ORGAN SYSTEMS

DIGESTIVE & EXCRETORY





(Slide1) Step 1: Salivary Structures

- Remove the skin, fat and connective fascia to view the salivary glands and ducts.
- The <u>submaxillary salivary gland</u> is just behind the masseter muscle and pretty easy to find. It looks kind of like a little peanut.
- The parotid salivary gland is a little tougher to locate. It is just below the ear and quite delicate. One way to find it is to locate the parotid duct (don't confuse it with the dorsal branch of the facial nerve, which is just above it) and follow it back to the "oatmeally" stuff. That is the parotid gland!

Facial nerve (dorsal branch)

← (ear)

Parotid Gland

Facial nerve (ventral branch)

Parotid duct

Submaxillary Gland

Submaxillary Duct



(Slide4)

Parotid duct

Submaxillary

Facial nerve (ventral branch)

Submaxillary Duct

(Slide5)

Step 2: Oral Cavity

• This part can be a bit unpleasant. Since the pig's jaw will not open far enough, we will need to cut the mandibular ramus like so:





BE CAREFUL OF THOSE LITTLE TEETH!!!

(Slide6)

Step 2 Continued

• When the jaw is cut sufficiently, you will be able to view several structures, including:

Hard & Soft Palates

Glottis – the opening to the esophagus
Epiglottis – the little flap that covers the trachea during swallowing

(Slide7)

Oral Cavity

The jaw is opened wide enough so that the glottis and epiglottis are exposed. The epiglottis projects up through the soft palate into a region called the nasopharynx. The hard palate and soft palate separate the nasal and oral cavities. When breathing, air passes through the nasal passages to the pharynx. The pharynx is the space in the posterior portion of the mouth that both food and air pass through. From the pharynx, it passes through the glottis to the trachea.



(Slide8)

Step 3: Esophagus

- Now you will locate the esophagus through the ventral side of the neck.
- Use the back of your scalpel handle to push the glands and muscles away from the midline of the throat. The first thing you will se is the larynx (voice box). Follow this down to where it becomes the trachea. You will have to go all the way to the superior end of the sternum to find the trachea.
- Move things around a little so you can see behind the trachea. The other (likely smaller) tube you see will be the esophagus. Good job!

(Slide9)

ESOPHAGUS



(Slide10)

Step 4: Abdominal Cavity (Lower GI)

 Use a scissors to make the incisions shown on the next slide. Be careful to STAY INFERIOR TO THE DIAPHRAGM. You will likely cut through a few false ribs. Your finished incisions should make a pair of cupboard doors. Kinda morbid, but that's what it is.

• Refer to the next 2 slides to see how to do this.

(Slide11) Opening the Abdominal Cavity

3.

2.

4.

3

2.

4

- 1. From chin to top of sternum.
- 2. Around umbilical cord.
- 3. Inferior to diaphragm.



(Slide12)



(Slide13)

Slides 15 & 16 provide an overall look at the lower gastrointestinal (GI) tract. Pay special attention to the **spleen** and the **pancreas**.

*The <u>spleen</u> wraps around the left side of the stomach and must be carefully cut away from the stomach. *See slide 17 for an example.*

**The pancreas is a oatmeally-looking mass behind of and slightly below the stomach. It can be hard to notice and easy to accidentally destroy! (Slide14)

Be sure to get these pictures before you go cutting anything out:

- Liver
- Gall Bladder & Common Bile Duct
- Pancreas
- Stomach
- Small Intestine
- Large Intestine



. . .



(Slide17)



Spleen



(Slide18)

Step 5: Stomach Removal

 First of all, make sure that you got the <u>Common Bile Duct</u> picture before you do any cutting. (See slide 19 for this) (Slide19)

Gall Bladder -

Bile Duct <

Duodenum-



(Slide20)

Step 5: Stomach Removal (continued)

- The goal here is to remove the stomach by cutting the esophagus and beginning of the duodenum. See slides 21 & 22.
- You should leave the cardioesophageal and pyloric sphincter muscles attached to the stomach (*Slide 21*).
- Cut the pyloric end of the stomach just before the common bile duct (Slide 22).

stomach eso (Slide21) cardiac sphincter and region

pyloric sphincter and region

l inte

gus

(Slide22)

Cut the pyloric end here....and the cardioesophageal end here.





(Slide23) Step 6: External Stomach Labeling

• Label the important structures on the outside of the stomach:



(Slide24) Step 7: Internal Stomach Labeling

• Label the important structures on the inside of the stomach:



(Slide25)

Step 8: Small Intestine

It is now necessary to unravel the small intestine a bit. Before you start doing this though, let's get a good picture of the <u>mesentery</u> which holds the small intestine together and absorbs the nutrients into the bloodstream:



^(slide26) First part of the S.I. = **Duodenum**



(Pyloric sphincter muscle)

Duodenum

(Slide27)

Second & Third part of the S.I. = Jejunum & Ileum

Ilèum

Colon

Jejunum

Beginning of large intestine



(Slide28)

You can also cut out a small piece of the Small Intestine and view it under a microscope to see the tiny <u>villi</u>.



(Slide29)

Step 9: Large Intestine

- The large intestine of a pig is not shaped like our with the ascending, transverse and descending colon sections but rather in one twisted lump.
- The first part to find is the <u>caecum</u> which is analogous to our appendix. Locate it by finding where the small and large intestine meet. It will appear as a dead-end pouch. (see slides 30 & 31)

(Slide30)

Cecum









(Slide32)

The <u>rectum</u> and the <u>anus</u> are the final sections of the large intestine.







(Slide33)

Step 10: Excretory System

 In this system you will concentrate on the <u>kidneys</u> and their associated structures. The figures on *Slides 34-38* will help guide you in finding these structures:

Kidneys Ureters Renal Artery & Vein Urinary Bladder Renal Cortex Renal Pyramid Calyces (Calyx) Renal Pelvis

(Slide34) Excretory System - MALE



(Slide35) Excretory System - FEMALE



(Slide36)

Your pig's kidneys will be covered in a layer of connective tissue and look like this:



(Slide37)

But you will clean it up so it looks like this:

Now isn't that prettier?



(Slide38)

On this picture, we can see all of the important structures.



(Slide39)

Step 11: Kidneys

 Now we have some structures on the outside and inside of the kidneys to find. Here is what the external view of the removed kidney should look like:



(Slide40)

Internal Structure of the Kidney



Get yer piggies and get started!!!

