ORAL PRESENTATION ABSTRACT

3.1. "Optimal Temperature and Duration for Impregnation and Curing of Epoxy Blocks for Ultra Thin Sections". "Temperatura y Duración Óptimas para la Impregnación y Curado de Bloques Epoxi para Secciones Ultrafinas".

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Introduction: Ultra-thin epoxy sheet plastination is a novel technology for anatomical research involving dehydration, degreasing, impregnation, curing and cutting1,2. This study aimed to find an optimal temperature, duration of impregnation and curing of the epoxy resin block.

Material and Method: Eight rat heads were randomly divided into groups A and B, with 4 in each group. After fixation, dehydration and degreasing, the rat heads were placed in a resin mixture in a vacuum chamber at RT for 5 days with pressure decreasing and continued at 40˚C for further 4 days. After impregnation, group 'A' heads were placed in two molds and cured in a 45°C or a 65°C oven for 6 weeks, respectively. Group 'B' was prepared the same as Group 'A', except they were cured in a 65°C oven for 14 days. The colour, transparency, and hardness of the resin blocks were observed and recorded daily during the curing process. This study was approved by the ethics committee of our university.

Results: RT-to-40°C "two-phase impregnation" was used. The block in the 65°C oven was hardened in 2 weeks, exhibiting good transparency.

Discussion: A higher temperature is used at the end of impregnation to decrease the increasing viscosity of the resin mixture3,4. Our RT-to-40°C "two-phase impregnation" may suit epoxy resin block plastination of large specimens. Four days at 65°C was normally used for hardening5 but it may not apply for large specimens, such as the whole pelvis4 or head. Hardening the block at 45°C can ensure block transparency, its curing time is too long, particularly for a large specimen. Hardening at 65°C accelerates the hardening procedure, but time needs to be well controlled.

Conclusions: Curing at 65°C for 10 days is recommended for the epoxy resin block. Longer than 10 days may result in a block with poor transparency.

References:
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