PLASTINATED MODELS AS TEACHING AIDS IN THE EDUCATIONAL INSTITUTIONS

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ABSTRACT

The anatomical teaching aids preservation and preparation is a challenging artist work in the current scenario. Alternative teaching tools to be innovatively modified as per our indigenous technique to preserve the cadavers for longer durations. The equine limbs were used for plastination procedure and further treated with colorless varnish paint to pleasant look to handle it in laboratory conditions. The plastinate models were replaced with wet dripping formalin fumes in anatomical dissection hall. Simultaneously, the anatomical descriptions also well understand by its topographical position of adjacent structures due to its transparency of specimen. The plastination technique invites curiosity about education and research in the subject of veterinary anatomy, pathology and surgery. The plastinated models well recognized as good teaching tools in the anatomical laboratory as well as biological museum all over the world.

KEYWORDS : Formalin, Plastinates, Fumes, Research and Plastination.

INTRODUCTION:

The veterinary educational programs are taught widely and variedly among the domestic as well as wild animals in due course of their conscience of curriculum uniformly throughout the country. Veterinary anatomy is one of the subject which bring forth of the fundamental biological structural concepts of animals. The various method of teaching veterinary anatomy have been debated because it has own limitations. To improve the anatomical understanding the traditional way of using cadavers, but Institutional Animal Ethics Committee (IAEC) impart the use of animals for education and research in biological sciences including medical and veterinary sciences in India. Plastination is a modern revolutionary scientific method for lasting conservation of organic matter, created by Von Hagens *et al*., (1987). Plastination is a unique method for the preservation of biological materials for teaching and research. The plastinated specimens are dry, odorless, non-toxic and durable (Ramkrishna *et al*., 2002). Plastinated models are better alternatives for instructive teaching aids than repeated use of cadaveric dissection or different virtual learning methods.

MATERIALS AND METHODS

The equine limbs (only the pes region) were collected from postrmortem case, department of Veterinary Pathology, Vanbandhu college of Veterinary Science and Animal Husbandry, Navsari Agricultural University, Navsari, Gujarat. The samples were subjected to formalin fixation for a week after thoroughly washing with running tap water. The limbs were finely and carefully dissected (Longitudinal section) to show the different structures in detail. The samples were processed in dehydrating/clearing agents with three changes at four days interval. After removal of water, the limbs immersed with resin polymers and hardener at 9:1 ratio for 4 days. Then, Limbs were further kept at room temperature for drying. The Colourless varnish paint coat brushed with dried limbs to give a very pleasant appearance of plastinate models (Menaka *et al.,* 2010).

RESULTS AND DISCUSSIONS

The plastinated equine limbs observed with various anatomical structures like meta carpal, sesamoidean bones, fetlock joint, pastern joint, coffin joint, sesamoidean ligaments and along with hoof wall as white line, buttress, bar and sensitive lamina (Figure).

Singh *et al*. (2013) observed that the development of plastination has opened up new vistas for gross anatomy. In particular, it has led to a major expansion in the range of human anatomic specimens available for teaching. In the recent past, the current value of plastinated specimens is increasingly being appreciated in research purpose.

The plastinated specimens are superior to those preserved in formalin for teaching anatomy, pathology, clinical medicine, surgical anatomy etc. It has greater potential for the medical students as it helps to understand the anatomical knowledge in a more pleasant way of learning (Sivrev *et al*., 2005).

The traditional method of preservation causes wet slippery tissues, respiratory irritations, topical allergic reactions etc. The innovative teaching tools has been tried to create effective and health-safe method of conservation and long-lasting preservation of corpses. Therefore, the plastinated models and its technique are to be introduced in medical, paramedical and veterinary sciences in near future.

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