

## Friar Leopoldo Mandic (1866–1942): the computed tomography of the body of a Saint

Veronica Macchi<sup>1</sup> - Andrea Porzionato<sup>1</sup> - Aldo Morra<sup>2</sup> - Carlo Macchi<sup>1</sup> - Silvia Chiarelli<sup>3</sup> - Paola Scalella<sup>1</sup> - Nazzareno Gabrielli<sup>4</sup> - Lineo Tabarin<sup>1</sup> - Padre Flaviano Gusella<sup>1</sup> - [Raffaele De Caro](#)<sup>1</sup>

<sup>1</sup>Istituto di Anatomia, Università degli Studi di Padova, Padova, Italia – <sup>2</sup>Servizio di Radiologia, Eugenea Medica, Padova, Italia – <sup>3</sup>Istituto di Anatomia Patologica, Università degli Studi di Padova, Padova, Italia – <sup>4</sup>Musei Vaticani, Vaticano, Roma.

Post-mortem Computed tomography (CT) is an imaging technique for documentation and analysis of consecutive autopsy findings, including fractures and gross tissue injuries. Various post-processing techniques can provide strong forensic evidence for use in legal proceedings. On the other hand, this technique is implied also in paleopathology, in particular in mummy studies, with the aim of providing a permanent record of the mummy's features, investigating the embalming procedure employed and analyzing the extent of the preservation in detail. For the Extraordinary Jubilee of Mercy, the mortal remains of Saint Leopoldo Mandic and Saint Pio da Pietrelcina, as examples of Mercy known by everyone, have been brought to Rome from 3 to 11 February. During the survey that preceded the preparation for transport to Rome, a whole-body CT was performed on the mummified corpse of Leopoldo Mandic, Capuchin Saint of Padova, Italy. The CT examination demonstrated the presence of arthritis at the level of the vertebral column, of the left knee and of the hand. Moreover, CT showed the preservation of skeleton, and partial preservation of the brain, ear ossicles, major arterial vessels (aorta and carotid arteries), pleurae, esophagus, heart, urinary bladder, nervous structures (plexuses and spinal nerves). Pseudo-pathologic changes, primarily postmortem skeletal dislocations were also present at the level of the hip joints. It is to emphasize the fact that San Leopoldo was not subjected before the CT to any conservative treatment, with the exception of a surface treatment with celluloid. CT demonstrated to be a non-destructive method to investigate Saint Leopoldo, in order to maintain the integrity of the body and to acquire data on his pathologies and on his preservation. CT allows not only the acquisition of sectional images but also, thanks to dedicated software, the post-processing and reconstruction of three-dimensional models, that can be used also for public displays.