



## Pathology/Biology Section - 2015

### H95 A Scream From the Past: A Multidisciplinary Approach in a Concealment of a Mummified Corpse

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After attending this presentation, attendees will understand the necessity of a multidisciplinary approach in solving difficult forensic cases such as mummified bodies.

This presentation will impact the forensic science community by showing the methodological approach in cases in which mummified bodies are found.

Mummification is a drying of the tissues in place of liquefying putrefaction. During mummification, water evaporates from tissues, preventing bacterial putrefaction. Mummification commonly occurs in a dry environment, preferably with a moving air current; this is usually, but not exclusively, a warm place with a specific degree of environmental oxygenation. More recently, the discovery of a mummified body in a domestic environment is rare and is generally due to the subject's social isolation while alive.

An 83-year-old white male was found mummified and sealed with tape, covered by two plastic bags, and walled within a masonry ledge built inside his bedroom. The mummification process occurred in an environment characterized by the rare process of the *Anaerobiasis mummies*.

In this case, during the police investigation of an apartment in the suburbs of Rome, a silicon-sealed door on the 2nd floor was found. Upon opening the door, a messy bedroom with a silicon-sealed window was discovered. The floor was dirty, covered with white-colored dust and rubble. In one corner of the room, an abnormal protrusion in the wall was observed. Once the ledge was demolished, a dead body in a semi-supine position with the back on the floor and the legs on the wall was found inside. Two plastic bags covered the body. Once the plastic bags were removed, the body was entirely wrapped in brown adhesive tape. No microfauna near the body were observed. The apartment owner said the body was that of his father who died two years previously of cardiovascular disease. After the father's death, the son concealed the corpse in order to obtain his annuity retirement benefits.

Upon external examination, the skin showed a dry appearance with a yellow to brown color and a leathery consistency. No traumatic injuries were present on the body surfaces. Dewatering mold spores were observed on the body surface, especially on the feet.

A postmortem computed tomography scan was performed before the traditional autopsy. The 3D rendering of the Digital Imaging and Communications in Medicine (DICOM) images using the open source software Osirix® on a MacOSX® computer was produced and revealed no traumatic injuries. At the postmortem examination of the heart, significant atherosclerosis involving left anterior descending and the left circumflex coronary arteries was present. Toxicological analyses on the organ samples were negative for drugs and alcohol. At the microscopic examination of the skin of the hand, forearms, and legs, no injuries or other anomalies were observed. At the microscopic examination of the heart, strongly decomposed tissue with interstitial fibrosis and wavy fibers was observed, consistent with an acute ischemic injury. The cause of death was due to atherosclerotic cardiovascular disease and the manner of death was pronounced as natural.

A natural mummification process usually requires 6 to 12 months in adult subjects to be completed, and an environment with hot, dry, moving air is required. In this case, the body was completely mummified despite these environmental conditions not being present. As the body was completely wrapped in tape and walled in, an anaerobic environment could be inferred. Aufderheide underlines how exclusion of air would enhance preservation due to the inhibition of the putrefactive processes. At the same time, a casing that covers the corpse protects it from insects and scavengers.



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When a mummified body is found, the manner of death could be related to accident, suicide, homicide, and/or concealment of a corpse. On the one hand, forensic pathologists must know that a complete mummification process can occur in special environmental conditions, different from what is described in literature. On the other hand, when a mummified body is found, a multidisciplinary approach is required in order to reach the correct diagnosis. Thanks to the data concerning the crime scene, the autopsy findings, the radiological examination before the autopsy, and the histopathological and toxicological analyses, the resolution of a case can be possible even many years after the death of the subject.

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### **Mummification, Concealment, Multidisciplinary Approach**