



## Original article

# The Untold Life of Anna Morandi Manzolini: The Mother of Anatomy

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Historical narratives have traditionally reflected predominately male perspectives and exploits (1). This, unfortunately, has led to the overlooking and minimizing of women's contributions, a phenomenon particularly evident in academic settings (2). Historian Margaret Rossiter (1944-present) describes this historical erasure of women as the "Matilda Effect" (3). Yet even in these restricted spaces, many women overcame the barriers to join the ranks of scientists, artists, and more. Anna Morandi Manzolini (1714-1774), hereafter referred to as Morandi, was one such figure. By reconstructing Morandi's story from the limited sources available, we can appreciate her profound contributions to the field of anatomy, a critical part of the foundation for modern medicine.

Anna Morandi lived during the Enlightenment Period, an intellectual and cultural movement in seventeenth- and eighteenth-century Europe that emphasized reason, science, individualism, and skepticism of traditional authority. The Enlightenment also sparked reform movements beyond Europe, influencing developments in Russia, China, Japan, and the Ottoman Empire. While France is often regarded as the heart of the Enlightenment, just southeast of France lies Bologna – a northern Italian city that emerged as an intellectual hub.

At this time, Italy was made up of numerous independent states and territories, with much of the central region, including Bologna, governed by the Papal States (4-5). The Catholic Church maintained a complex and often tense relationship with the Enlightenment and the novel ideals and philosophies emerging from it; many of these directly challenged the Church's authority. In response to the rise of secular thought, the Church condemned various philosophies and upheld the *Index Librorum Prohibitorum* (Index of Forbidden Books) (6-7). This conflicted stance persisted throughout the Enlightenment era. Bologna, as part of the Papal States, had a strong presence of the Church, yet it still flourished during the Enlightenment, primarily due to the work of Pope Benedict XIV (1675-1758) (8-9). He was a strong supporter of both the city of Bologna and scientific advancement. In opposition to the Church's views, he argued against the creation of the *Index Librorum Prohibitorum*. The unsuspecting city of Bologna advanced under Pope Benedict's guidance, as he promoted a series of reforms and innovations (8-9).

Working with Luigi Ferdinando Marsili (1658-1730), Pope Benedict helped establish the Institute of Science in Bologna just three months after Anna Morandi was born (9). He believed that Bologna's past glory could be revived through academic success, so he invested time and money into the creation of the Institute. Historically, Bologna had a strong presence of scientists and artists, creating the perfect environment for collaboration between the two. Reviving this glory allowed people who stood at the border between science and art to flourish, such as Anna Morandi. Her success, however, remained constrained by the social limitations placed on women during the Enlightenment.

While the world underwent dramatic evolution during the Enlightenment, women still had finite opportunities. Women were excluded from academic institutions, which remained exclusively male (10-11). Their roles were largely restricted to the domestic sphere, and many who contributed to intellectual life were marginalized and ultimately forgotten by history. Across all social classes, from the affluent to the working poor, the primary goal for women was to secure a suitable marriage (10). Consequently, their education was narrowly tailored to serve this end, focusing on letter writing, needlework, basic literacy, and art history to enable polite conversation with men. Women of higher social status typically received an expanded education, including the basic sciences, whereas women from lower social classes would

have had little to no formal education.

From humble beginnings, Morandi forged her path to become a preeminent artist and scientist. She was born on January 21, 1714, into the lower-middle-class family of Rosa Giovannini and Carlo Morandi. Little is known about her early life due to a lack of historical documents prior to her marriage in 1736. However, historians have found her referenced in other documents, letters, and articles. From these, her artistic talent is presumed to have predated her marriage, but the origins of her familiarity with science and anatomy are unclear. Given Morandi's social standing, she likely had some exposure to basic reading, writing, and the arts. One document from the Bolognese senator Marcello Oretti (1714-1787) indicates that Morandi was an artist before her marriage, as he references her early artwork as "storiated paintings and excellent copies of the masters" (9). Another source reports that she studied drawing and sculpture under local artists Giuseppe Pedretti (1697-1778) and Francesco Monti (1685-1768), in whose studio she met Giovanni Manzolini (1700-1755), her future husband (12-13).

Before the popularization of wax sculpting, anatomical illustration was the preferred method for recording dissections. Notable figures such as Vesalius (1514-1564) and Gerolamo Fabrici d'Acquapendente (1533-1619) published numerous anatomical illustrations that guided dissections and were used to teach medical students (14-16). However, the complex history of surgery, coupled with widespread unease regarding the subject, caused many to completely discount the illustrations as well (17). Moreover, despite their realism, anatomical drawings could not replicate the spatial depth that three-dimensional models offered. Anatomical illustrators often relied on captions to overcome the limitations of their two-dimensional medium. In contrast, wax modeling, free from these constraints, gained recognition for its educational value, particularly at a time when the preservation of dissected tissue was not possible. In the late 16th century, the evolution from illustrations to sculptures began. Pope Benedict promoted the transition in Bologna by erecting wax sculptures created by Ercole Lelli (1702-1766) in the Institute of Science (9,13,18). Their partnership laid the foundation for anatomical sculpting in Bologna.



Image 1. Anna Morandi, *Apparto Genitale Femminile*, 1746, Sistema Museale di Ateneo

Image 2. Anna Morandi, *Feti Gemelli Nel Sacco Amniotico*, 1746, Sistema Museale di Ateneo

Following the revolution in wax sculpting, Pope Benedict launched a campaign to reform Bologna. He prioritized anatomy, of which Ercole Lelli was the most prominent sculptor. Working alongside Lelli was Giovanni Manzolini, Morandi's husband. Abruptly, Manzolini left the studio after a dispute over credit for a body of work (12-13). He then created a home studio that contrasted Lelli's stylized work by focusing on realistic pieces that emphasized educational accuracy. Anna Morandi became his assistant and student; this marriage served as a catalyst for her career. Working as partners, they gave lectures, public demonstrations, and created hundreds of sculptures for varying purposes. Medical students and curious bystanders were enthralled with their work as it was

both beautiful and informative. With a focus on the reproductive organs, the Manzolinis worked with the obstetrician Giovanni Galli (1708-1782). They created 20 different models depicting the womb during an active birth, a one-of-a-kind collection that was displayed in Galli's school (9,19-21; Images 1-2).

As time passed, Morandi's natural talents for sculpting and teaching were increasingly evident, and she became the public face of their studio, while Manzolini worked in the background. Her skill as an orator was matched by her growing artistic precision, which enhanced her reputation. Hundreds flocked to the Manzolini home studio to witness the work of the "Lady Anatomist," whose talent, presence, and position as a woman made her a notable figure in Bologna.

Although her presence in a male-dominated field may initially have drawn attention, it was her technical expertise that ultimately established her in the field. Unlike many of her counterparts, Morandi prioritized anatomical accuracy. Anatomical sculpting lies at the intersection of art and science, yet artists commonly favored aesthetic interpretation over strict anatomical accuracy. Ercole Lelli serves as a typical example of this approach. In his eight-piece series depicting Adam and Eve, Adam is portrayed with a tall, muscular build and powerful posture, while Eve appears slender and reserved, positioned as if withdrawing from the viewer (Image 3-4). While anatomically accurate, Lelli depicted these idealized archetypes of

man and woman, favoring an aesthetic depiction. “The works by Ercole Lelli represented the artistic gold standard of the Bolognese wax modeling school, while those of Anna Morandi Manzolini attained an absolute anatomical accuracy” (23). Morandi’s approach to anatomy allowed her to create pieces with precision and intricacy while maintaining their life-like beauty. Together with her husband, they used human bones as a base for their sculptures, focusing on individual organs or body parts, which enabled them to create more precise renditions (9,22; Image 5-6). This allowed their wax re-creations to take on incredibly realistic forms. After a careful dissection, the bones would be cleaned and then used as a base for the multiple layers of wax. In some pieces, the bones were left visible to showcase specific intrinsic muscles (Image 6). This technique garnered the Manzolini studio fame in the medical and artistic community. Their studio became a place where individuals could witness informative dissections and learn anatomy from varying sculptures.



*Image 3. Ercole Lelli, Adam and Eve, 1742, Sistema Museale di Ateneo*



*Image 4. Ercole Lelli, Adam and Eve, 1742, Sistema Museale di Ateneo*



*Image 5 Anna Morandi, Avambraccio, 1775, Sistema Museale di Ateneo*



*Image 6. Anna Morandi, Avambraccio, 1775, Sistema Museale di Ateneo*

Morandi was exceptionally methodical, tediously dissecting each layer and recreating it as a lifelike sculpture. A fellow Italian scientist, Luigi Galvani (1708-1782), commented that her models “perfectly imitated nature” (13). To obtain this level of detail, she would focus on a single anatomical structure, adding depth and precision that mirrored surgical practice. Her sculptures included distinctive bodily features, such as veins and birthmarks, capturing the individuality of the human form. Due to her expertise, the University of Bologna asked her to lecture in her husband’s place when he fell ill (9,12).

The 18th century was a time when women learned needlework, not dissection. Defying gender stereotypes, Anna Morandi forged a future for herself and helped pave the way

for women in science. Her difficulties were compounded by tragedies in her family; only two of her eight children survived to adulthood, and upon the death of her husband, Morandi’s financial circumstances sharply declined. Although Morandi lectured at the University, she was never granted the title of professor. No university offered her tenure, and positions at prestigious institutions were not available to her. Instead, she continued teaching students from her home and relied on private commissions.

Following her husband’s death in 1755, Morandi was offered a position abroad but was reluctant to leave Bologna, so she appealed to Pope Benedict. Knowing her reputation and potential, Pope Benedict offered Morandi an annual salary of 300 lire to remain in Bologna and continue her work (19). Although this support allowed her to stay in her hometown, the modest compensation still left her in a con-



stant struggle against poverty. As the Lady Anatomist, Anna Morandi, gained recognition for her work, Pope Benedict granted her the title of *accademico d'onore* (honorary professor) at the University of Bologna (13). Additionally, she was awarded an honorary membership to the University of Clementine's Institute of Art and inducted into the Florentine Academy of Design (21-22). Notably, Morandi's positions were all 'honorary'. An official teaching role with proper compensation was never offered. Despite her international recognition and exceptional skill, Morandi remained constrained by the societal expectations of her time. Though she was permitted to engage with the scientific community, she was never regarded as an equal.

With her limited income, Morandi was unable to support herself and her two sons. Out of desperation, she entrusted her son, Giuseppe, to the Oratorio di S. Bartolomeo di Reno, a religious complex that functioned as a children's home. Giuseppe was later adopted by Count Flaminio Solimei (n.d.-1758), who sought an heir to continue his lineage (9, 12). Morandi's continued efforts to improve her financial situation led her to sell her sculpture collection to Count Girolamo Ranuzzi (1724-1784) and accept his offer to reside and work in his palace. He would eventually purchase her entire collection of wax figures, her library of anatomical atlases and texts, as well as her personal dissection and sculpting tools. Morandi continued lecturing in her new apartment and to notable international figures, including Joseph II, Holy Roman Emperor (1741-1790), Catherine II of Russia (1729-1796), and the Royal Academy of London, until her death in 1774 (9, 12-13). Shortly after Morandi's passing, her collection was scattered: sculptures were donated to the Institute of Science or the Bolognese Senate, others collected by her sons, and some lost to time.

Anna Morandi pioneered a new standard of precision in anatomical sculpture, profoundly shaping the future of medical modeling. Her work informed and educated medical students, physicians, and scholars, many of whom benefited from her expertise without ever knowing her name. Though her story remains largely untold, her legacy endures through the sculptures she left behind.

In her self-portrait, Morandi creates a striking image: she looks directly at the viewer, adorned in a pink gown and pearls while confidently wielding a scalpel over the brain—the body's most vital organ. This image captures both elegance and authority, standing as a powerful testament to her life and legacy as the Lady Anatomist.



Image 7. Anna Morandi, *Nessun Titolo*, 1755, Opificio delle Pietre Dure, Florence

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### **Brief Biography**

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