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REPROHEALTH AND GENDER
OBTAINING PLASTINATED SHEEP TESTICLES

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ELABORATE	REVISED	APPROVED
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1.SUBJECT

Instructions for the operative procedure for the dissection, dye injection, and fixation of ovine testicles.

2. SCOPE

Procedure applicable to the management of fresh ovine testicles for obtaining plastinated testicles with arterial injection.

3. REFERENCE DOCUMENTATION and CONSULTATION

- Gil Cano, F., Latorre Reviriego, R., Ramírez Zarzosa, G., López Albors, O., Ayala Florenciano, M. D., Martínez Gomariz, F., Orenes Hernández, M., & Vázquez Autón, J. M. (2013). Manual of Veterinary Anatomy Practices: Visceral Systems. DM.
- McCracken, T. O., Kainer, R. A., & Spurgeon, T. L. (2006). Spurgeon's Color Atlas of Large Animal Anatomy: The Essentials. Wiley-Blackwell.
- PNT-53 Sheep Testicular Dissection (Discover-IN, 2023).

4. REAGENTS, PRODUCTS & MATERIALS

REAGENTS

- Formaldehyde 10%
- Cyclohexanone.
- Biodur U 10%
- Biodur 07

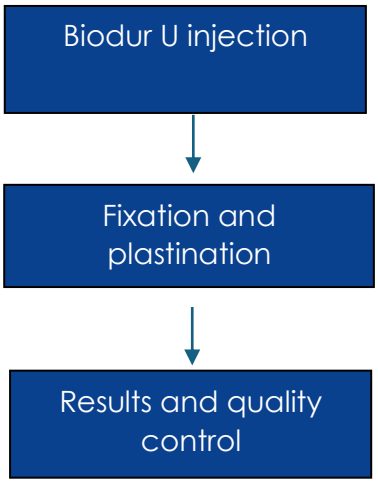
MATERIALS

- Scissors
- Clamps
- Forceps
- Silk for suturing
- Abbocath T-14G Catheter
- Scalpel
- Pipes

PERSONAL PROTECTIVE EQUIPMENT

- Scrubs
- Laboratory coat
- Mask for air filtration
- Gloves
- Glasses
- Polyethylene sleeves
- Protective footwear

5. OPERATING PROCEDURE



5.1. Biodur U Injection

The material comes fresh from the slaughterhouse, so it will first be fixed. A dye-containing fixative (Biodur U) will also be injected into the artery beforehand to provide color.

The testicular artery will be cannulated with an abbocath catheter. Once cannulated, it will be knotted so that it does not come loose. First, cyclohexanone (a colorless liquid that facilitates the passage of the fixative and allows it to infiltrate into the capillaries) will be injected. Next, Biodur 07 (it is a low viscosity polymer with a red color) will be injected and finally Biodur 10% (dye with 10% fixative) will be injected. The measurements will depend on the specimen to be injected. If all goes well, the pampiniform plexus will begin to dilate and the specimen will be colored. (Figure 1.)

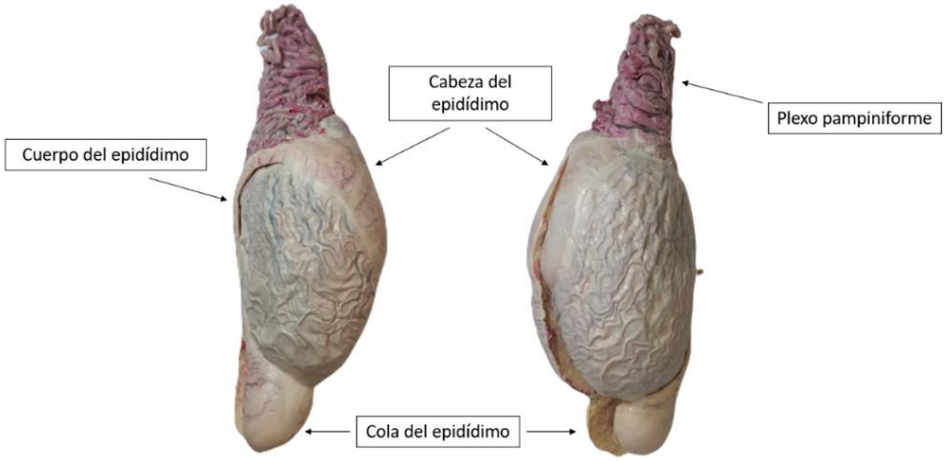


Fig.1

5.2. Fixation and plastination

It will be fixed by immersion with 10% formaldehyde for one week. Before immersing the sample, the tunica vaginalis will be pricked with a needle to prevent it from retracting and a sagittal cut will be made on the free side of the testicle, leaving the tunica open like a book (Figure 2.)

Fig.2

Once the fixation period has passed, the piece will be washed with water for about 24-48 hours to remove the remains of formaldehyde and the plastination process will begin, which will be carried out following the S10 silicone protocol.

6. RESULTS AND QUALITY CONTROL

Once the dissection has been completed, the specimen must retain an adequate morphology, maintaining its real anatomical structure, and it must be possible to identify the structures mentioned above (Figures 1 and 2).

Likewise, at the end of the protocol, the sample must remain free of breakage and colour alterations due to various causes such as the absence of continuous hydration during the dissection process, the appearance of mould on the surface and/or poor storage conditions such as exposure to high temperature, humidity or light.

Quality Checklist

- Suitable color ( )
- Adequate size, no alterations due to retraction ( )
- Firm and non-greasy texture ( )
- Absence of odours ( )
- List of structures:
    - Lateral surface of the testicle ( )
    - Medial surface of the testicle ( )
    - Caput epididymis ( )
    - Corpus epididymis ( )
    - Cauda epididymis ( )
    - Ductus deferens ( )
    - Ligament propria of the testicle ( )
    - Ligament of the cauda epididymis ( )
    - Spermatic cord testicular artery ( )
    - Spermatic cord, pampiniform plexus ( )
    - Testicular coverings ( )

END OF DOCUMENT

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REPROHEALTH AND GENDER
OBTAINING PLASTINATED FEMALE REPRODUCTIVE BLOCKS FROM SHEEP

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INDEX

1.SUBJECT

Indications of the modus operandi to be followed to carry out the dissection of the female reproductive block in sheep.

2. SCOPE

This protocol is applicable to the dissection of the female reproductive block in sheep.

3. REFERENCE DOCUMENTATION and CONSULTATION

- Gil Cano, F., Latorre Reviriego, R., Ramírez Zarzosa, G., López Albors, O., Ayala Florenciano, M. D., Martínez Gomariz, F., Orenes Hernández, M., & Vázquez Autón, J. M. (2013). Manual of Veterinary Anatomy Practices: Visceral Systems. DM.
- McCracken, T. O., Kainer, R. A., & Spurgeon, T. L. (2006). Spurgeon's Color Atlas of Large Animal Anatomy: The Essentials. Wiley-Blackwell.
- PNT-55 Dissection of the Female Breeding Block in Sheep (Discover-IN, 2023)

4. REAGENTS, PRODUCTS & MATERIALS

REAGENTS

- Formaldehyde 5%

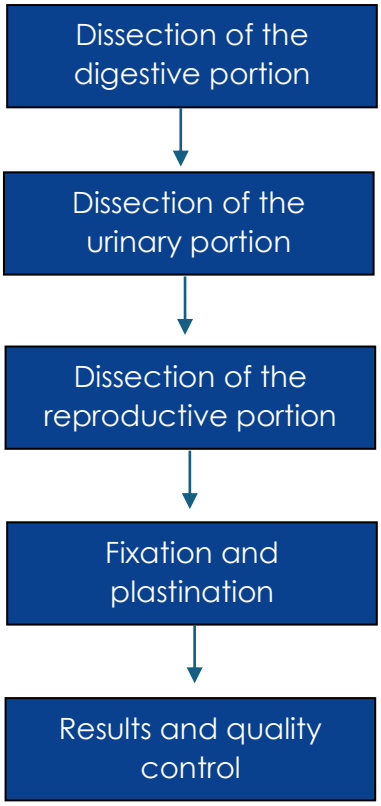
MATERIALS

- Scissors
- Dissection forceps
- Silk for suturing
- Scalpel handles No. 3 and 4
- Scalpel blades
- Syringes (5-10ml) and needles.

PERSONAL PROTECTIVE EQUIPMENT

- Scrubs
- Laboratory coat
- Mask for air filtration
- Gloves
- Glasses
- Polyethylene sleeves
- Protective footwear

5. OPERATING PROCEDURE



This dissection is carried out with the specimen fresh, so no step prior to dissection is necessary, although optionally the samples can be washed with water, to remove excess of blood and allow better identification of the different structures.

The specimen is composed of structures belonging to three different systems, so for a better study, the dissection will be divided into 3 parts or portions:

a) Digestive portion
b) Urinary portion
c) Reproductive portion

5.1. Dissection of the digestive portion

This portion is made up of the end of the rectum and the anus.

First, the rectum should be emptied of fecal matter. Once the mucosa has been cleaned, the rectum will be trimmed so that the portion of the rectum that remains in the piece is about 15cm long.

Finally, a pipe will be inserted through the anus (the diameter will depend on the size of the anus and rectum) that we will secure by tying with a rope. This pipe will not be removed until the end of the plastination process, as its purpose is to keep the walls of the rectum dilated, allowing the lumen of the structure to remain visible and therefore obtaining a better result from the specimen.

5.2. Dissection of the urinary portion

The components of this portion are the *ureters* (sectioned), the *bladder,* and the *urethra (see Figures 1 and 2),* which empties into the *external urethral orifice (see Figure 4)* at the boundary between the vagina and vulva.

Once the main structures of this portion have been identified, dissection can be carried out, which in this case consists only of removing the excess of fat. Special care should be taken when dissecting the bladder area, to avoid damaging the ureters or fibrous connective tissue that connects the bladder to the uterus (*see Figure 2*).

A pipe will then be inserted into the urethra and guided into the bladder. To do this, the tube will be accessed through the vulva, and the external urethral orifice will be sought. The purpose of this procedure is, as in the case of the previous portion, to keep the lumen from the structures visible.

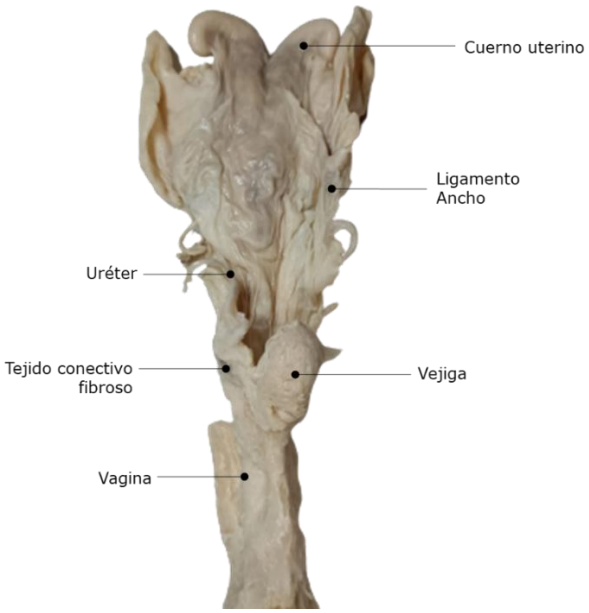


Figure 1

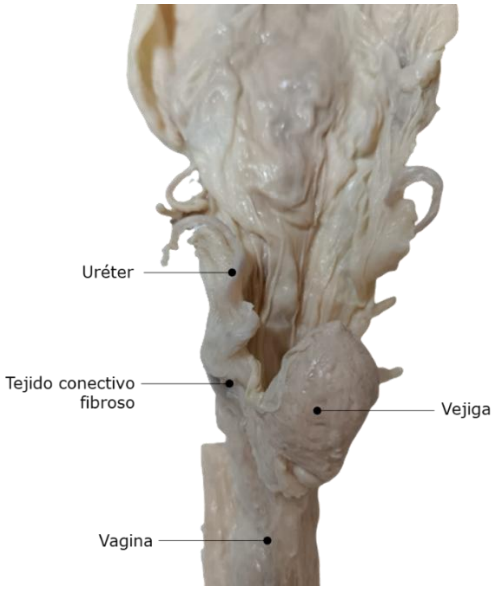


Figure 2

5.3 Dissection of the reproductive portion

The reproductive portion has numerous anatomical structures, namely *(see Figures 3, and 4)*:

- Vulva: it is the most caudal area of the specimen. Continue with the *vagina*.
- Vagina and cervix.
- Uterine body.
- Uterine horns.
- Uterine tubes or oviducts.
- Ovaries.
- Broad ligament: in relation to the *ovaries*, *uterine tubes* and uterus.

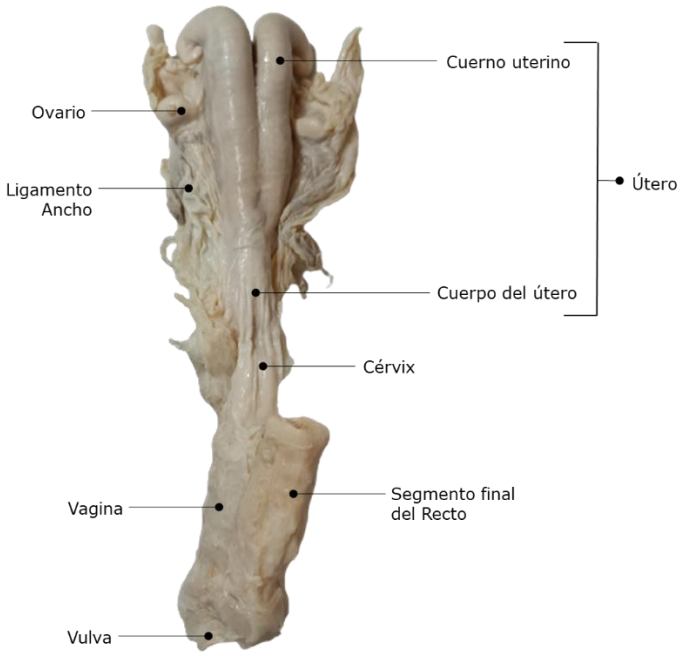


Figure 3

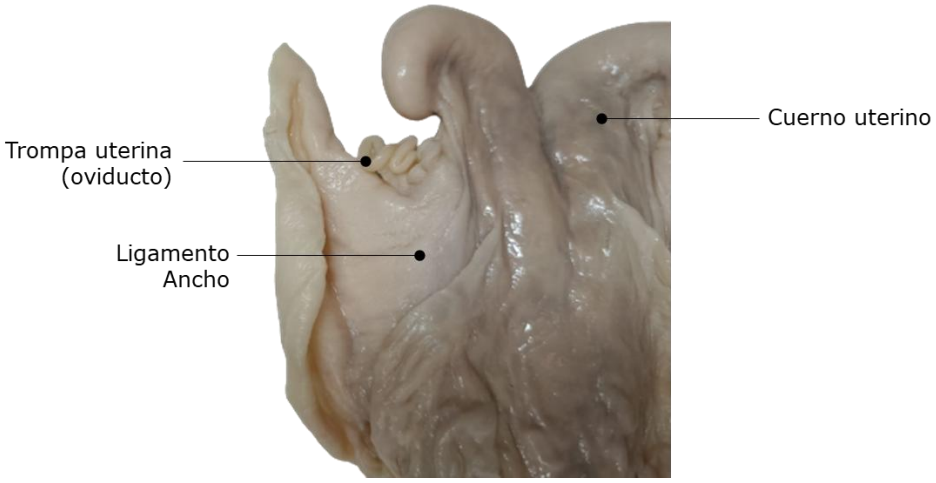


Figure 4

In this case, as in the urinary portion, the dissection consists of removing the excess of fat and connective tissue. Special attention must be paid when working the area of the *broad ligament* (*see figure 5*) to avoid damaging both the structure itself and those associated with it.

If the uterine horns contain fluid, it should be removed with the help of a 5-10ml syringe.

Finally, a pipe will be inserted again through the vulva, but this time aimed at dilating the vagina. The tube previously inserted into the urethra should be inside this new pipe (*see Figure 5*).

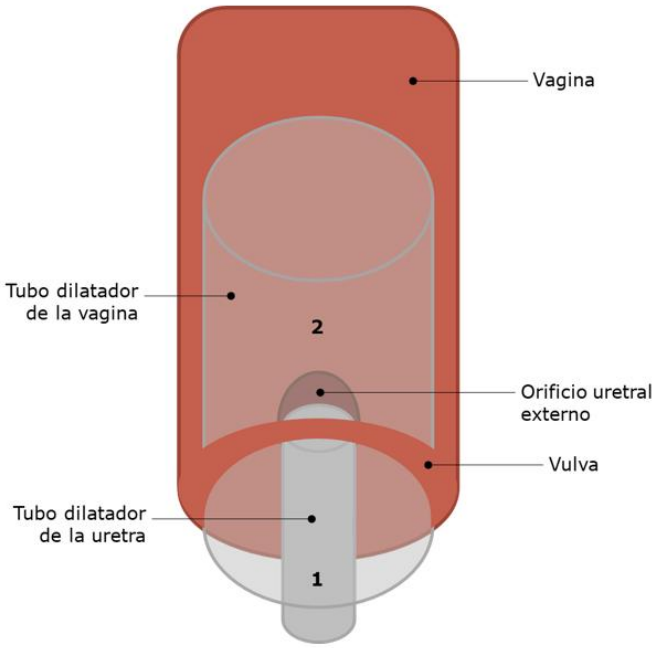


Figure 5

5.4 Fixation and plastination

The fixation of this specimen is done by immersion in 5% formaldehyde.

Prior to immersion, the uterine horns should be injected with formaldehyde in the same concentration. This allows for better fixation of the sample and ensures that the horns are dilated and relatively taut, and therefore maintain their actual anatomical structure.

The plastination of the specimen will be carried out according to the PNT 04 protocol

6. RESULTS AND QUALITY CONTROL

Once the dissection has been completed, the specimen must retain an adequate morphology, maintaining its real anatomical structure, and it must be possible to identify the structures mentioned above (see figures 6 and 7).

Figure 6

Figure 7

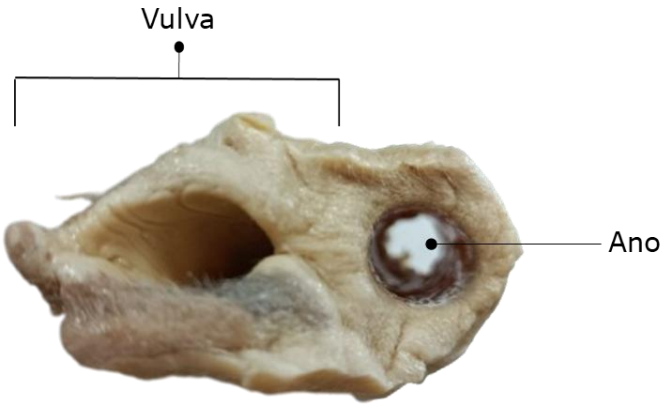


Figure 8

Figure 8 shows the result of the dilation of the structures by placing tubes.

Quality Checklist

- Suitable color ( )
- Adequate size, no alterations due to retraction ( )
- Firm and non-greasy texture ( )
- Absence of odours ( )
- List of structures:
  - Right ovary ( )
  - Left ovary ( )
  - Mesovary ( )
  - Right Uterine Tube ( )
  - Left Uterine Tube ( )
  - Right uterine horn ( )
  - Left uterine horn ( )
  - Body of the uterus ( )
  - Cervix ( )
  - Broad ligament ( )
  - Vagina ( )
  - Vulva ( )
  - Rectum ( )
  - Anus ( )

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