CHARACTERIZATION OF AN ANIMAL CARDIOPULMONARY ANATOMICAL MODEL AS A BIOMATERIAL TO ENHANCE THE BRONCHOSCOPY TRAINING EXPERIENCE

J. Maillard-Olvera, J. Pineda-Gutiérrez, M. Alonso-Gómez, S. Martínez-Fonseca, F. Figueroa-Cavero, A. Sotres-Vega, J. Villalba-Caloca

1Experimental Lung Transplant Unit. Instituto Nacional de Enfermedades Respiratorias Ismael Cosío Villegas. Mexico. Calzada de Tlalpan 4502, Sección XVI, Delegación Tlalpan, Mexico City, ZC 14080

Bronchoscopy is a procedure in which a cylindrical fiberoptic scope is inserted into the airways to diagnose or treat a variety of lung-related diseases. Traditionally, all the medical trainees learn in real patients, both ethical and economical issues have limited them. Developing medical skills is essential in the training of cardiothoracic fellows. Introduction to biomaterials in all medical aspects of cardiothoracic training have an outstanding impact on human health as well as a considerable economic importance. Aim: To present a real, reusable, low-cost biomaterial useful for bronchoscopy training using preserved cardiopulmonary blocks as a tool in teaching-learning training programs.

Material and Methods: Five cardiopulmonary blocks (including trachea, pharynx, larynx and tongue) were harvested from mongrel dogs, regulated under the Mexican Official Norm (NOM-062-ZOO-1999). The blocks were submerged and treated with McCormick solution and impregnated with glycerine for 40 to 60 days. After this, in all cardiopulmonary blocks we inserted an endotracheal tube connected to a volume ventilator to ensure good lung compliance and no leakage. To develope the training practice, a cardiopulmonary block was placed on a table in prone position. The bronchoscope was introduced soft and slow. Using fiber optics and a video camera towards the trachea, the tour continued up to the carina, removing the bronchoscope slowly to avoid damage to tissue. Results: The cardiopulmonary blocks are elastic pieces with structural integrity; they have a smooth texture with distension and insufflation capacity and are a functional and reusable biomaterial for endoscopic practices as anatomical practice, biopsy and foreign body removal. Conclusions: Cardiopulmonary blocks preserved by treatment with McCormick solution and impregnated with glycerine constitute a real and reusable biomaterial that promotes teaching-learning bronchoscopic and anatomical training. This technique allows obtaining and maintaining all types of organs and tissues, particularly those with areas of parenchymal tissue and lumen.

Keywords: Biomaterial, Bronchoscopy Training, Cardiopulmonary Block

References:


Presenting author's email: dra_jimena20@hotmail.com