

Three-dimensional geometrical models of the liver

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SUMMARY

In this work we used a virtual approach to study the human liver by three-dimensional geometrical models. We built the models through computer aided geometric modelling techniques starting from pictures taken during both real dissections and diagnostic medical imaging. The results show in a complete modular synthesis and with a schematic iconology the structural organization of this organ in a logic sequence of layers and topographic and spatial relationship among its components. This approach represents an amazing support to clinical anatomy for teaching and research.

INTRODUCTION

The use of computers in both classrooms and laboratories of human anatomy (Aziz et al., 2002; Nieder et al., 2004) determined an advancement in information technology (Bodemer et al., 2004; Khalil et al., 2005) and a more extensive use of three dimensional computer obtained images for both didactic and scientific purposes (Cooper et al., 2001; Kim et al., 2003).

In the past, we used a three-dimensional geometrical approach to study the carpal tunnel (Peri et al., 2001), the carotid region (Peri et al., 2002) and the inguinal region (Peri et al., 2003). Our results were considered of some utility for both teaching and research purposes in human anatomy and embryology.

In the present work, we studied for the first time a parenchimatous organ, the liver, using the same approach. The liver presents two faces, a diaphragmatic one