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ACADEMIC VETERINARY ACTIVITY: REMOVING ORGANS FROM AN ANIMAL DURING NECROPSY

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Abstract. The opening of the corpse follows a step by step of technique that exposes the abdominal and thoracic cavities during an autopsy. Although important, a complement of techniques is necessary for the removal of internal organs, aiming at more efficiency in the study and that will provide an adequate report. On the basis of a bibliographic review, the objective of this article was to demonstrate a technique for removing a set of internal organs from an animal in practical classes of veterinary anatomy. Such academic knowledge should aid students of veterinary medicine to learn the best techniques available in the field.

Keywords: Necropsy; Technique; Academic education.

ATIVIDADE VETERINÁRIA ACADÊMICA: REMOVENDO ÓRGÃOS DE UM ANIMAL DURANTE NECROPSIA

Resumo. A abertura cadavérica segue um passo a passo de técnicas para expor as cavidades abdominais e torácicas durante uma necropsia. Apesar de serem importantes, necessitam da complementação de técnicas apropriadas para a retirada dos órgãos internos, visando os melhores resultados e proporcionando um laudo adequado. Em aulas práticas na anatomia veterinária e patologia geral veterinária, com base em revisões bibliográficas, objetivou-se neste artigo demonstrar uma técnica de retirada do conjunto de órgãos internos de um animal, para que este seja de conhecimento acadêmico e venha contribuir para o aprendizado de alunos de medicina veterinária.

Palavras chave: Necropsia; Técnica; Educação acadêmica.

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ACTIVIDAD ACADÉMICA VETERINARIA: EXTRACCIÓN DE ÓRGANOS DE UN ANIMAL DURANTE LA NECROPSIA

Resumen. La apertura del cadáver, que sigue paso a paso a las técnicas que exponen las cavidades abdominal y torácica, durante una autopsia, aunque son importantes, necesita la complementación de técnicas apropiadas para la extracción de los órganos internos que apuntan al mejor estudio e investigación para proporcionar un informe adecuado. En las clases prácticas de anatomía veterinaria y basadas en una revisión bibliográfica, el objetivo de este artículo fue demostrar una técnica para extraer un conjunto de órganos internos de un animal, de modo que sea de conocimiento académico y contribuya al aprendizaje de la medicina veterinaria. Estudiantes.

Palabras clave: Necropsia. Técnica; Educacion academica.

INTRODUCTION

Necropsy is an important practice, used to understand the *causa mortis* of an animal. Knowing the exact cause of death is academically important, whether in the cases of pets or wild animals (FRANÇA, 2015; PEIXOTO; BARROS, 1998).

When diagnostic exams are unable to elucidate the factors involved in the death of the animal, necropsy is recommended as a further aid for students in veterinary medicine (FURTADO; SOBRAL; FURTADO, 2019).

The opening of the abdominal cavity following step by step techniques need to be complemented with appropriate ways of extracting the internal organs. Besides making these procedures more thorough, they provide an excellent opportunity for students of veterinary medicine to learn the anatomy relevant for pathological conclusions (FURTADO; SOBRAL; FURTADO, 2019).

This article deals with the best techniques for extracting the set of internal organs, with emphasis on didactic information for students of veterinary medicine.

Techniques of necropsy

A veterinarian, during each professional action in pathology, may have his own technique for necropsy, based on variations established by four main physicians: Dr. Rudolf Virchow, Dr. Carl von Rokitansky, Dr. Maurice Letulle, and Dr. Anton Ghon (PRESTES; ANCILLOTTI, 2019).

Their techniques are as follows: Virchow recommends that the inner organs be extracted individually, for later observations.

In the Ghon technique, evisceration is done by extracting blocks of functionally and anatomically related organs.

The Letulle technique consists in extracting all organs simultaneously, in a single block.

In the procedure of Rokitansky, organs are extracted individually only after being examined "*in situ*".

These techniques are responsible for the advancement of science and for the academic activities of those professionals dedicated to research, teaching, and extension activities, thus contributing to the training of good professionals and to better customer services (MASSAD, 2017).

In this article, we will approach a variety of techniques derived from Virchow, Ghon, and Rokitansky.

METHODOLOGY

This article is based on literature revision, and on observations of practical work conducted by veterinarians in classes of veterinary medicine at the Maurício de Nassau University Center (UNINASSAU), João Pessoa, Northeast Brazilian. The literature review considered authors involved into this topic of research, with publications available as electronic media (GIL, 2011). With this approach, the theme is viewed under wider coverage, and permits previous experimentation of the investigated contents (FONSECA, 2002).

Vestment and material

For the security of students and teachers during the process of organ extraction, all must use specific individual protection equipment: overalls, impermeable aprons, closed shoes, masks, eye protectors, gloves, and caps. Rings, watches, and other adornments should not be used (ANDRADE; CORREIA PINTO; OLIVEIRA, 2002; FURTADO et al, 2019).

In any autopsy it is important to have access information inherent to the animal being manipulated, such as species, age, weight, circumstances at death, and other information that may help to elucidate the investigation (AFIP, 2001; ANDRADE; CORREIA PINTO; OLIVEIRA, 2002).

The instruments used in organ extraction were:

- Butcher knife;
- Scalpel shaft and blade;
- Straight scissors with rounded ends;

- Etherothome scissor;
- Rat-tooth pincers;
- Hemostatic pincers;
- Anatomical pincers.

Procedures for extraction of organs

The technique exposed below for the entire set of organs was based on the recommendations of Lopes and Maria (LOPES et al., 2017; MARIA, 2010), as well observations made during practical courses.

TONGUE AND ESOPHAGUS

An incision must be initiated next to one of the mandibles, using the butcher knife, until the hard palate is felt. The same procedure must then be repeated next to the other mandible. With these actions, the tongue may be removed. Next, a "V"-shaped incision is made on the soft palate, with the point of the "V" directed towards the cranium, and attempting to preserve the palatine tonsils In order to accomplish this the hyoid is sectioned horizontally, until the esophagus can be removed. At the junction with the diaphragm, the cut is followed up to the base of the esophagus.

SPLEEN AND EPIPLON

In order to extract the spleen and epiplon, a cut is made with the scissors, separating the epiplon (or oment) from the curvature of the stomach, from the duodenum and from the pancreas, where the insertion of the epiplon and spleen is found.

INTESTINES

The intestines follow from the end of the duodenum to the end of the large intestine. Between the pancreas and the duodenum, one inserts the hemostatic pincers, one next to the other, in order to make an incision without liberating the contents of the intestine, which would cause complications for the necropsy. In similar fashion, with another hemostatic pincer, a cut is made in the final portion of the large intestine, close to the bladder, with the same aim. The duodenum will have its extremities closed. An incision is made in the mesentery, until the entire intestine is free and separate from the remaining organs.

DIAPHRAGM AND LIVER

The diaphragm, liver, gall bladder, stomach, duodenum and stomach will be extracted now, with care to preserve the adrenals, which will be removed in the next step. When sectioning the diaphragm, locate the adrenals and, without damaging them, cut and them for removal.

UROGENITAL SYSTEM

After locating the kidneys, they are removed together with the adrenals, by a cut adjacent to the vertebral column. At this point, in order to permit the joint extraction of the entire set of organs, an incision is made through the pelvic bone, which will permit the extraction of the kidneys, ureters and bladder. When the orifices of the pelvis are located, the instrument costotome is used to produce incisions on both sides of the pelvis. The cut is continued until the urogenital system is freed, culminating with the section of the anal region.

The carcass is now free to be observed, as well as each set of extracted organs.

CONCLUSIONS

Necropsy is a fundamental procedure for the academic training of future veterinarians. The procedure is important for diagnosing the cause of death of these animals, as well as providing information to save other lives, through knowledge construction and prophylaxis. Mastering techniques of necropsy guarantees the academic growth of each professional involved in university education in the area of the veterinary sciences. It is essential that each student in veterinary medicine gain theoretical and practical expertise in the techniques of necropsy, in order to become qualified in the use of this tool.

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