Lab #8 Forensic Autopsy of a Fetal Pig ~ Carolina Lab Protocols

Objective:

To familiarize the student with the purpose and methods used when conducting a forensic human autopsy with a fetal pig model. Students will work in groups of 3-4 students. Group members will take on the roles of an actual forensic team; the Prosector, the Diener, the Materials Manager and the Recorder. Students in smaller groups will take on multiple roles.

Materials:

Fetal pig for dissection
Dissection kit with tray
Rubber bands
Weigh boats
Scale
Sponge
Absorbent pads
Hand lens

Personal protective equipment:
gloves
Nylon line
Suture needle
appropriate lab attire,
optional lab coat
eye protection

Part 1. The External Examination

The purpose of a forensic autopsy is to determine the cause of death and time of death of the subject. The external examination can reveal more information related to the cause of death then the internal examination can so don't rush through this part of the examination.

Remove the fetal from packaging if needed and set-up in dissecting tray. Observe and record as many details as possible in your lab notebooks. Be sure to include, any exterior markings, distinguishing traits, any apparent injury, hair color, skin color.

Identify a possible cause of death. Your pig may have been stabbed, shot, strangled, or have puncture/needle wounds.

Secure forelegs by twisting one side of rubber band around one leg. Wrap band around back of tray and twist around the other leg (or around the white knob on the dissecting tray if you have one). Repeat with hind legs to expose the ventral side (belly) of your specimen.

Identify and record the gender of your specimen. (See teacher's guide). Examine external features beginning with the HEAD. Pay careful attention to:

Amount and color of hair, Unique markings, Mouth, Nostrils, Tongue Ears and Eyes.

Record all information in table form in your laboratory notebook.

Part 2. Internal Examination

The classic autopsy Y incision begins with an incision from an area in between the jaw and shoulder that extends to the breastbone. A second incision is made from the opposite side of the jaw that also extends to the breastbone. These two incisions meet, forming a V shape. The third incision varies based on the gender of your specimen! See the teachers guide. From the bottom of the V, extend the third incision straight down the abdomen, around the umbilical cord and continuing to the anus. Finish by cutting the skin, muscle, and connective tissues of the chest wall (exposing the sternum and rib cage). **Be careful NOT to cut through sternum!**

Continue the autopsy by referring to the teacher's guide. After the Organ Block has been completely exposed, sketch a diagram of your specimen in your lab notebook. Identify and indicate the location of the major organs.

After you have removed the organ block; separate, identify, weigh and measure all organs. Classify each organ under its organ system, i.e. digestive, respiratory, circulation, urogenital, etc. Record this information in a table in your lab notebook.

Part 3.

Return all organs to the cavity of your specimen as close to the organs original location as possible. Use your sketches as a guideline. Have your Lab Instructor review your work.

Close your incision with suture needle and nylon line.

Part 4.

<u>Narcotics Test</u>
Narc Lab is a simulation of the test performed by forensic chemists and medical laboratories used to determine the use of narcotics by an individual. While the test cannot determine if the individual has ever taken a drug, it can detect the presence or absence of cocaine, PCP, THC, or other controlled substances. The test usually involves the use of urine from the individual and a series of steps with various reagents that either gives or does not give a characteristic color change to a testing solution. Each test for an individual drug uses the same procedure but different reagents. Narc Lab is a generalization of what is called a semi-quantitative enzyme immunoassay of the competitive type. A real narcotic test kit may cost several hundred dollars.

In a real test the following is true and should be deemed as true for this simulation:

1. The individual allows the testing.

Each person has the right to refuse the testing procedure unless required by a court of law. Even under the most dire circumstances, blood urine and tissue sampling is regarded by most legal interpretation as an invasion of privacy.

2. The individual has taken the drug or drugs within a prescribed period.

3. The individual is not taking specific prescription drugs.
   Some prescription drugs, which are legally taken, may interfere with the testing process. The drugs have similar chemical reactivity as the drug being sought. The existing tests are however very specific for an individual drug. The chance of a test for cocaine giving a positive result if the person took only marijuana, are minimal at best.

4. The individual is being monitored by a physician.
   Some individuals require medication for an illness that requires constant monitoring. While it is not the same application, the monitoring of blood sugar by a diabetic is a common way for both the physician and the individual to see if medication is of the correct dosage. In a similar manner, a physician can monitor the level of a legitimate drug in the same way law enforcement can test for the presence of a drug.

Most drugs will eventually be eliminated from the body within a certain amount of time. Some drugs linger in the body longer than others. Those that are stored in body fat tend to be trained in concentrations that can be detected more than those which are water-soluble or are rapidly detoxified by the liver.

The Testing Process

You should have a sample of simulated urine at your lab table. Be sure to write the sample number in your lab notebook. There is no animal or human urine or sera used so there is no danger of contamination of any person handling these materials.

Place two drops of sample urine on a slide. Add one drop of anti-human antibody. Add one drop of enzyme. Mix the entire sample with a toothpick. The drug specific enzyme reacts with any drug which may be present in the urine.

After approximately 1 minute, the mixture is ready to be read.

Reading the Results

If there is **no trace** of the drug, the test will show a **pink color**. If there is drug present, the test will show no change. Record your results in your notebook.

Part 5.

Clean-up! Have notebooks signed!