LECTURE ABSTRACT

Epoxy plastination for anatomical and clinical researches

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Modern medicine requires more detailed understanding of microanatomy. The epoxy plastination technique makes possible to study small anatomical structures on body cuts. Along with the standard technique, a modified technique for making cuts from a cured anatomical block is often used recently. We tried to compare these two techniques in anatomical and clinical studies.

The study was carried out on the organs and human body parts. The standard epoxy plastination technic (E12) consisted of 5 steps and included sawing, dehydration, degreasing, impregnation, embedding of cuts in flat chambers, and curing. The modified epoxy technic (E12-M) was carried out in 8 stages and consisted in the dissection of an anatomical block, dehydration, degreasing, primary impregnation, curing of the anatomical block, sawing, secondary impregnation, embedding cuts in flat chambers and curing.

The standard E12 technic could produce plastinated cuts with a thickness of at least 2 mm and an area of up to 3000 cm2. This technique allowed staining cuts with histological stains after dehydration, but it gave poor results when examining metal implants in organs. The modified E12-M technique was more labor-intensive, but made cuts with a thickness from 0.5 mm or more, but with limited area less than 50 cm2. Tissue staining with E12-M gave poor results, however, only with this technique it was possible to study small anatomical structures and metal construction, implanted in organs.

Compared to the standard epoxy plastination technique, the modified technique is more complex, time consuming, requires more experience and additional equipment. The cuts area with E12-M is limited by the size of the cured anatomical block. Therefore this technique is rarely used in plastination laboratories.

E12 technic allows to visualize large objects and it is more applicable for educational purposes. E12-M method is more laborious, but it opens up new opportunities for studying microanatomical structures and metal implants. Therefore it is more interesting for clinical research.

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