

Morphological Study on the Skin of Medieval Children Mummy

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Although there has not been any tradition of making the mummies on purpose, well-preserved mummies were recently found in the medieval tomb of Chosun Dynasty(1392-1910) in Korea. As general conditions were not adequate for natural mummification, the excavation of these mummies presents a special meaning for study on the physical status of medieval Koreans. Recently, two cases of mummies were officially reported during the investigation for the preparation of the constructions: Yangju(2001), Paju(2002)

In 2001, a mummified male child was discovered in Yangju, Gyeonggi province, Korea, during the traditional reburial process for the deceased. And a number of researchers tried to reveal the general characteristics of the mummy using various scientific techniques.

The purpose of this study was to describe the general state of preservation of the mummified skin tissues using histochemical staining and ultrastructural method. We performed H&E stain and histochemical stains such as Masson's trichrome stain, Verhoeff's elastin stain. also observed of fine structure of skin using transmission and scanning electron microscopy.

Result

Recently, there have been some reports on the mummies from the medieval tombs in Korea which were not made on purpose. There were not any reports on this subject until now. In this study, we first tried to investigate the various tissue using light- and electron-microscopic techniques. In the dermis, the characteristics of the fibers to be seen most of them seemed to be collagen fibers. judging from their ultramicroscopic morphology. we clearly observed the cross striations, which are typical characteristics of the collagen fibers. In the hypodermis, we could localize the remaining vessels. The remains of the cells showed a typical degenerative pattern such as compacted chromatin showing identified edges of the clumps and no discernible cytoplasmic organelles in the cytoplasm. As similar cases are frequently reported nowadays, invaluable data on the physical status of the

medieval Koreans could be attainable if systemic investigation could be performed on similar cases which are found in the future.

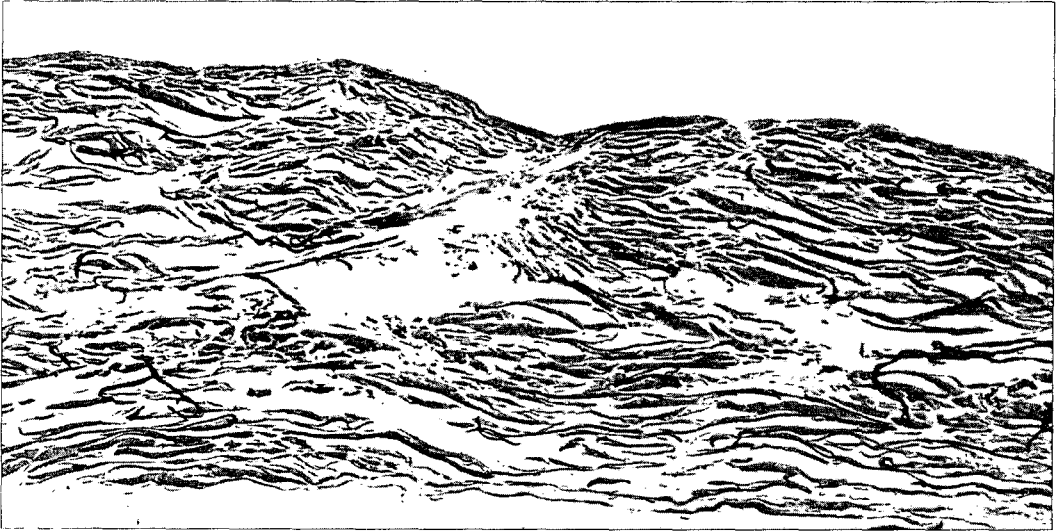


Fig. 1. The general microscopic appearance of mummified skin. Note that the relative ratio of each layer in mummified skin was different from that of the normal tissue.

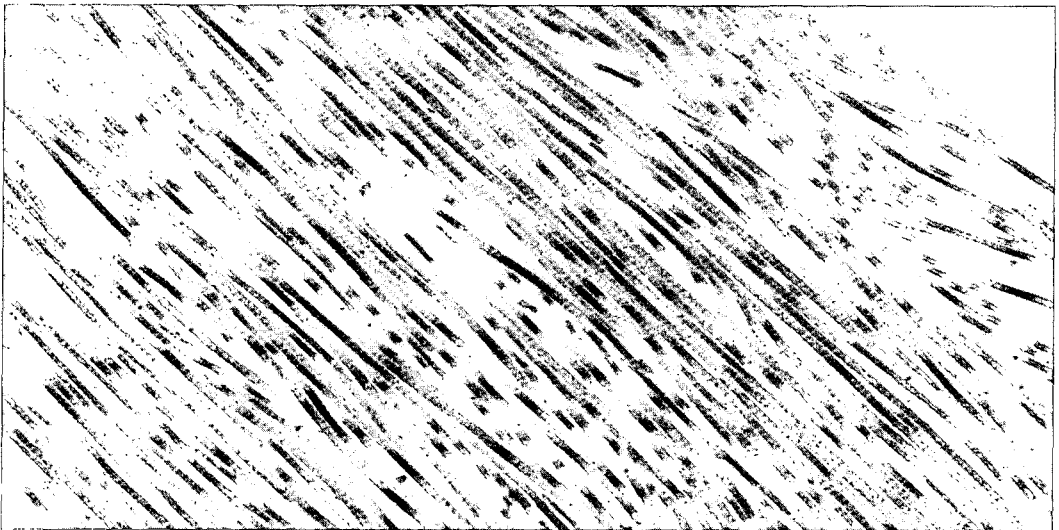


Fig. 2. Transmission electron microscopic result for the structure in dermis which are typical characteristics of collagen fiber.



Figs. 3, 4. Skin observed with scanning electron microscope showing the remaining vessel and cells