscles to the scrotum. Leave these undamaged. You can now fold back the lateral body wall and either pin it out of the way or trim it off.

If you find a dark brown substance coating the abdominal viscera, blood has leaked into the abdomen and must be flushed out. Rinse the abdomen carefully in water for several minutes until the viscera are clean.

Open the thoracic cavity as follows: Use heavy scissors or bone-cutting forceps to cut through the ribs about 1 cm to either side of the sternum. When all the ribs are cut, lift the sternum, and hold it in place while cutting the underlying membranes until the sternum comes free. Either cut the ribs along the sides of the chest or break them to expose the thoracic viscera.

We are now ready to begin examination of the digestive system. Use bone-cutting forceps to cut the bones at the corners of the jaw until a clear view can be had of the interior of the mouth (Fig. 31). Digestion begins here with the cutting of food into chunks that can be swallowed. The three major salivary glands, the *sublingual*, *sub-*

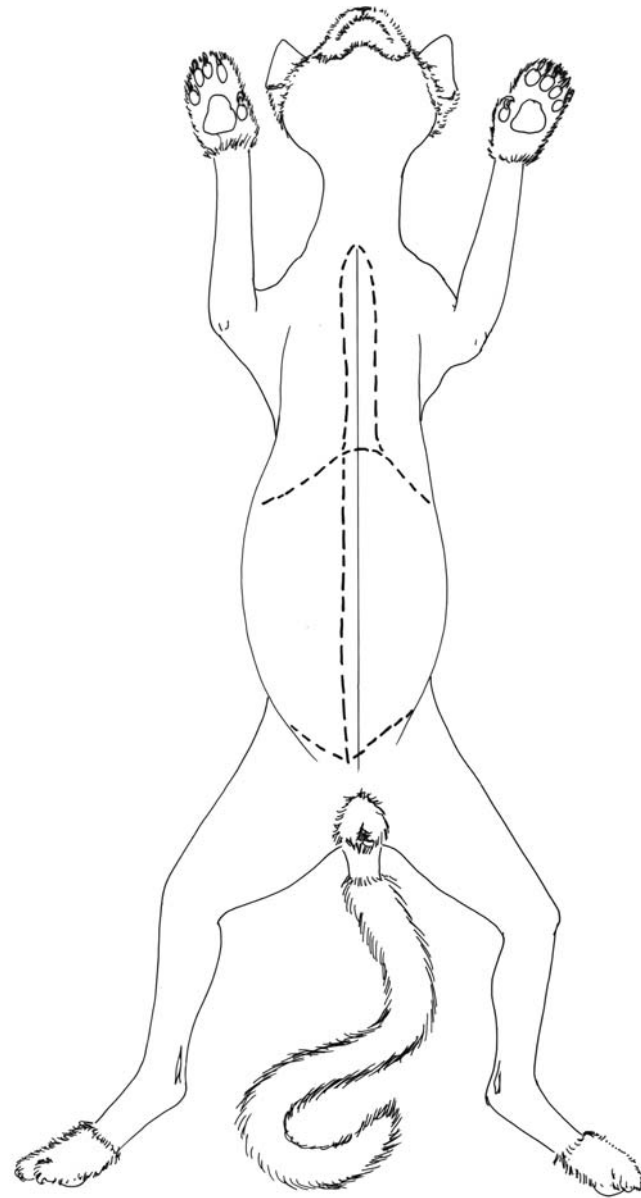


Figure 30. Diagram for opening the body cavity.

maxillary, and *parotid* were exposed when dissecting the neck muscles. Review these at this time. There are two other salivary glands, the *molar* and *infraorbital*. As mentioned earlier, these are small and difficult to find. The molar gland is located in the corner of the mouth just under the skin and is somewhat diffuse. Do not

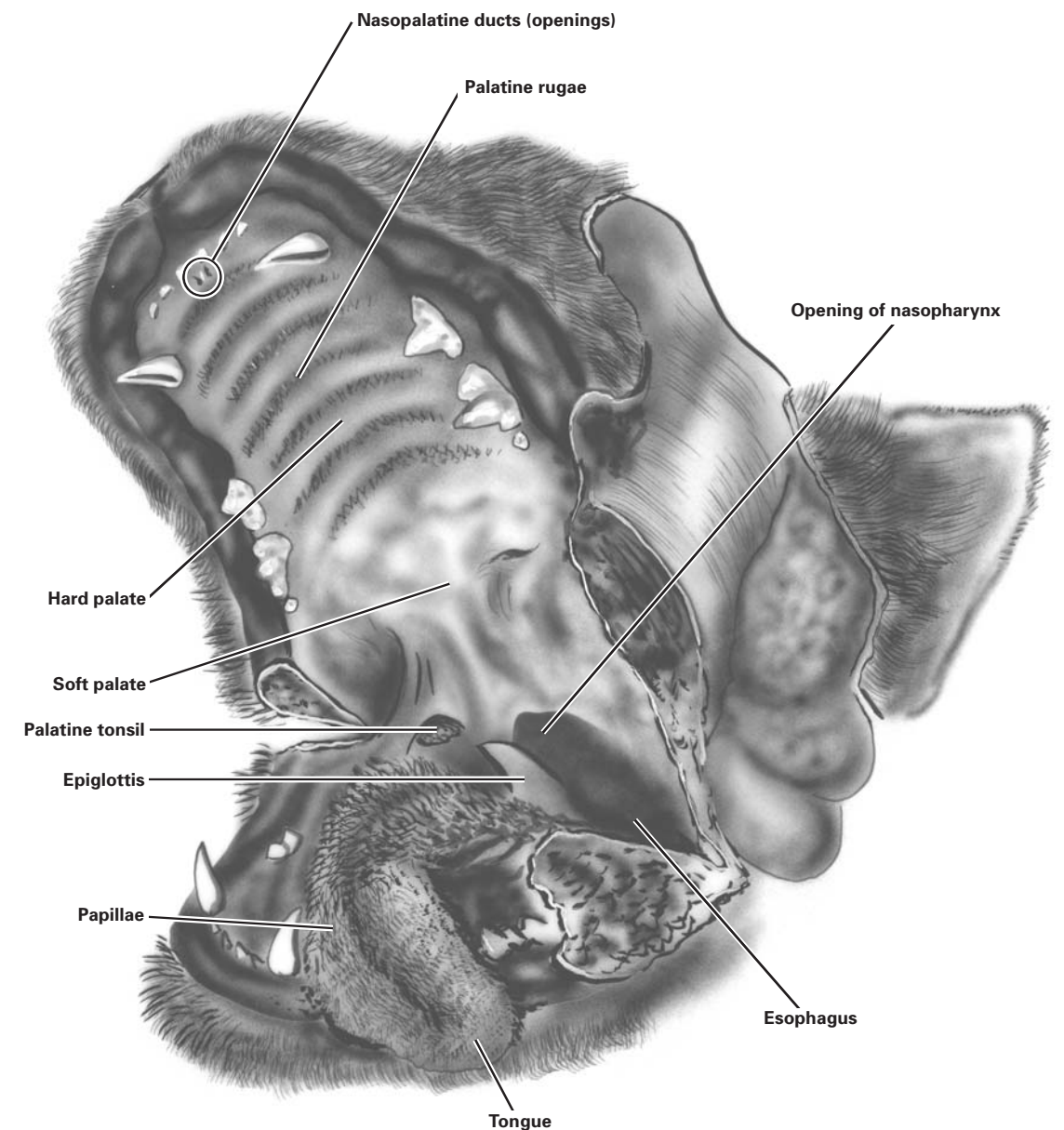


Figure 31. Dissection of the oral cavity.

look for the infraorbital gland as it is located in the orbit and you would have to remove an eye. All the salivary glands empty by ducts into the mouth, where their secretions (*saliva*) lubricate the food. Saliva also contains enzymes that begin chemical digestion of the food. The rough *papillae* (of which there are several types) of the tongue rasp meat off bones. The ridges help grip the food. Just posterior to the incisors are the openings of the two *nasopalatine ducts*. These communicate with the nasal cavity through the incisive foramina. The palate or roof of the mouth is divided into two parts, the *hard palate*, which is underlain by bone (compare Figs. 4 and 31), and the *soft palate* at the back of the mouth,

which is not underlain by bone. Near the corners of the mouth are the *palatine tonsils*, parts of the lymphatic system. As food is swallowed, the *epiglottis* is depressed, closing the *glottis*, the entrance into the larynx. This prevents food from entering the respiratory tract.

The anterior opening of the *esophagus* can be seen, but most of this tube is covered and will be visible only later in your dissection. Now turn your attention to the abdominal digestive organs. Covering these organs is a membrane, the *greater omentum*. Carefully remove the omentum and locate the organs and features shown in Figure 32. The urinary bladder and spleen are not digestive organs. The *spleen* is an important part