

Fetal Pig Dissection Day 5

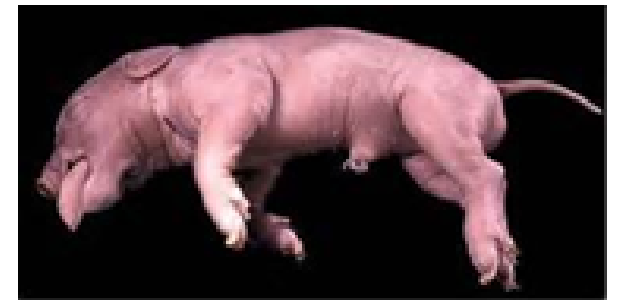
The Urogenital System



Objectives:

1. Identify and describe the function of the excretory system of the fetal pig, noting differences between the sexes and noting structures shared with the reproductive system.
2. Identify and describe the function of the reproductive systems of male and female fetal pigs and trace the pathway of sperm and egg from their origin out of the body.

Materials Needed: Ready.....go!



Dissecting Tools
Dissecting Tray

Fetal Pig (Previously Tied Off)

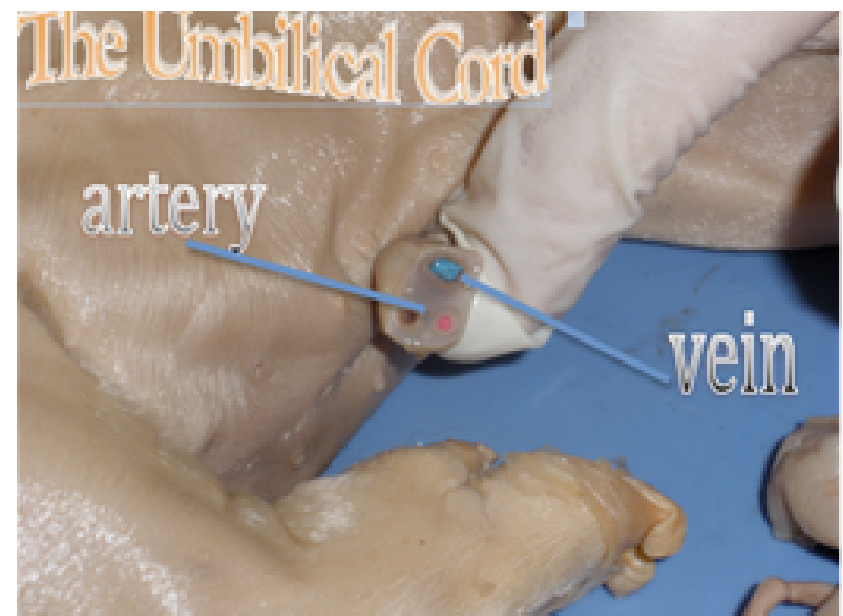
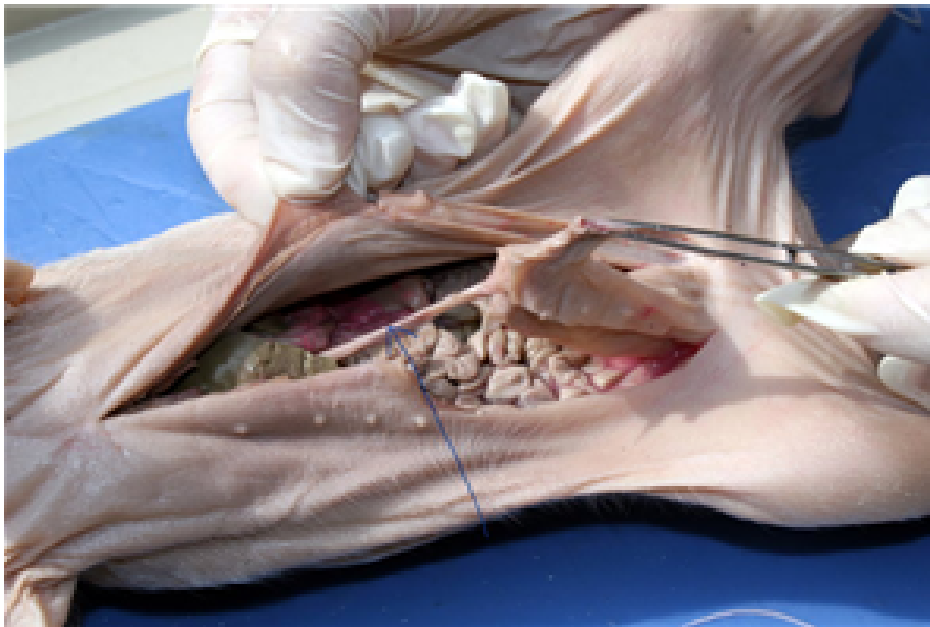
Gloves (If Wanted)

Lab Handout Day 5

Pen / Pencil

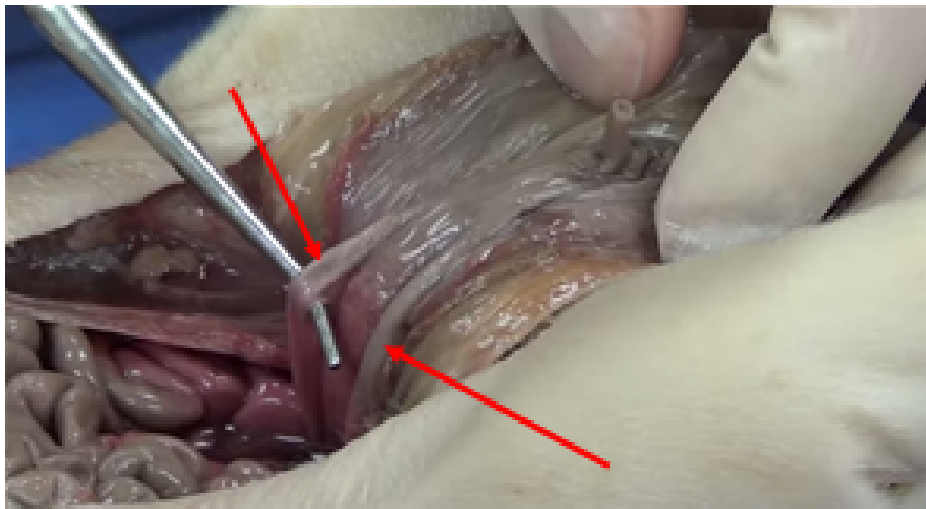


Remember the umbilical vein that we had to cut to separate the flap of skin from the pig itself. This vein will connect with the vena cava. The umbilical vein comes from the placenta carrying oxygen rich blood to the fetus. (Normally veins carry oxygen poor blood but think of the umbilical cord as the connection to the mother's blood supply.)



Pull back the flap of skin that you cut around the umbilicus and look at the underside.

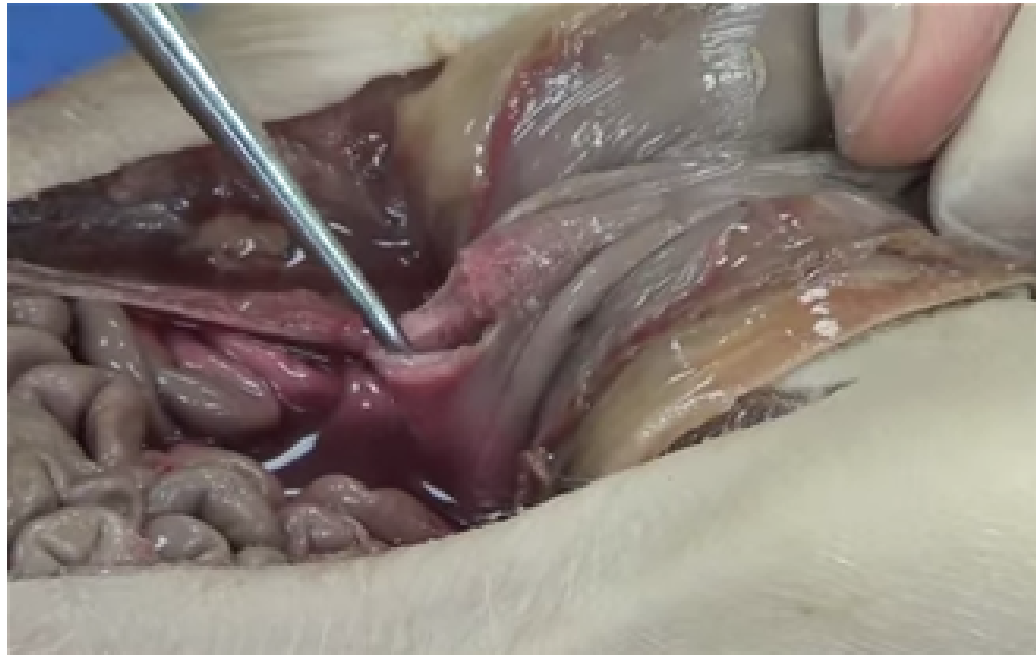
Locate 2 arteries called the umbilical arteries. These arteries carry waste and oxygen poor blood away from the fetal heart towards the placenta...(again, normally the arteries carry oxygen rich blood but because of the interaction with the mother's placenta it is opposite)...the umbilical arteries carry oxygen poor blood away from the fetal pig.



Remember, we also saw these in the umbilical cord portion that we cut off? You can also see them in the umbilicus that remains on your pig.

Within a week of birth, the infant's umbilical arteries and vein are completely useless and turn into fibrous cords.

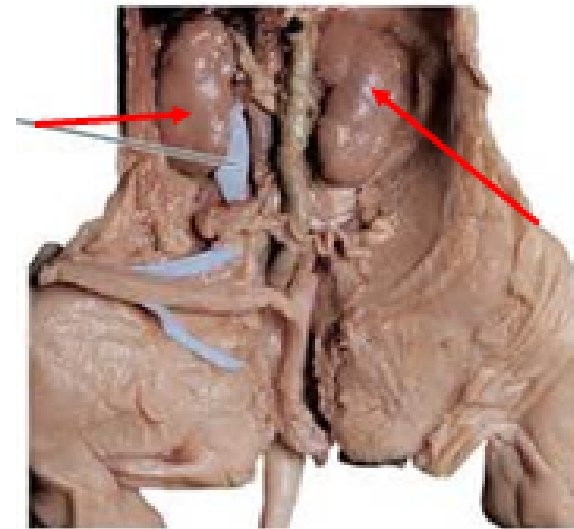
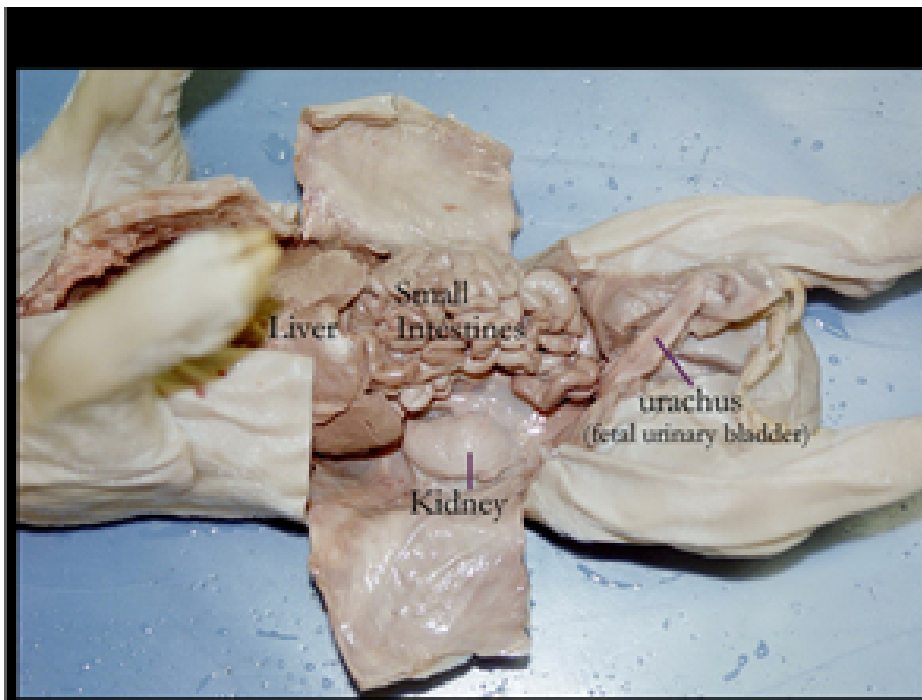
In between the two umbilical arteries is a thick pouch. This is the urinary bladder. Cut into the bladder to observe that it is a hollow pouch. The bladder is a muscle so it may take a little effort to pierce into the bladder.



The bladder stores urine until it is ready for excretion.

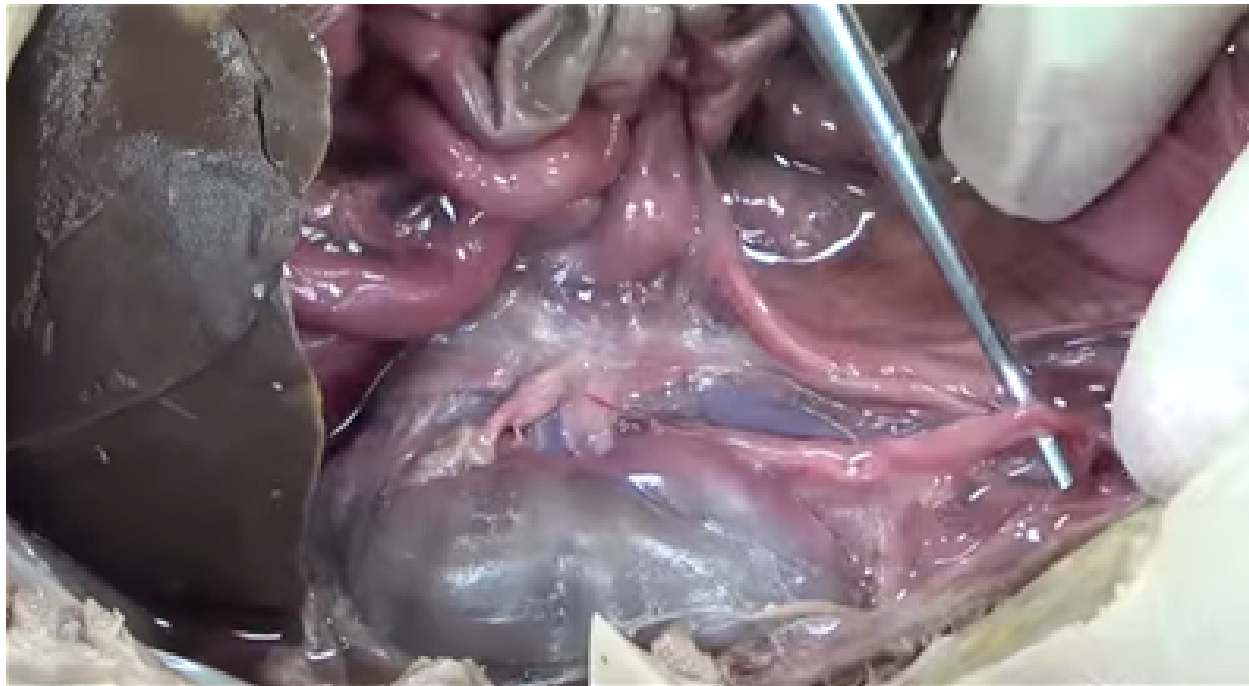
When the bladder is full, fetal pigs (and other mammalian fetuses) urinate in the womb and reswallow the fluid. Without this cycle, there would not be enough amniotic fluid. This cycle is also needed for proper lung development.

Move the intestines and try to locate the kidneys. The kidneys will be located toward the dorsal side of the pig and there will be one on each side. They may be covered in peritoneum tissue that looks like saran wrap. Remove that tissue to examine the kidneys. Do not remove the kidney's quite yet.

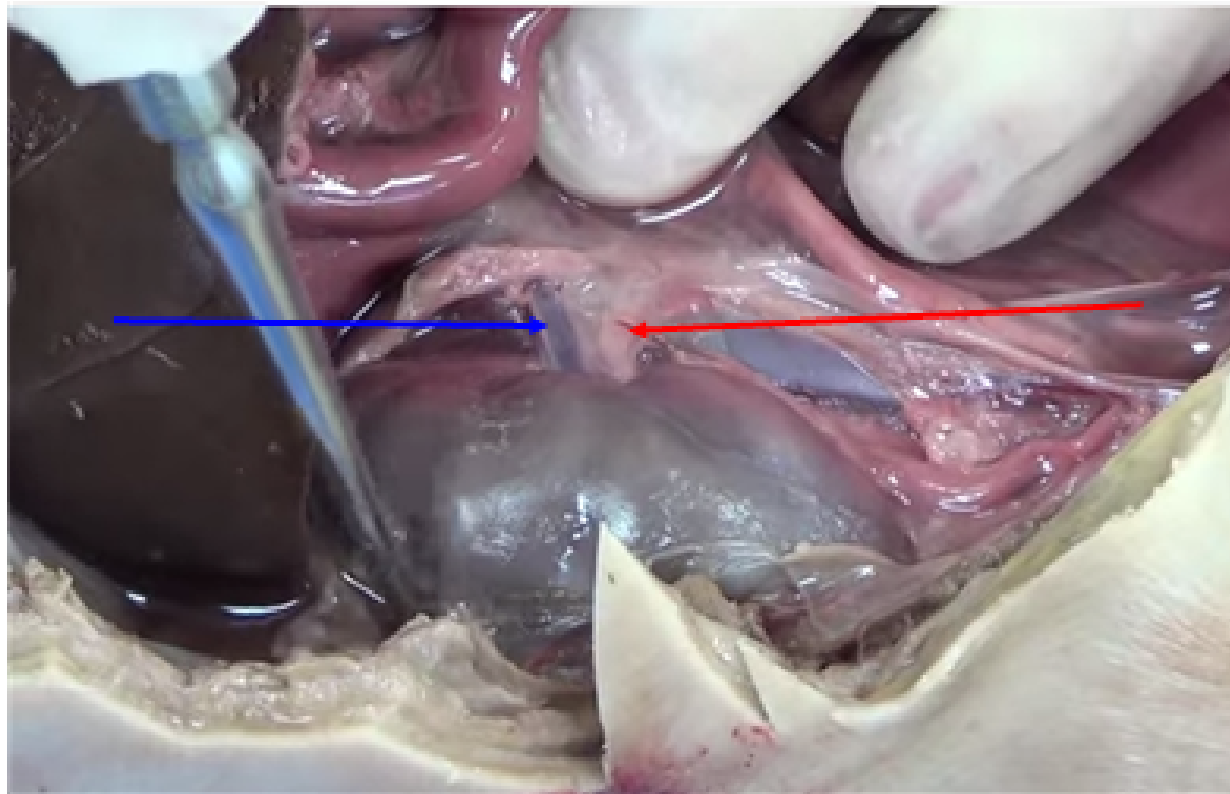


Kidneys filter the blood (from the renal arteries) and send waste products to the bladder.

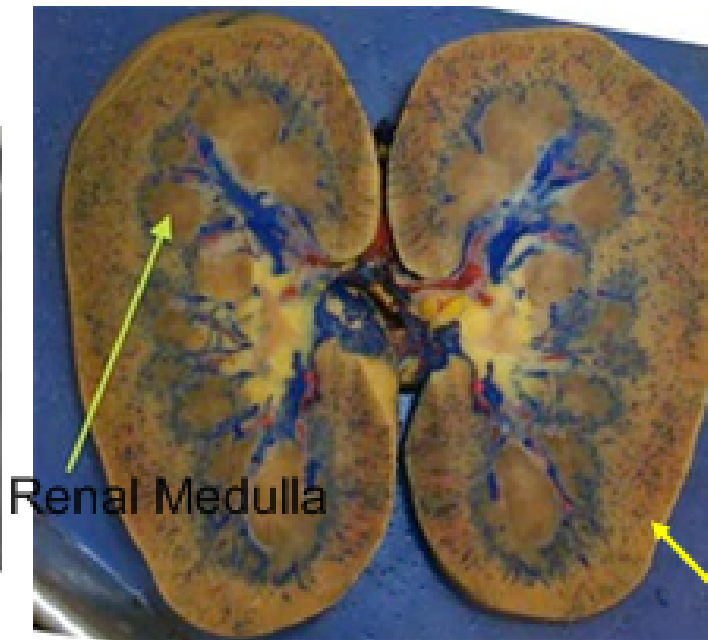
Try to find the ureters on the kidneys. There will be one ureter for each kidney. The ureters drain the kidneys and take waste to the bladder. You should be able to see the ureters going toward the bladder.



There will also be the renal artery and the renal vein coming off of the kidneys. These supply blood to and from the fetal pig.



Go ahead and remove one of the kidneys by detaching it from its ureter and the renal artery and renal vein. Lay it on the tray and slice it open separating the long way like shown below.



Renal Medulla

The kidney is made up of almost a million nephrons that exist in the outside (renal cortex) and inside parts (renal medulla) of the kidney. Nephrons are the functional unit of the kidney.

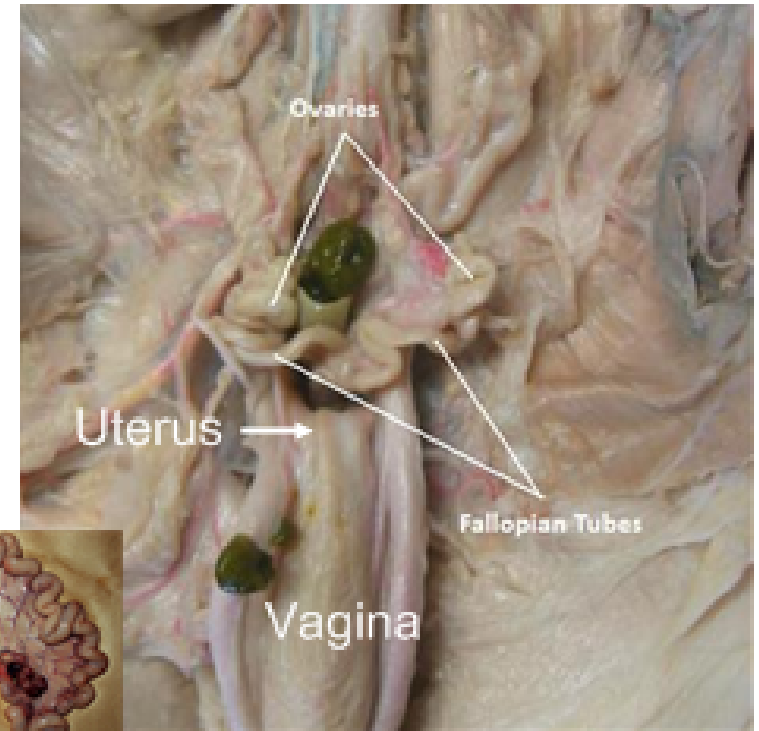
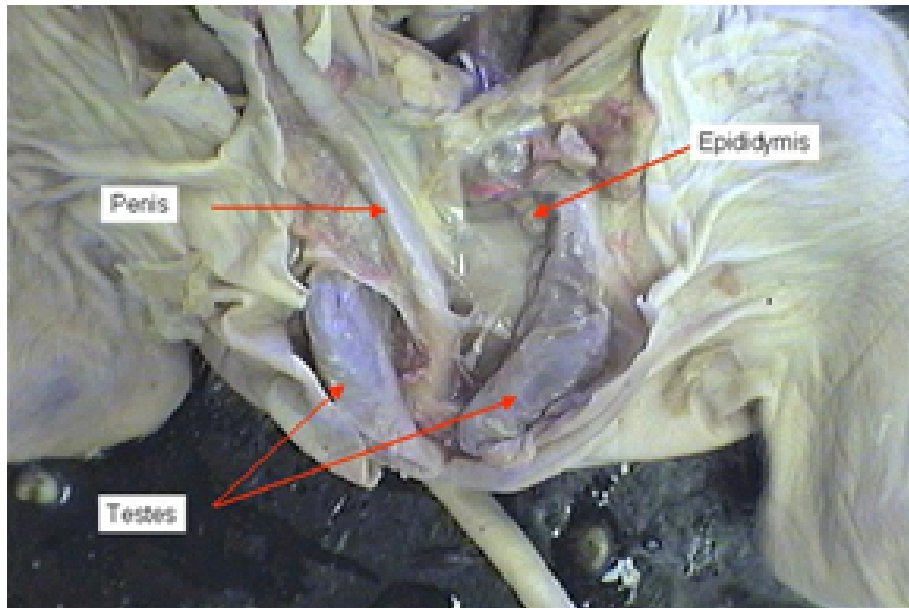
Renal Cortex

Locate the urogenital opening. This is the place where the waste products and reproductive substances exit from the body. This includes the urethral opening in male pigs and the vaginal opening and the urethra in women.



Unlike humans, the vagina and urethra of pigs share an external opening

For those of you with male pigs, locate the penis, testes (by opening the scrotum), the epididymis (on the testes), and vas deferens (connecting the testicles to the urethra).



For those of you with female pigs, locate the ovaries, fallopian tubes, the uterus and the vagina.