In 1891, three large carved stucco relief panels were removed from the chapter room of the abolished Convent of Nossa Senhora da Piedade da Esperança in Lisbon, Portugal, and handed over by Lisbon City Council to the National Museum of Fine Art and Archaeology (MNBA), now called the National Museum of Ancient Art (MNAA). They were probably commissioned by the household of Queen Catarina of Habsburg, wife of King John III, and were identified as depictions of the Lamentation of Christ, the Miracle of St. Clare, and St. Francis receiving the Stigmata. However, the latter was lost during the delicate process of removal from the wall, while the two remaining panels were wrongly classified as terracotta polychrome sculptures and placed on display at the MNAA in at least 1911, though they are now currently covered up. The unique character of these artistically remarkable 16th-century stucco sculptures within Portuguese national heritage justified a project to restore and conserve them in the aim of putting them back on display. In November 2021, a multidisciplinary team was put together to undertake the conservation and restoration of the Lamentation of Christ panel with the central depiction of the Pietà. This team consisted of conservators and art historians from the MNAA, conservation consultants from the José de Figueiredo Laboratory of the Directorate General for Cultural Heritage (DGPC), and, for the scientific research, the Hercules Laboratory of the University of Évora. Discovered under several past interventions was an original colorful painting: several partially re-polychromed layers under a thick brownish layer resulting from an artificial patina. Through the cleaning and overpainting removal processes, it was possible to obtain new information about coetaneous pictorial surfaces, the composition of the support, and the remarkable technical complexity of the carved modeled and painted parts. When observing the relief, especially noticeable is the unusually dynamic work of both sculpture and painting, where the latter overflows the former to complete the representation and/or add depth. The support was confirmed to consist of stucco, in which the final shaping layer is composed of a mixture of calcium sulfate and calcium carbonate over a lime mortar. This highlights the similarity with the techniques of Italian Renaissance sculpture, just as the painting reveals the similarities with the High Renaissance style. Besides the use of poor materials, on both the support and in the pigments, the skill of the artist prevails in this monumental masterpiece. With the removal of later additions, it became possible to look again at its original aesthetic style and to update our understanding and enjoyment of the art from this period. In this context, the panel is unparalleled in Portugal, making its scientific study and the understanding of its techniques even more important, as it contributes to enrich our knowledge of 16th-century sculpture in the Iberian Peninsula and to the dissemination of this knowledge throughout the museum.