Clinical Image Reports

Brazilian Journal of Case Reports

Use of plastination in the production of anatomical reference for experimental surgical planning

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Research Ethics Committee Approval (if necessary): Approved by the Ethics Committee on Animal Research of Federal University of Ceará (#45/2015).

Received on: Mar 11, 2021. Accepted on: Mar 15, 2021. Available online: Mon 31, 2021.

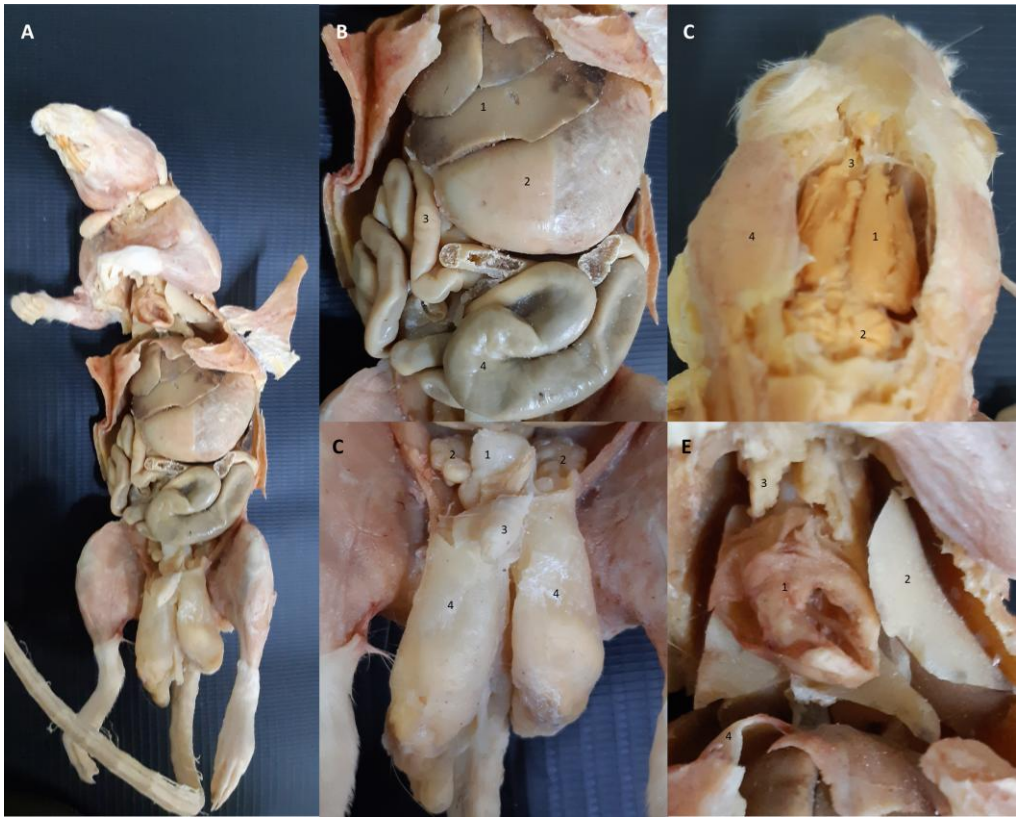

Figure 1. A- Ratus norvegicus anatomical model, B – abdominal cavity, B1- liver, B2- stomach , B3- small intestine, B4- cecum, C- reproductive apparatus; C1- bladder; C2- Seminal vesicles; C3- penis; C4- Testicles; D- Head; D1- brain; D2- cerebellum, D3-

ISSN: 2763-583X. doi: 10.52600/2763-583X.bjcr.2021.1.1.6-8.

Olfactory bulb; D4- temporal muscle; E- thoracic cavity; E1- heart; E2- Lung; E3- Thymus; E4- diaphragm.

The present experimental clinical image deals with a teaching anatomical model in *Ratus norvegicus* plastinated in silicone poliplast1® (Polisil, São Paulo, Brazil), made in room temperature and pigmented after plastination, from post-experimental disposal specimen, developed in order to serve as an anatomical reference for invasive procedures in animal experimentation of this same specie.

As seen in Figure 1, the specimen shows faithful anatomical characteristics for various organs and systems of this species, maintaining the original shape and location. In figure 1B, it is possible to observe the topographic anatomy of the abdominal structures, where it is clearly possible to identify, among other organs, the liver, stomach, intestinal loops and spleen, in addition to the musculature of the abdominal walls.

In figure 1C, we similarly observe the male genitourinary organs of the rat, with numerous structures such as bladder, seminal vesicles, testicles, penis and pelvic structures, while in figure 1D, we note that the anatomical structures of the head are clear, facilitating the distinction of several important structures such as those of the nervous system, in addition to the musculature, innervation and vascularization of the head.

Also in figure 1E, the thoracic anatomy is well preserved, showing small structures in great detail, as the internal anatomy of the heart, in addition to the other thoracic structures such as the plumes, the thymus, pleura, walls and musculature.

Such images demonstrate the feasibility of using plastination to build anatomical teaching models in experimental animals, facilitating the training of research teams, as well as the planning of invasive procedures which require more advanced anatomical knowledge.

Reducing the use of experimental animals has been a major concern of ethical committees worldwide, for this, one of the primary factors is the reuse of these specimens for other procedures [1]. On the other hand, well-trained teams, and well-planned procedures, reduce losses and the need to use a greater number of experimental animals [2].

Thus, formulating anatomical teaching models may be the solution for part of this problem [2] [3]. Therefore, plastination, which is a technique for the conservation of biological specimens, using the aggregation of plastic polymers to these, is a great option for the formation of these models, since it preserves the original anatomy of the specimen, as seen in the images,

prolongs life anatomical models and facilitates handling and study.

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Conflict of interest: The author declares no conflicts of interest.

Acknowledgements: none.

Funding: none.

How to cite this article: Silveira HF, Leite CRO, Ribeiro Jr HL. Use of plastination in the production of anatomical reference for experimental surgical planning. Brazilian Journal of Case Reports. 2021 Jan-Mar;01(1):6-8.