ORAL PRESENTATION ABSTRACT

3.2. "Plastination as a tool for scientific investigation: three dimensional reconstruction of anatomical structures by using plastinated cross-section". "La Plastinación como Herramienta para la Investigación Científica: Reconstrucción Tridimensional de Estructuras Anatómicas mediante el Uso de Secciones Transversales Plastinadas".

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Background: Computerized reconstruction of anatomical structures is becoming very useful for developing anatomical teaching modules and animations. Although databases exist consisting of serial sections derived from frozen cadaver material, plastination represents an alternate method for developing anatomical data useful for computerized reconstruction. The purpose of this study was to describe a method for developing a computerized model of different anatomical specimens by using plastinated slices.

Materials and Methods: Different anatomical specimens (ankle, lumbar spine, skull, and shoulder joint) were used for this study. A tissue block containing the desired region was removed from the cadaver, than dehydrated, degreased and finally impregnated with aresine mixture E12/ E6/ E600. Using a band saw the E12 block was cut into 1 mm slices. Once scanned, these images of the plastinated slices are loaded into WinSURF and traced from the monitor. After all contours are traced, the reconstruction is rendered and visualized.

Results: The generated 3D models display a morphology corresponding qualitatively to the actual cadaver specimen. The quality of the reconstructed images appeared distinct, especially, the spatial positions and complicated relationships of contiguous structures. Soft tissue features were easily seen when displayed with the bones positioned in the background. All reconstructed structures can be displayed in groups or as a whole and interactively rotated in 3D space.

Conclusion: Plastination provides a useful alternative for generating anatomical databases. The reconstructed model can be used for residency education, testing an unusual surgery, and for the development of new surgical approaches.

Keywords: 3D reconstruction, Plastination, anatomy, teaching.