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Chronic mastitis or breast cancer in *The Charity* by Francesco Salviati? An educational discussion

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Abstract. In the present communication, the painting *La Carità (The Charity)* by Francesco de Rossi, also known as Salviati (1510-1563), is examined from a multidisciplinary perspective, combining the following disciplines: human anatomy, palaeopathology and history of art. In the impossibility to establish a final diagnosis due to the artistic nature of the artwork, the anatomical alterations found on the iconographic representation are discussed in light of two alternative hypotheses, namely chronic mastitis or breast cancer. Once more the intersection between medicine and art can be found to be of excellent use both for increasing the ancient record of diseases and in an educational effort to train the eye of future physicians.

Keywords: art and medicine, breast cancer, chronic mastitis, human anatom, palaeopathology.

INTRODUCTION

Women's breasts have always had a powerful impact on collective imagination due to its double role linked to maternity and femininity (Pluchinotta, 1985; Bianucci & Nerlich, 2022). Over the past decades, biomedical scholars have intensively focused their attention on the shape and the morphology of breasts in works of art with the scope of identifying the antiquity of senolog-

ical diseases. This led scholars to propose several cases of breast pathologic conditions in statues, paintings and engravings (Grau et al. 2001, Grau and Estrach, 2008, Vaidya, 2007; Sosa, 2007; Lazzeri et al., 2016; Bianucci et al., 2018; Perciaccante et al., 2019, Nerlich et al., 2022). Often these initial diagnoses were challenged. This was, for instance, the case of Margherita Luti, known as “*La Fornarina*” painted by Raphael in 1520. While Espinell (2002) claimed that “*La Fornarina presents signs (in the left breast) that are not only diagnostic but also allow staging of the malignancy*”, Gross (2004) showed that Margherita Luti lived at least one to two years after having been depicted by Raphael. She, then, entered a house for solitary women. An exceptional long-term survival of a late-stage cancer would have been inconsistent with an untreated pathology. Similarly, Gross challenged other two cases of proposed left breast cancers in Rembrandt’s “*Bathsheba*” (1654) [the model, Hendrickje Stoffels, was Rembrandt’s wife; she lived 9 years after the completing of the canvas and died in 1663] (Braithwaite and Schugg, 1983) and in Rubens’s “*The Three Graces*” (1630-1635). A left breast cancer of the third Grace, on the right of the canvas, was diagnosed by Grau and co-workers in 2001. However, the model with the apparent pathological evidence of malignancy was Hélène Fourment, Rubens’s wife. She died in 1673 thus surviving the attributed breast cancer for 30 years (Gross, 2004). More recently, Lefrère and co-workers (2024) pointed out several pitfalls in the iconodiagnosis of abnormal senological features in examining Dürer’s *Eve* (1507), the Le Nain brothers’ *Venus in Vulcan’s forge* (1641) and James Barry’s *Jupiter and Juno on Mount Ida* (1790-1799). They also underlined the need to perform diagnosis of exclusion in particular when pathographical data are lacking.

Although senological abnormalities in the artistic canon may suggest breast tumours, pathological tumour mimickers have to be considered as differential diagnoses. As a matter of fact, various types of inflammation (lactational mastitis, chronic non-puerperal mastitis, including tuberculous mastitis), adenofibromas, cysts and other benign lesions may have the same initial presentation (Lefrère et al., 2024).

Here we describe an abnormal morphological presentation of the right breast in the painting *La Carità* (*The Charity*) by Francesco de Rossi, also known as Salviati (1510-1563) (Figure 1).

METHODOLOGY

The painting is examined by adopting the principles of iconodiagnosis as applied to the palaeopathological study



Figure 1. *La Carità* (Inv. 1890/ 2157), ca. 1545, oil on panel, 156 x 122 cm, is held by the Uffizi Gallery (Florence). Reproduced with permission.

of disease and the training of future medical generations (Charlier et al., 2023; Galassi et al. 2023; Rühli et al. 2016).

RESULTS

In the visual arts, this allegory of a Theological Virtue is sometimes represented as a woman with bare breasts, symbol of the unconditioned love that she gives to others. This type of artistic representation reminds of the exemplary tale of the *Caritas Romana* (which was rooted in the Greek one), where a young woman, Pero, secretly breastfeeds her incarcerated father, Cimon, who had been sentenced to death by starvation. The Latin tale is contained in the book *Factorum et dictorum memorabilium, libri ix* (“Nine Books of Memorable Deeds and Sayings”, ca. 31 CE) (<https://www.thelatinlibrary.com/valmax9.html>) by the Roman historian and moralist Valerius Maximus (1st century CE). This tale had a huge impact and popularity in the Late Middle Ages and the Renaissance.

According to traditional iconography, Salviati’s *Charity*, a young woman, dressed in red, shows her right

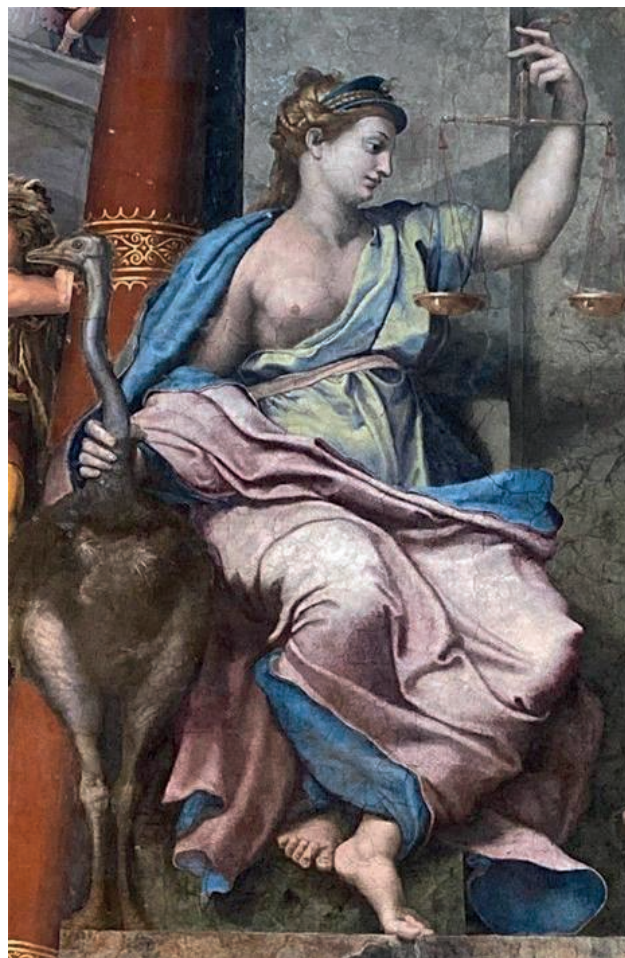


Figure 2. a: Statue of the *Venus Genetrix* type held by the Ducal Palace in Mantua. Originally owned by the Roman antiquarian Giovanni Ciampolini at the beginning of the 16th century, the statue was brought to Mantua by Giulio Romano in 1526 (Haskell & Penny 1984, 495 n° 91, 23-25; Viljoen 2001, 395; Gorrini 2008, 195-202); b: According to the results of the last restoration (Cornini 2020, pp. 277-280), the oil painted image of *Iustitia* was depicted by Raphael himself on the walls of the Room of Constantine in the Vatican Museums.

breast in the pose of breastfeeding. In this case, she does not feed either a father or a mother, but she is surrounded by three children.

The shape of the Charity's visible breast imitates similar anatomical details of some antique Venuses (Figure 2a) and of Raphael's fresco, *Justice (Iustitia)* in the Room of Constantine (Vatican Museums), recently restored and definitively attributed to the master (Figure 2b) (Mendelsohn 2001, pp. 108-130, 134-148; Haskell & Penny 1984, p. 495 n° 91, 23-25; Viljoen 2001, p. 395; Gorrini 2008, pp. 195-202; Cornini 2020, pp. 277-280).

On higher magnification and detailed inspection of the painting a well-formed female breast presents with precise morphology. The nipple, which is neither retracted nor fissured, appears slightly erected and the orifice contains minimal traces of a whitish fluid, such as a

small milk droplet. In contrast, the adjacent areola presents in its medial inferior quadrant a tiny defect such as seen in a small fistula. This seems associated with an ovoid lump that slightly bulges the skin, but there is neither ulceration nor any discoloration or reddening of the skin (no evidence for "peau-d'orange"). On further inspection, in direction to the axilla, there exists a second lump with smooth surface and without any coloration or defect of the overlying skin. This is positioned just medially to the usual small fat pad that is seen in numerous regular axillae (Figure 3).

A comparison between photographs taken before and after the restoration of the painting shows no differences in the depiction of the breast. Whether an underdrawing was found in pre-restoration investigations is not known, since the Archivio Restauri of the Uffizi is



Figure 3. Close up of The Charity's right breast shows the details of the painting: While the nipple seems indurated (blue arrow), there is a small fistula at the areolar margin (asterisk) which is adjacent to a lump of the lower inferior quadrant (red arrows). Additionally, there is a second lump in direction to the axilla (green arrows) superior to the usual axillary fat pad.

temporarily inaccessible (<https://www.wga.hu/art/s/salviati/1/charity.jpg>; <https://www.uffizi.it/opere/carita>; <https://www.uffizi.it/pagine/ufficio-restauri>).

DISCUSSION

The interpretation of the aforementioned observations is particularly difficult and requires a balanced differential diagnosis – as far as possible in iconodiagnostic settings. These include, beyond biomedical evaluation, the evaluation of artistic influences, style and historic settings. When these rules are applied to the canvas under discussion, we observe that the painting provides an extremely realistic image of a female breast in a young woman with distinct pathological alterations. Therefore, the mere representation of an artistic canon can be excluded. Moreover, there is also no apparent evidence for any modification of the canvas, such as during restoration processes. Accordingly, the image can be attributed to distinct pathological changes. These comprise an areolar fistula, a circumscribed lump of the medial inferior quadrant and a “swelling” in direction to the axilla. There is no retraction of the nipple, no discoloration of the skin and no ulceration. The two major differential diagnoses comprise breast cancer and breast inflammation.

When taking mastitis into account we have to regard firsthand arguments of a presumed lactational

status of the young woman. In this case, an inflammation (mastitis) may be taken into account as there seems to be an areolar fistula. However, acute (puerperal) mastitis usually causes a reddening of the skin, which is absent in the image.

The next possible differential diagnosis may be chronic (non-puerperal) mastitis. This may include the fistula and both lumps – taking reactive lymph node swelling as possible reason for the axillary lump into account. However, non-puerperal mastitis is usually seen in older women; this may also include tuberculous mastitis which may have very long-standing progressive clinical courses (Nicholson et al., 2009).

So finally, the most important differential diagnosis must be breast cancer which usually presents with a breast lump, as shown in the canvas. Furthermore, the axillary lump may represent a putative axillary lymph node metastasis. A fistula is not a typical feature of breast cancer, which in turn, would usually present with either an ulceration and/or reddening and infiltration of the skin (termed “peau-d’orange” in the so-called “inflammatory” variant of breast cancer). Neither of these typical features is seen, and, furthermore, breast cancer is very rare in young women. A study of untreated historical breast cancer cases (covering the years 1804-1933) revealed only 0.8% of cases in the age group between 20 and 30 years (Bloom et al., 1962), which is the most likely age group of the *Charity*.

Finally, as a special type of breast cancer, Paget's disease of the breast has to be discussed. This rare form of breast cancer affects the nipple and/or the areola; this type of cancer is prevalent in women aged over 50. This presentation results from a non-invasive infiltration of nipple/ areola from a mostly non-invasive “in-situ” breast carcinoma (Hamzah et al., 2019). This type of breast cancer can be ruled out in the canvas since the nipple and the areola do not show any of the aforementioned signs.

CONCLUSIONS

In summary, Salviati's painting represents an impressive example of the challenges scholars are faced with when dealing with breast pathology. None of the criteria of the aforementioned differential diagnoses fits to 100% with the image; however, taking young individual age and the pathological feature into account, a persistent chronic (puerperal) mastitis may be the most likely diagnosis, although an early form of an aggressive breast cancer (in an unusually young woman) cannot be fully excluded. A conclusive diagnosis cannot be reached since the identity

of the model is unknown and, therefore, pathographic data are absent (Charlier et al., 2023; Rühli et al., 2016).

In 2018, we identified two 16th century probable cases of breast cancer depicted by Maso da San Friano (*The Allegory of Fortitude* painted in 1560-1562, Galleria dell'Accademia, Florence, Italy) and Rodolfo del Ghirlandaio (*The Night* painted in 1555-1565, Galleria Colonna, Rome) (Bianucci et al., 2018).

While later studies confirmed the diagnosis of nipple breast cancer in *The Night* by Rodolfo del Ghirlandaio (1483-1561), the case of *The Allegory of Fortitude* has been challenged (Nelson, 2021).

Actually, an examination of the *Allegory of Fortitude* after its restoration in 2003, which removed yellowed patinas and later alterations, shows visible *pentimenti* on the right side of the torso, retouchings which turned transparent over the years, thus calling the previous hypothesis into doubt (Falciani & Natali, 2017, pp. 266-267). It should be noted that Maso da San Friano was influenced not only by Michelangelo (as was Salviati, who probably recalled the breasts of Buonarroti's *Night* while painting the *Charity*), but also by Pontormo and Rosso Fiorentino, Mannerist painters whose female figures often have asymmetrical breasts - see Pontormo's *Leda and the Swan*, Rosso Fiorentino's *Death of Cleopatra* (Cheney 1991; https://it.m.wikipedia.org/wiki/File:Jacopo_Pontormo_-_Leda_and_the_Swan_-_WGA18073.jpg; https://it.wikipedia.org/wiki/Morte_di_Cleopatra_%28Rosso_Fiorentino%29).

Here we add further knowledge to the accuracy of 16th century representations that have been executed so perfectly, that even breast cancer and/or its mimickers may be identified. This paper highlights the existence of an intimate link between figurative arts and biomedical sciences during Renaissance; this was the period when the study of the human body was a multifold experience that involved both the artist and the man of science who sometimes were the same person as in the case of Leonardo da Vinci.

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